FRIENDLY

RELIABLE

ENERGETIC

NERDY

CLASSY

HEROES

Professional

GRACIOUS

ENGINEERING

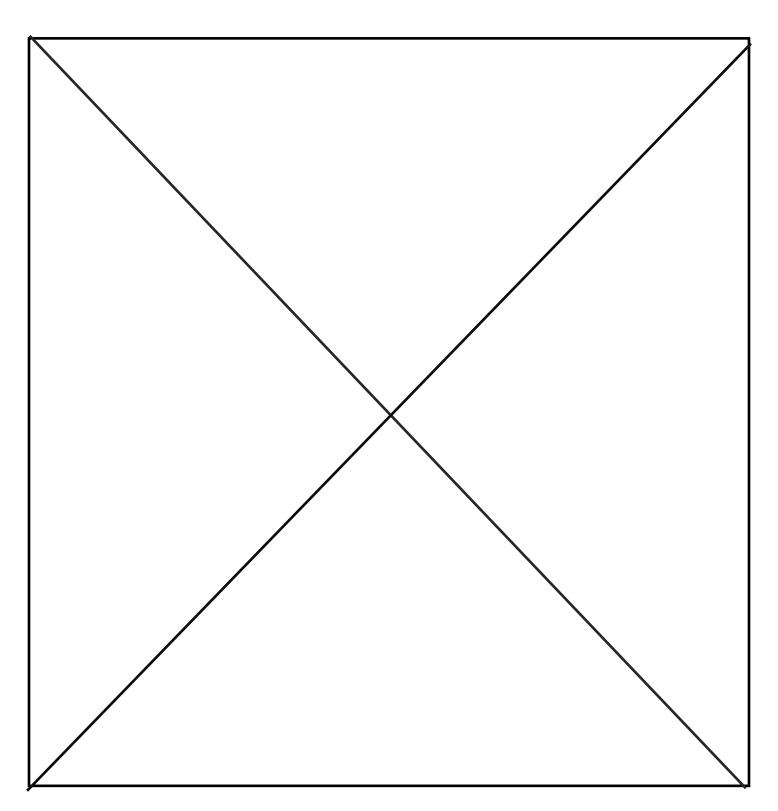
TEAMWORK

TIRST





T.R.I. M.C. H. T.R. L.I. S.



Signature : _____

Date: _____

TABLE OF CONTENTS

Team Summary	3
Our Story	4
Team Members	8
Outreach Activities	11
Engineering Activities	4
Team Plan	5
Appendix	6

TRIENDLY

ELIABLE

ENERGETIC

LASSY

LEROES

PROFESSIONAL

GRACIOUS

ENGINEERING

TEAMORK

TIRST

ToRoto No Cono ToRoloto So

Team Summary

We are Team 7341 - F.R.E.N.C.H. F.R.I.E.S. (Friendly, Reliable, Energetic, Nerdy, Classy, Heros, proFessional, gRacious, englneering, tEamwork, FIRST). We are a Girl Scout team and this year we have 4 members who attend different schools in different cities.

One team member attends Titusville High School, One team member attends Space Coast Jr/Sr High), one team member attends Edgewater Jr/Sr High and the last team member attends Enterprise Elementary School. The girls are also member of different troops within the Ohana Girl Scout Community. As Girls Scouts we believe in sharing our knowledge with others and making the world a better place. Three of our team members started their FIRST journey as members of our sister FIRST LEGO League Jr. B.E.E.s team, which then they joined the FIRST LEGO League C.A.K.E. B.A.T.T.E.R.S team. One of our team members just moved up from the FIRST LEGO League C.A.K.E. B.A.T.T.E.R.S team.

Our team's biggest obstacle are to overcome the fear of programming, and driving the robot with other team on the mat. Our coach did have a few out of state trips, but we were able to continue working on the robot or practice driving. We conquered the picking up of the block under pressure. We still need to work on picking up our team "Marker/Freight" and placing it on top of the Shipping Hub.

Our journey begins with a budget and the search for grants. We have been very fortunate to receive the following grants: Girl Scout STEM, NASA, NDIA, and Lockheed. The Girl Scouts of Citrus allow us to use the FTC parts they had from a previous team. Thank you to all our supporters. We would like to thank all our supporters.

One of our ingenious designs is our box for driver control station. This box helps us to not accidently back out of the program running.

We have created quite a few test programs to help us learn about how the sensors work and react to the robot's environment. The data we learn from the test program are transferred to the operational Teleop and Autonomous programs (T-7).

We have set up our robot with the following motors, attachment and sensors:

	Renee	Data: 1/28/2020
Signature:_	, , , , , , , , , , , , , , , , , , , ,	Date:

ToRoto No Cono ToRoloto So

Team Summary "Continued"

We reviewed several different videos after the reveal and started with the idea of using a claw that would pick up the block from the top, but we found that it would be to difficult to place it in the shipping hub after working with the hub. This claw was similar to the one found in the arcade games. So, we went with a smaller claw that picked up from the side.

- Seven (7) motors, where the 4 Drive Motors have encoders for running autonomous, 1 to raise and lower the arm and 2 to turn the carousels one for each side of the robot.
- Two (2) servos: 1 to hold the freight, and 1 to move the camera
- Two (2) touch sensor which are used to determine the upper and lower limits which stops the motor from moving the arm up and down too far.
- One (3) color sensors, one to detect the color alliance, 1 to detect which position, 1 to detect whether we are going to place the freight in the shipping hub.
- One (1) external camera, used to detect which level the freight is to be placed in the shipping hub.

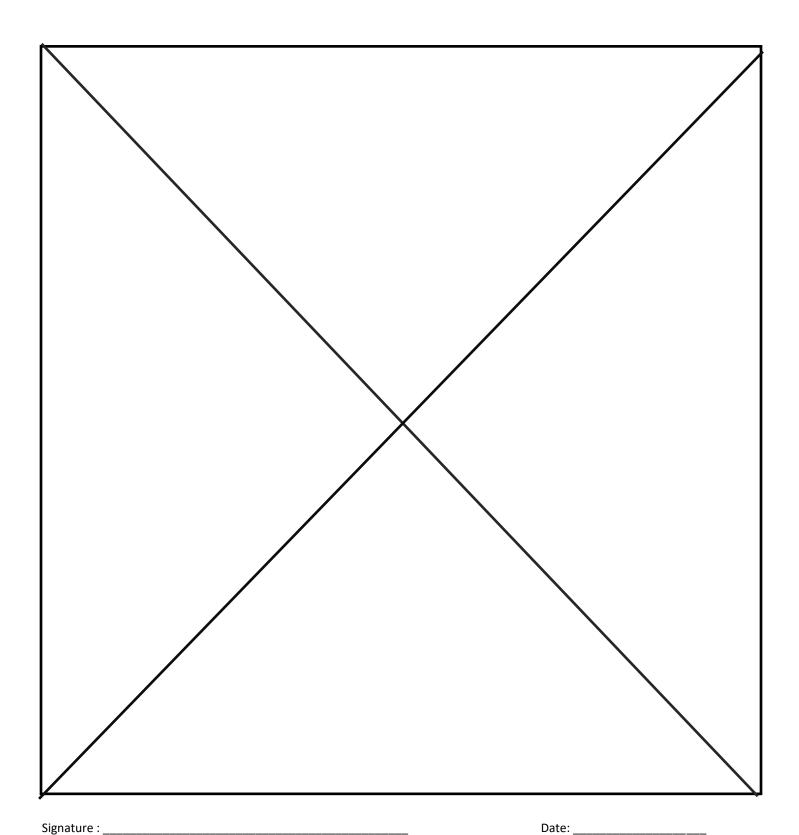
Outreach is one of the activities that we enjoy as we travel between Brevard and Orange Counties supporting the different Girl Scout and community event. We would like to highlight our work for the Veterans.

Thank you for reviewing our Engineering Notebook!

Signature:_	Shelby	 Date: 01/28/2020

Our Story Onk 25049

T.R.I. M.C. H. T.R. L.I. S.



ToRoto No. Como ToRoloto So

Our Story

We are Team 7341 - F.R.E.N.C.H. F.R.I.E.S.

(Friendly, Reliable, Energetic, Nerdy, Classy, Heros, proFessional, gRacious, engIneering, tEamwork, FIRST) and this is our sixth year participating in the FTC program. We where known as the "Minty Matrix" team in FLL and our last project was featured in the "Inventors" magazine (November/December 2013).

We all attend different schools: One of the us attend schools in Titusville (Titusville High); Two attend schools in Port St. John (Space Coast Jr/Sr High and Enterprise Elementary); and last team member attends a school in Merritt Island (Edgewater Jr/Sr High). The girls are also members of different troops. As Girls Scouts, we believe in sharing our knowledge with others and making the world a better place. Two of our team members started as members of our sister FIRST LEGO League Jr. B.E.E.s team. One of our team members just moved up from the FIRST LEGO League C.A.K.E. B.A.T.T.E.R.S team. We are a small but might team.



We are big in doing outreach events. This year again has been tough as these activities have not allowed us to attend because of the pandemic. We did travel from Titusville are to Lake Mary to support one of there outreach events. That same day we supported a photo shoot for the National Girl Scout new uniform reveal. Unfortunately we did not

Signature: Date: January 23, 2022

ToRoto No Cono ToRoloto So

Team Summary "Continued"

make the cut as the background of the shoot was white and the girls were washed out. This was an issue of the photographers. Better luck next time.

Again, this year we wanted to sponsor a FTC Tournament and we joined up with the PACK RATS (Park Avenue Baptist School) but we did not have access to one of the building that we would have used. Maybe we can next year.

We have kept up our social media present posting our robot in action. We hope to continue this through out the year to inspire all teams to keep working with their robots after the season is completed.

We are lucky that our team has two coaches and two engineering mentors that help us by teaching us things from using equipment (saws, planers, drills and more), engineering concepts (math, fractions, angles and physics), software (Android Studio (JAVA), Adobe Premiere (Video Editing) to speaking in front of a group of people. We have learned so much over the past few months. We would like to thank all our sponsors, because if they were not there we would not have been able to build the robot we have today.

So, a **BIG Thank-you** goes out to them as well as the sponsors for the FIRST program: Star Wars, Qualcomm, Rockwell Collins, Virtual Reality and PTC and our sponsors:



TEAM TOA

ToRoto No. Como ToRoloto So

Team Summary "Continued"

The following pages will describe our team and the journey we have taken with our robot "Princess Charlie". One of the things we work at is showing others all about FIRST Core Values as these values are similar in words and the Promise and Law of Girl Scouts. We love the FIRST® philosophies of Gracious Professionalism® and Coopertition®. We use the Core Values:

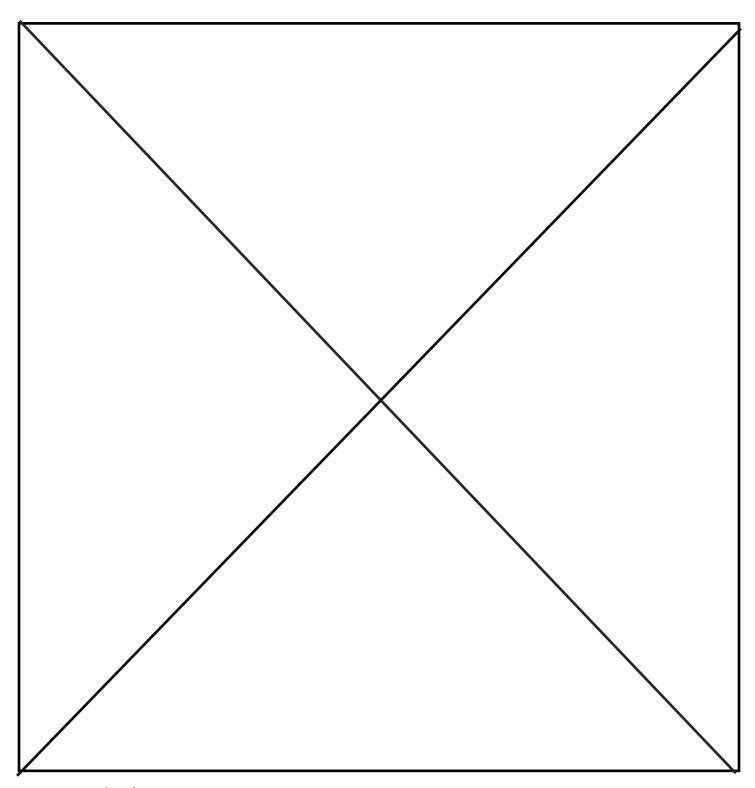
- Discovery—is when we explore new skills and ideas.
- Innovation—is when we use our creativity and persistence to solve problems.
- Impact—is when we apply what we learn/know to improve our world.
- Inclusion—is when we respect each other and embrace our differences.
- Teamwork—is that we are stronger when we work together.
- Fun-is when we enjoy and celebrate what we do!

Gracious Professionalism® FIRST® uses this term to describe our programs' intent and Gracious Professionalism® is not clearly defined for a reason. For us Gracious Professionalism means:

- You help each other out
- You show respect and listen to all
- You are sensitive everyone's thoughts and ideas
- You are always willing to learn more

Signature : _	Cailyn	 Date: <i>January 23, 2022</i>

ToRoto MoCoMo ToRolotoSo

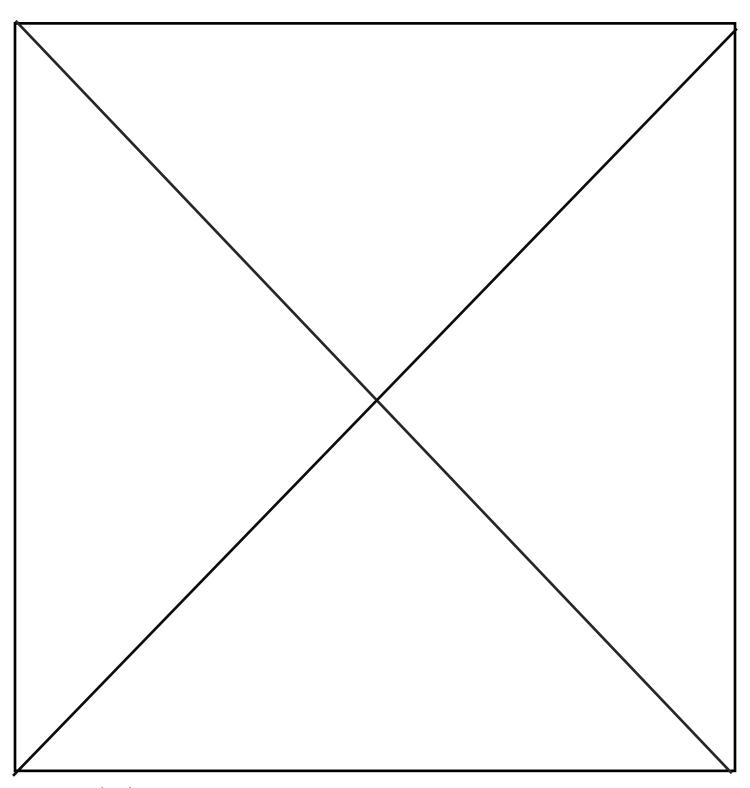


Signature: ____Cailyn

Date: January 23, 2022

ream Section

ToRoto MoCoMo ToRolotoSo



Signature: _____

Date: January 23, 2022

ToRoto No Cono ToRoloto So

Team Members

Cailyn



Cailyn is a student at Edgewood Jr/Sr High. Her nickname is CAT (also her initials). She likes robotics because she is interested in the science and engineering field, as well as the artistic field. Her favorite show is The Simpsons. Cailyn enjoys roleplay, drawing, and dance. Her favorite animal is the cat. Her personality is outgoing, but introversive. She can be competitive (sometimes) and she likes songs by Night core or Billie Eilish. She is comedic. (She may or may not be a huge geek).

Elle



Elle is a freshman at Titusville High School. She as been a member of the FIRST Family since FLL Jr.; where the team went to WORLD competition in St. Louis. She loves to cook and is working to get better so she can be a chef. Elle also likes to work on and learn about cars.

ToRoto No Cono ToRoloto So

Team Members

Harper



Harper is in 9th grade at space coast and she has been in the FIRST Family since FIRST LEGO League Jr., where the team went to World Competition in St. Louis. She likes to be driver I for the robot and enjoys doing the hands on building part over the coding. She hopes to be a content creator or the editor for a content creator so she is working hard in her TV Production class to get certified in adobe premiere pro. She also loves to hang out at her best friend Leneth's house and still plays roblox with her as high schoolers for some reason.

Renee



Renee is in 6th grade and goes to school at Enterprise Elementary. She has been in robotics for 5 years and started as a F.L.L Jr. She also likes to build hands on crafts, play with her friends outside of school and draw. She loves to play with her two dogs and cat Shelby Cookie, and Mia. Also she is obsessed with cats and when she grows up she wants to be a Vet.

ToRoto No Cono ToRoloto So

Team Members

Miss Caroline



Miss Caroline is a displaced KSC Shuttle worker who love to build things and write software. Caroline has a passion of sharing what she know with anyone who wants to learn. She has been a coach/mentor for the past 6 years and this year she is mentoring a Jr. FLL, FLL and FTC team. She also is the League's social media person. When Caroline is not playing with robots she build Drupal websites, volunteers with her Girl Scout troop, volunteers at her church and sings in her church choir.

Miss Chelsea



Miss Chelsea is a Test Engineer with Lockheed Martin on the Orion Spacecraft. She is a Mentor for the FRENCH FRIES FTC. Chelsea graduated with her degree in Mechanical Engineering from the University of North Florida in May 2015. Volunteering and STEM outreach are two of Chelsea's biggest passions. Chelsea combines these passions by serving as President of the Missile, Space, and Range Pioneers, a social club that has been on the Space Coast since 1966.

ToRoto No Cono ToRoloto So

Team Members

Miss Emily



I am a Junior in college. I am studying sign language at Valencia College. Back when I was in high school I was a F.I.R.S.T member of the F.R.E.N.C.H fries team. Last year with my schedule I wasn't able to help out as much as I wish I could've. But luckily this year I've moved closer to my home team and I have been able to assist them at the competitions reliving my high school experience in the joy that I had at that time I'm so grateful for this opportunity to continue with F.I.R.S.T. I look forward to the rest of the season and hopefully the seasons to come.

Mr. Louis

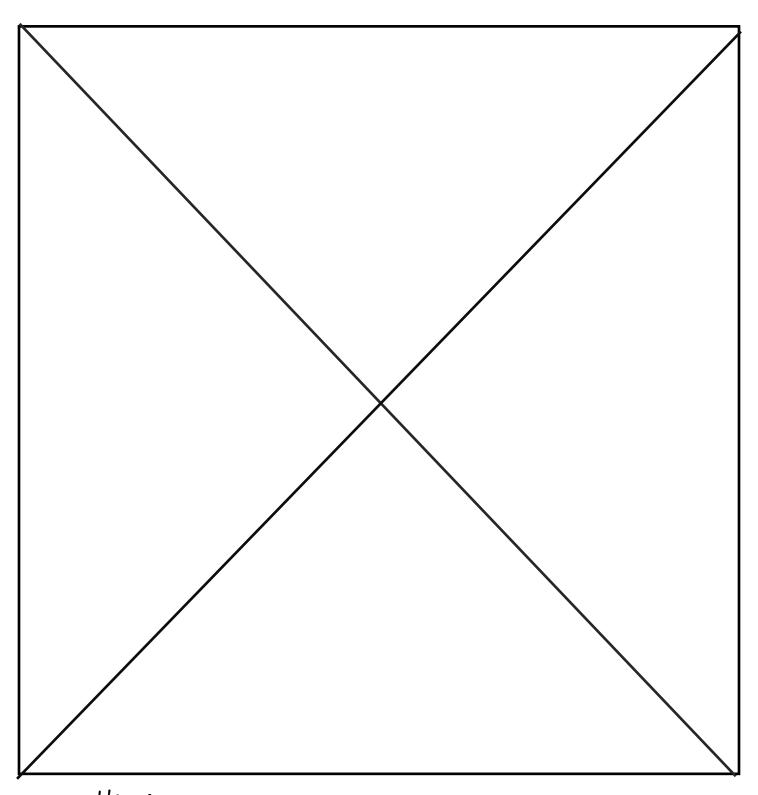


Mr. Louis is a Retired Systems Engineer for Lockheed Martins specializing in model building using AutoCAD. He loves to teach the girls the engineering process and how to build the attachment parts on the robot to accomplish the tasks of the challenge. Mr. Louis loves to work with wood and creating drawings.

Loam Plan Section

Team 7391

ToRoto MoCoMo ToRototoSo



Signature: Harper

ToRoto NoComo ToRoloto So

Our Team Plan

Introduction

FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, FIRST is a not-for-profit public charity that designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, art, and math (STEAM) while building self-confidence, knowledge, and life skills.

This organization supports the building of these skills from Kindergarten through High School. The FIRST® LEGO® League Jr. (FLL Jr) supports grades K-4 and through exploratory research, hands-on construction, teamwork, imagination, and fun with LEGO elements, FIRST® LEGO® League Jr. challenges teams of up to six kids to explore a realworld scientific concept, then build a motorized model and develop a Show Me Poster to illustrate their journey of discovery. Throughout the season, adult coaches provide guidance and inspiration.

The FIRST® LEGO® League (FLL) supports grades 4-8 and through apply science, engineering, and math concepts, plus a big dose of imagination, to develop solutions to real-world challenges with adult Coaches to guide a team of up to 10 members. They also design, build, and program LEGO MINDSTORMS®-based robots to perform autonomous "missions" on a challenge field. Along the way, they develop critical thinking, team-building, and presentation skills.

The FIRST® Tech Challenge (FTC) supports grades 7-12 and follows a sports model where teams of up to 10 members design, build, program, and operate robots of their own design to play a floor game in an alliance format. They are guided by adult Coaches and Mentors where the students develop STEAM skills and practice engineering principles, while realizing the value of hard work, innovation, and sharing ideas. Participants have access to tens of millions of dollars in college scholarships.

Team 4323 - B.E.E.s

We are a Girl Scout team of 6 students who attend different schools in Brevard County and we are based in Titusville, Florida. We participate in the FIRST® LEGO® League Jr. program. Our team started 6 years ago and is ever changing as the girls' progress through the FIRST® program. With the skills that we have learned as a team our team members are ready to conquer any challenge they meet out in the world. This group is the start of our plan because the girls will move from one team to the next as they progress through the different FIRST a.

Signature :	Harper	Date:	January 23,	2022

TEAM TOA

ToRoto No. Como ToRoloto So

Our Team Plan "Continued"

Team 7407 - C.A.K.E. B.A.T.TE.R.S.

We are a Girl Scout team of 5 students who attend different schools in Brevard County and we are based in Titusville, Florida. We participate in the FIRST® LEGO® League Jr. program. Our team started 12 years ago (the team name changed several times) and is ever changing as the girls' progress through the FIRST® program. With the skills that we have learned as a team our team members are ready to conquer any challenge they meet out in the world.

Team 7341 - F.R.E.N.C.H. F.R.I.E.S.

We are a Girl Scout team of 4 High School student and 1Middle School students who attend different schools in Brevard County and we are based in Titusville, Florida. We have participated in the FIRST® Tech Challenge program for the last 8 years, and is ever changing as the girls' progress through school and graduate. With the skills that we have learned as a team our graduating seniors are ready to conquer any challenge they meet out in the world.

Mission Statement (All Levels)

To build a world class model or robot, engineering notebooks, and spread the word about robotics and our new skills in our schools and community, to promote FIRST and STEAM learning as we grow in our own knowledge.

Major Project Milestones for all three teams

FIRST LEGO League Jr

- August 1, 2021 FLL Jr Challenge Release
- Early September Receive the FLL Jr Inspiration Kit
- January 2022 Build the Inspiration Model and determine a project
- January 2022 Complete the Model
- February 2022 Complete our Show Me Poster
- January March 2022 Share our Model, Show Me Poster and what we have learned
- January March 2022 Attend one or two Expos
- April 20-23, 2022 World Championship in Houston Texas

FIRST LEGO League

Signature :	Harper	Date:	January 23,	2022

ToRoto No. Como ToRoloto So

Our Team Plan "Continued"

- August 28, 2021 Complete our Guess of the FLL Challenge
- August 29, 2021 FLL Challenge Release
- September 2021 Complete programming ½ of the missions and determine a project
- January 2022 Attend a practice tournament
- February 2022 Attend a qualifier tournament in

FIRST Tech Challenge

- September 18, 2021 FTC Game Release
- Attending Virtual Eastern-Central Florida FTC 2019-20 Season Kick-off
- November 2021 Space Coast League Qualifier in Palm Bay Florida
- January 2022 Space Coast League Qualifier in Melbourne Florida
- February 2022 Space Coast League Championship in Oviedo Florida
- February 2022 Florida State Championship
- April 20-23, 2022 World Championship in Houston Texas

Team Goals

FIRST LEGO League Jr

We meet at the beginning of each competition season, to set goals for our team. The goals we have set for the 2021-2022 season are as follows:

- Design and build our model based on the challenge requirements:
 - Learn about real-world issues that are based on this year's challenge
 - Developing a comprehensive LCAD model to share
 - Find a solution to one of the real-world issues and share our information
- Apply what we have learned about Core Values and Gracious Professionalism to our team activities and our everyday life.
- Reach out to professionals to gain insight on how to improve our model, project and to grow in our own knowledge.

FIRST LEGO League

We meet at the beginning of each competition season, to set goals for our team. The goals we have set for the 2021-2022 season are as follows:

- Design and build our robot mission on the challenge requirements:
 - Learn about real-world issues that are based on this year's challenge
 - Developing a comprehensive LCAD model to share
- Find a solution to one of the real-world issues and share our information
- Apply what we have learned about Core Values and Gracious Professionalism to

Signature :	Harper	Date:	January 23, 2022
ngilatule .	•	Date.	. , . ,

ToRoto No Cono ToRoloto So

Our Team Plan "Continued"

our team activities and our everyday life.

• Reach out to professionals to gain insight on how to improve our project and to grow in our own knowledge.

FIRST Tech Challenge

We meet at the beginning of each competition season, to set goals for our team. The goals we have set for the 2021-2022 season are as follows:

- Design and fabricate a fast, nimble and robust robot that is competitive at the world level by:
 - Developing a comprehensive AutoCAD model
 - Designing a more efficient attachment to complete the task
 - Design the robot in modular parts
 - Learn more about machine learn so we can find our target
- Grow FTC and STEAM in our schools and community by
 - Mentoring teams in our community, both FLL Jr, FLL and other FTC teams
 - Sharing more with other teams using social media posting our findings
 - Next year Host a FIRST Tech Challenge Meet
- Reach out to professionals to gain insight on how to improve our robot and to grow in our own knowledge.

Projected Hours and Team Commitment for all three teams

Last year, it was determined that each team member averaged between 600 and 650 hours on robotics related activities including, but not limited to, driving practice, robot design and build, outreach activities, training, and competitions. We talk about all three teams because the lower aged teams feed up to the upper aged teams.

This year, we project the total number of hours spent on robotic related activities to decrease due to college prep, family time, budget concerns, and extracurricular activities. The team has committed to the following:

- 3-4 hours/week to design and build competition robot; hours spent on robot design will increase the closer we get to a tournament or expo.
- Participation in Expos, meets, League Championship and State Tournaments
- Mentoring other FIRST LEGO League Jr, FIRST LEGO League or FIRST Tech Challenge teams
- Demonstrations

We believe with this level of commitment, we can be a very competitive teams and can

Signature :	Harper	Date:	January 23,	2022

ToRoto No Cono ToRoloto So

Our Team Plan "Continued"

help promote robotics and STEAM in our community.

Sustainability

Recruiting Team Members (All Teams)

We recruit new team members using the following guidelines:

- Must be a or want to join Girl Scouts
- Must be interested in learning new things
- Must be willing to work hard
- Must want to have fun
- No previous robotics experience necessary

Training (All Teams)

We are actively pursuing ways to work with professional mentors to learn new skills and to improve our knowledge of engineering design, CAD, programming, and other STEAM areas. Our goals for this year are:

- Learn AutoCAD or LCAD
- Learn more about JAVA Programming, WeDo2 Programming and MINDSTORMS® Programming
- Learn more about videography
- Learn more about tools in the woodshop to build parts and project pieces

Risks and Opportunities

Our risks and opportunities are focused on the sustainability of the team from an execution and monetary perspective. The risks and opportunities in competition are fluid and can only be minimized and maximized, respectively, with solid preparation.

Risks

Risk 1 – Conflict with other Activities: All the members of the team participate in other afterschool activities including Theater, Girl Scouts and Sports. To date, no major Church, Girl Scouts or Sports conflicts have been identified. Risk 1 is open and carries a "medium" level.

Risk 2 – Budget Shortfall: Due to the current economic environment, fundraising is more challenging than in past years. Also, an additional level of competition, the Super Regional, has been added to the tournament schedule. To mitigate this risk the team has put more emphasis on planning both expenses and fundraising. The detailed budget later in this section was developed to ensure all expenses are necessary and is constantly reviewed. For example, if the team qualifies for advancement in an early

Signature :	Harper	Date:	January 23,	2022

TEAM TOA

ToRoto No Cono ToRoloto So

Our Team Plan "Continued"

tournament, competing in additional qualifying tournaments at that level may be dropped to conserve funds. Risk 2 is open and carries a "high" level.

Opportunities

Opportunity 1 – Expand Corporate Sponsor Requests: In the past, requests for support were made mainly to Engineering companies and organizations. Leveraging the past work in STEAM, it may be possible to get other organizations interested in supporting the team. Candidates identified for the expanded sponsorship are: government grants (from the Legislators) and local businesses.

Opportunity 2 – Expand Fundraising and Family Contributions: To be competitive at the World Tournament level requires a major commitment of time from all team members.

Outreach and Recognition

2021 - 2022 Outreach Activities

The mission of FIRST is to show students of every age that science, technology, and problem-solving are fun and rewarding. We have become passionate about this mission as well and have focused our outreach activities to spread this vision. We have learned first-hand that while helping others is fun and rewarding. Some of our community outreach activities will include:

- Girl Scout Community Girl Scout Events
- Girl Scout Council Events
- Girl Scout STEAM Event
- Girl Scouts Council Annual Meeting
- Community Events—Such as Space Congress, Orlando Science Center Maker Fair if available.

Recognition

With our success during the last 7 seasons, we have been honored to receive the following recognitions:

- Motivation League Award 2020-2021
- Attended State Competition 2020
- Think Award 2019-2020
- 2nd Place Control Award 2018-2019

Signature :	Harper	Date:	January 23,	2022

TEAM TOA

ToRoto No Cono ToRoloto So

Our Team Plan "Continued"

- Control Award 2017-2018
- 2nd Place Inspire Award 2017-2018
- 3rd Place Think Award 2017-2018
- Connect Award 2016-2017
- 2 nd Place Inspire Award 2016-2017
- 3 rd Place Think Award 2016-2017
- Think Award at a Qualifying Tournament
- Think Award 2015-2016
- 2 nd Place Inspire Award 2015-2016
- 3 rd Place Think Award 2015-2016
- Think Award at a Qualifying Tournament
- Recognized in the Citrus Peel volume 4
- Design Award 2013-2014
- 2 nd Place Think Award 2013-2014
- 3 rd Place Inspire Award 2013-2014
- Finalist for the Think Award at a Qualifying Tournament

Resources

Brevard Girl Scout Robotics

In 2010, the FIRST LEGO League team was started, then the FIRST Tech Challenge team was started after enough of the FIRST LEGO League team reached 9th grade. Seven years ago, we added the FIRST LEGO League Jr team. These teams were created to:

- Serve the Girl Scouts by offering fun, technology-based enrichment activities and outreach with a focus on programs that are affordable and sustainable.
- To provide a platform allowing the girls to immerse in the engineering process

For more information on FIRST and the B.E.E.s, C.A.K.E. B.A.T.T.E.R.S., and F.R.E.N.C.H. F.R.I.E.S., please visit the following links:

FIRST Links

- FIRST Website: https://www.firstinspires.org
- FIRST Tech Challenge Website: https://www.firstinspires.org/robotics/ftc

Signature :	Harper	Date:	January 23,	2022

ToRoto No Cono ToRoloto So

Our Team Plan "Continued"

- FIRST LEGO League Website: https://www.firstinspires.org/robotics/fll
- FIRST LEGO League Jr Website: https://www.firstinspires.org/robotics/flljr
- FTC in Florida: http://ftc.flfirst.org/
- FLL and FLLJr in Florida: https://www.renaissancecfl.org/

B.E.E.s Links

Team Website: http://girlscouteverywhere.org/bees/

Social Media

- Facebook: https://www.facebook.com/groups/414996782209218/
- Twitter: https://twitter.com/ffljr4323BEEs
- Instagram: http://instagram.com/bees

C.A.K.E. B.A.T.T.E.R.S. Links

- Team Website: http://girlscouteverywhere.org/cakebatters/
- You Tube Channel: http://www.youtube.com/user/cakebatters

Social Media

- Facebook: https://www.facebook.com/groups/1479542412290348/
- Twitter: https://twitter.com/FLL7407
- Instagram: http://instagram.com/cakebatter7407/

F.R.E.N.C.H. F.R.I.E.S. Links

Team Website: http://girlscouteverywhere.org/frenchfries/

Social Media

- Facebook: https://www.facebook.com/groups/754597614555375/
- Twitter: https://twitter.com/ FTC_FRENCHFRIES
- Instagram: http://instagram.com/frenchfries

Team Impact

Team Use of Resources

Team F.R.E.N.C.H. F.R.I.E.S. has taken and will continue to take their robot to local and out of county events providing information about the FIRST Programs and our Team. We encourage children to drive the robot at the events so that it would start to get them thinking about "I would like to do that!".

Signature :	Harper	Date:	January 23,	2022

ToRoto No. Como ToRoloto So

Our Team Plan "Continued"

Team Future Plans

In 2021-2022, we plan on attending as many outreach events as possible or available so that we can share our knowledge of the FIRST Programs and encouraging more girls to participate in a FIRST program where they will learn a lot of different skills. These skill are something that they can use the rest of their lives. We show how the following are accomplished through sharing our Engineering Notebooks, earned awards, and life experiences:

- Design, build, and program robots
- Apply real-world math and science concepts
- Develop problem-solving, collaboration, and team-building skills
- Build and become strong leaders
- Understand and practice Gracious Professionalism™
- Cooperate and compete in alliances at tournaments
- Compete for awards on and off the field
- Participate in a tiered competition that culminates at the FIRST Championship
- Qualify for millions of dollars in college scholarships
- Have fun!

Sustainability

Team Action/Implementation Plan

The Team has identified the following actions for growth and sustainability

Team Budget

Team Current Grants

Signature :	Harper	Date:	January 23,	2022
Jigilataic .		Date.	, -	

ToRoto MoCoMo ToRoloto So

Our Team Plan "Continued"

Strategy	Actions	Responsibility	Planned
Prepare the Team to learn JAVA	Teach the girls the JAVA	Team Mentor	June 2022
Plan and implement STEAM Activity day	Get girls interested in STEAM careers	Team Mentor	April 2022
Work with the B.E.E.s and C.A.K.E.	Keep the girl interest in robots so they would want to move up	Team Mentor	Continual

Team Fundraising Opportunities

Team 7341 - F.R.E.N.C.H. F.R.I.E.S.		2019-2020 Budget		
Catanan	Estimate			
Category	Expenses	Estimated Expenses Notes		
FTC 2021-2022 Participation	\$1155.00			
National Registration Fee	\$275.00	Payment to FIRST (Paid by another grant)		
New Game	\$280.00	2021-2022 1/2 Challenge specific game elements		
League Dues	\$300.00	League Dues and competition fees		
New mats	\$300.00	New Soft Tiles		
Team Recognition (Marketing)	\$475.00			
Team Shirts	¢50.00	Purchase additional shirts for new members		
Embroidering on shirts	\$50.00			
Banner	\$100.00	Add team logo on shirts and create a banner		
Banner for sponsors	\$25.00	Create a banner for tournament		
Competition "Give-A-Ways"	\$100.00	Pins, stickers or candy		
Display Board and supplies	\$100.00	Informational display board		
Outreach projects	\$100.00	Purchase items for our outreach activities		

ToRoto MoCoMo ToRoto Eso

Our Team Plan "Continued"

Team 7341 - F.R.E.N.C.H. F.R.I.E.S.		2019-2020 Budget
Catanani	Estimate	
Category	Expenses	Estimated Expenses Notes
Robot	\$1350.00	
Raw Materials	\$100.00	Raw Material to make robot parts
New Parts	\$450.00	New Motors/sensors/wheels/wires
Electronic Controls	\$800.00	Robot Controller (hub and expansion) and Driver Hub
Florida State Tournament	\$1,800.00	Florida - February 2018
Registration Fee	\$500.00	Florida FTC State Tournament
Hotel	\$800.00	4 rooms x 1 night (200.00)
Transportation	\$50.00	Two vehicles - gas
Food	\$450.00	10 people x \$45 (2 dinners and 1 lunch)
Total Budget - Reaching State	\$4,780.00	

Team 7341 - F.R.E.N.C.H. F.R.I.E.S.		2015-12016 Budget
Catagony	Estimate	
Category	Income	Estimated Income Notes
Grants		
NASA GSDO	\$1,000.00	Competitive Edge Grant
Lockheed Martin	\$750.00	Support Grant
Florida Power & Light	\$300.00	Support Grant
Total	\$2,050.00	

Following is our Current Spending for all three teams:

Signature :	Harper	Date:	January 23,	2022

ToRoto MoCoMo ToRoto Eso

Our Team Plan "Continued"

Fundraiser Idea	Projected Income	Category	Notes
Panda Express	\$200.00	Fundraiser	One-time fundraiser
Hosting a Meet	\$720.00	Fundraiser	One-time fundraiser/shared
STEAM Event	\$200.00	Fundraiser	Set up to be an annual event for the Girl Scout in the area

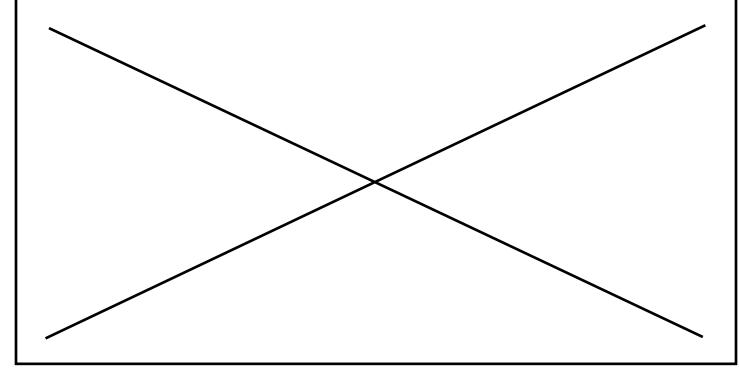
DATE	Income	FLL Explore	FLL Challenge	FTC	Joints	2021-2022 Spending
5/11/2021				\$65.31		PURCHASE AUTHORIZED ON 05/04 PITSCO INC 620-231-0000 KS S581124610700572 CARD 3637
6/23/2021						National Fees for the FTC, FLL Challenge and FLL Explore Teams
6/24/2021				\$275		PURCHASE AUTHORIZED ON 06/22 PITSCO INC parts
6/25/2021				\$237.48		PURCHASE AUTHORIZED ON 06/23 PITSCO INC parts
8/12/2021				\$249.24		Pre-order of 1/2 if the Fieldset for FTC Challenge
						RECURRING PAYMENT AUTHOR- IZED ON 08/17 ZOOM.US 888-799- 96 WWW.ZOOM.US for team
8/18/2021					\$149.90	online meetings
9/9/2021				\$124.48		PURCHASE AUTHORIZED ON 09/02 PITSCO INC parts
						PURCHASE AUTHORIZED ON 09/19 ROBOTSHOP.COM ROBOT-
9/21/2021				\$108.02		SHOP.COM parts
9/22/2021				\$13		PURCHASE AUTHORIZED ON 09/18 ANDY MARK INC parts
9/27/2021				\$134.94		PURCHASE AUTHORIZED ON 09/26 GOBILDA parts new wheels
10/4/2021				\$73.50		PURCHASE AUTHORIZED ON 09/20 ANDY MARK INC parts

Signature : _	Harper	Date: Ja	muary 23, 2022

ToRoto MoCoMo ToRoto Eso

Our Team Plan "Continued"

DATE	Income	FLL Explore	FLL Challenge	FTC	Joints	2021-2022 Spending
10/12/2021			\$179.94			Purchase of a gaming software access to build games for the FLL teams
10/25/2021				\$300		Space Coast League Fees
11/8/2021				\$14.97		PURCHASE AUTHORIZED ON 11/04 AMZN Mktp US*VE95W Amzn.com/bill WA S461308766703367 CARD 3637
11/12/2021					\$28.81	PURCHASE AUTHORIZED ON 11/1 WINN-DIXIE support of the Thank giving and Christmas Dinner for th Veterans
11/30/2021			\$150			FLL Challenge League Fee for Mee
1/3/2022				\$41.21		PURCHASE AUTHORIZED ON 01/0 SERVOCITY parts



PoRoto NoCono PoRolotoSo

Our Team Plan "Continued"

Following is the approximate cost to rebuild the robot and all needed parts if we had a catastrophic accident.

	Description	Cost	Quantity	Total
	Electronics		-	
1	REV Robotics Expansion Hub	\$200.00	1	\$200.00
2	Rev Control Hub	\$300.00	1	\$300.00
3	Driver Hub	\$200.00		\$200.00
4	Gamepad controller	\$24.00	2	\$48.00
5	Touch Sensors	\$6.00	2	\$12.00
6	Cables 30cm	\$4.00	2	\$8.00
7	Cables 50cm	\$5.00	4	\$20.00
8	Cables 100cm	\$10.00	3	\$30.00
9	Conversion kits	\$25.00	8	\$200.00
10	Power Switch	\$6.00	1	\$6.00
	Hardware			
11	Battery	\$50.00	2	100.00
12	MAX Motor Shaft Hubs	\$5.95	4	\$23.80
13	MAX Axle Hubs	\$6.95	1	\$6.95
14	MAC Axle Set Collar	\$3.95	3	\$11.85
15	416 mm Channel	\$17.95	2	\$35.90
16	288 mm Channel (Package of 2)	\$16.95	5	\$84.75
17	160 mm Channel (Package of 2)	\$14.95	2	\$29.90
18	96 mm Channel (Package of 2)	\$11.95	2	\$23.90
19	32 mm Channel (Package of 2)	\$9.95	3	\$29.85
20	L-Bracket (Package of 2)	\$4.95	6	\$29.70
21	Inside C Connector (Package of 2)	\$4.95	10	\$49.50
22	Inside Corner Bracket (Package of 2)	\$4.95	3	\$14.85
23	MAX Flat Bracket	\$5.95	3	\$17.85
24	64 mm Flat (Package of 2)	\$4.95	3	\$14.85
25	Bronze Bushing (12)	\$13.95	1	\$13.95
26	40-Tooth Gear (Package of 2)	\$22.95	2	\$45.90
27	80-Tooth Gear	\$17.95	5	\$89.75
28	120-Tooth Gear	\$27.95	1	\$27.95

ToRoto MoCoMo ToRoloto So

Our Team Plan "Continued"

	Description	Cost	Quantity	Tota
29	1/8" Nylon Axle Spacer	\$1.95	1	\$1.9
30	3/8" Nylon Axle Spacer	\$0.95	1	\$0.9
31	4" Tire/Wheel	\$9.95	4	\$39.8
32	4" Omni Wheel	\$19.99	2	\$39.9
33	Button Head Cap Screw (50)	\$9.75	1	\$9.7
34	Socket Head Cap Screws (25)	\$3.25	3	\$9.7
35	Kep Nuts (100)	\$3.25	1	\$3.2
36	Self-locking Nuts (100)	\$5.97	1	\$5.9
37	Axles	\$15.95	3	\$47.8
38	Switch	\$12.95	1	\$12.9
39	Motor Mount	\$15.95	6	\$95.7
	Motors			
40	5202 Yellow Jacket Motor	\$45.00	4	\$180.0
41	NeverRest Classic 40	\$35.00	2	\$70.0
42	Encoder Cables	\$5.00	5	\$25.0
43	Polycarbonate Sheet	\$12.00	3	\$36.0
	Servo and Parts			
44	Standard Hub Shaft ServoBlock™ (24T Spline)	\$29.99	4	\$119.9
45	Large Hub Shaft ServoBlock™ (24T Spline)	\$29.99	3	\$89.9
46	Standard Servo	\$24.00	4	\$96.0
47	Large Servo	\$40.00	3	\$120.0
48	X-rail - 12"	\$4.95	1	\$4.9
49	8mm Lead Screw - 12"	\$9.99	1	\$9.9
50	Lead Screw nut	\$7.99	1	\$7.9
51	8mm Bore Bottom Tapped	\$6.49	1	\$6.4
52	Clamping Shaft	\$4.99	1	\$4.9
53	1.50" Aluminum Channel	\$2.99	1	\$2.9
54	1/4" Bore, Face Thru-Hole Pillow Block	\$5.99	1	\$5.9
55	1/4" Stainless Steel Precision Shaft - 2"	\$0.89	1	\$0.8
56	Green Cable	\$2.99	2	\$5.9

ToRoto Nicono ToRoloto So

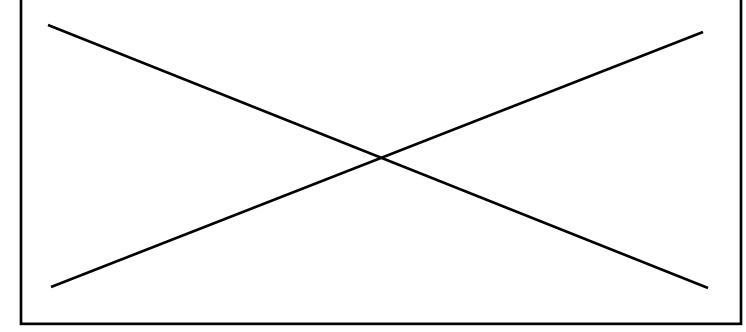
Our Team Plan "Continued"

	Description	Cost	Quantity	Total
	Special Supplies			
57	Wood screws	\$8.00	1	\$8.00
58	Raw Material for the lift	\$20.00	1	\$20.00
59	Raw Material for front top touch sensor	\$10.00	2	\$20.00
60	Raw Material for converter plates	\$20.00	2	\$40.00
	Total			\$3,026.34

Team Risk and Opportunity Analysis

We have outlined the concerns that might impact our current goals and strategies

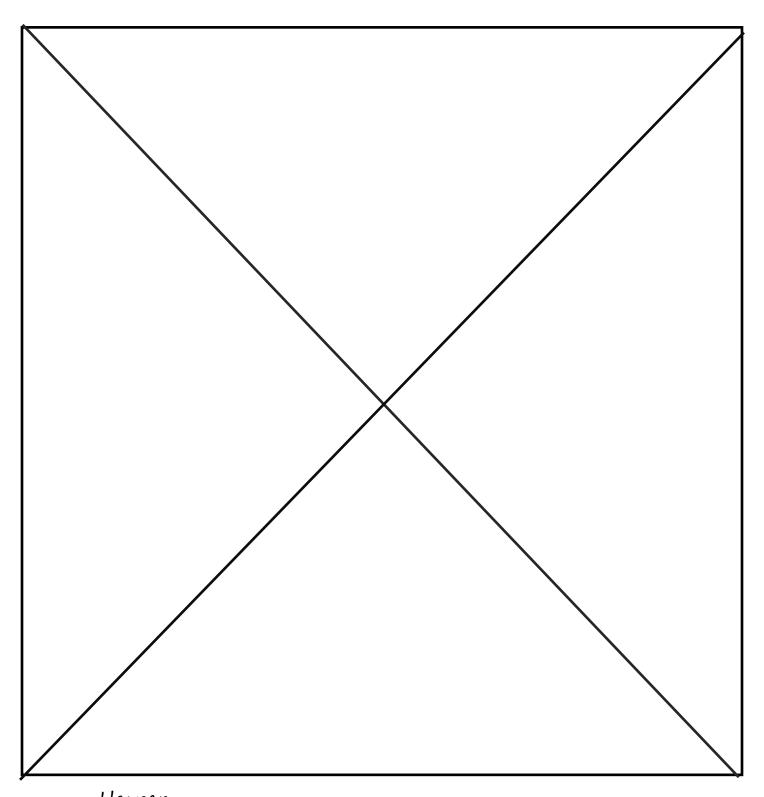
- Loss of Girl Scout involvement—start the recruitment at the Daisy Level
- Loss of Parent support—inform them of the benefits for the girls
- School activities are more involved than first expected find a new balance between school, girl scouts and robotics



Outreach Section

Team 7391

ToRoto MoCoMo ToRototoSo



Signature: Harper

Date: 01/28/2020

T.R.I. M.C.H. T.R.LIE.S.

Outreach Activity

Purpose of the Activity:

Showcase robots at a Girl Scout Recruitment in Lake Mary

Team Members:

Renee and Elle

Images:

We traveled from Titusville to Lake Mary to support a Girl Scout Recruitment showcase. We shared a version of "Princess Charlie" with girls interested in joining Girl Scouts





to show them that we have many different opportunities available.

Elle showed Renee the ins and outs for what to do at a show and tell event. The girls and parents were very excited about our robot and the work we had in our Engineering Notebook.

PoRoLoNoCoNo PoRoLoLoSo

Outreach Activity "continued"

:	
:	

Images:



Some wished that we were closer so that they could join our team. We suggested they look into their schools or check out the site for local community teams. The girls learned a lot about sharing information.



Signature : ______ Date: _______

ToRoto NoCollo ToRoloto So

Outreach Activity

Date: August 28, 2021 Time: 5:00pm-6:00pm

Purpose of the Activity:

• Photo Shoot for Girl Scouts

Team Members:

Elle, and Renee

Images:

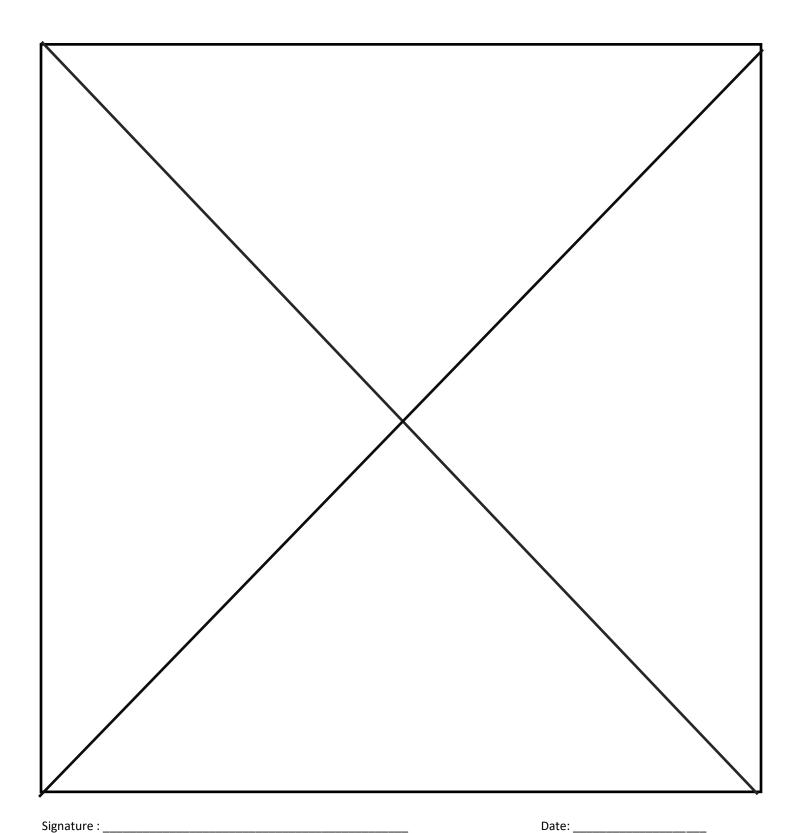


We participated in a Girl Scout Photo shoot for their new uniforms. It was an interesting event, Learning about what goes into creating the clips that are used in creating a commercial

Signature: Shelby Date: Jan 26, 2019

Team 7391

T.R.I. M.C. H. T.R. L.I. S.



F.R.I. M.C.H. F.R.L.E.S.

Outreach Activity

Date: October 23, 2021 Time: 1:00pm-6:00pm
--

Purpose of the Activity:

• Sharing all things FIRST and robotics with the patrons of Titusville's Skating Rink.

Team Members:

Elle

Images:

Showing off Princess Charlie is a fun thing to do at a Girl Scout Recruitment Event. We are out in the community sharing that there are more things to do in the STEAM world. The girls ended up playing "Follow the Leader" with the robot until the batteries started to wind down.



While skating the robot had to watch out to make sure we did not get out in the way of the faster skaters. It was fun to watch some of the younger girls follow the robot around the rink

We did recruit a new member for our "Bees" team!!

PoRoko NoCoMo PoRokokoSo

Outreach Activity "continued"

Date: October 23, 2021

Images:



Signature: Date: October 23, 2021

T.R.I. M.C.H. T.R.LIE.S.

Outreach Activity

Date: _November 22, 2021 _____ Time: __5:00 pm-5:30pm

Purpose of the Activity:

Delivering Holiday Dinners to our Local Veterans.

Team Members:

Renee (FTC member). Venessa (FLL member)

Images:

We worked with the local Girl Scouts delivering Thanksgiving Dinner to 21 different families that are part of the WinVet Group in Titusville Florida. The group has been supplying dinners for the past 10 years to make sure our veterans in need have something good for Thanksgiving. The veterans are very grateful for the support we provide during this time of year.











Signature: Revel Date: November 22, 2021

P.R.I.O.N.C.N. P.R.L.I.S.

Outreach Activity "continued"

Date: November 22, 2021

Images:





Road in Titusville. Girl Scouts Thank you for your support in this yearly project.

We served up 21 frozen turkeys and 21 decorated bags, boxes or baskets to four different housing areas in Titusville. Most of the apartments are located on Rock Pit



Signature: Revel Date: November 22, 2021

T.R.I. M.C.H. T.R.LIE.S.

Outreach Activity

Date: __December 21, 2021 _____ Time: __5:00 pm-5:30pm

Purpose of the Activity:

Delivering Holiday Dinners to our Local Veterans.

Team Members:

Renee (FTC member). Venessa (FLL member)

Images:

We worked with the local Girl Scouts delivering Christmas Dinner to 21 different families that are part of the WinVet Group in Titusville Florida. The group has been supplying dinners for the past 10 years to make sure our veterans in need have something good for Christmas. The veterans are very grateful for the support we provide during this time of year.











Signature: Revel Date: December 21, 2021

PoRoLoNoCoNo PoRoLoLoSo

Outreach Activity "continued"

Date: December 21, 2021

Images:





your support in this yearly project.

We served up 21 hams and 21 decorated bags, boxes or baskets to four different housing areas in Titusville. Most of the apartments are located on Rock Pit Road in Titusville. Girl Scouts Thank you for



Signature: Revel Date: December 21, 2021

T.R.I. M.C.H. T.R.L.I.S.

Outreach Activity

Date: January 16, 2022 Time:	2:00pm-5:pm
------------------------------	-------------

Purpose of the Activity:

Helping out our sister FLL Team C.A.K.E. B.A.T.T.E.R.S.

Team Members:

Elle and Renee

Images:

One of the team members from C.A.K.E. B.A.T.T.E.R.S. was at our meeting today and was in need of some guidance in programming the robot. It is Venessa's first year for programming the Spike Prime robot and was not sure what to do. So, we spent some of our meeting helping her out.

It was a little bit of a challenge as we needed to learn the program they use for Spike Prime. It was a welcomed change.



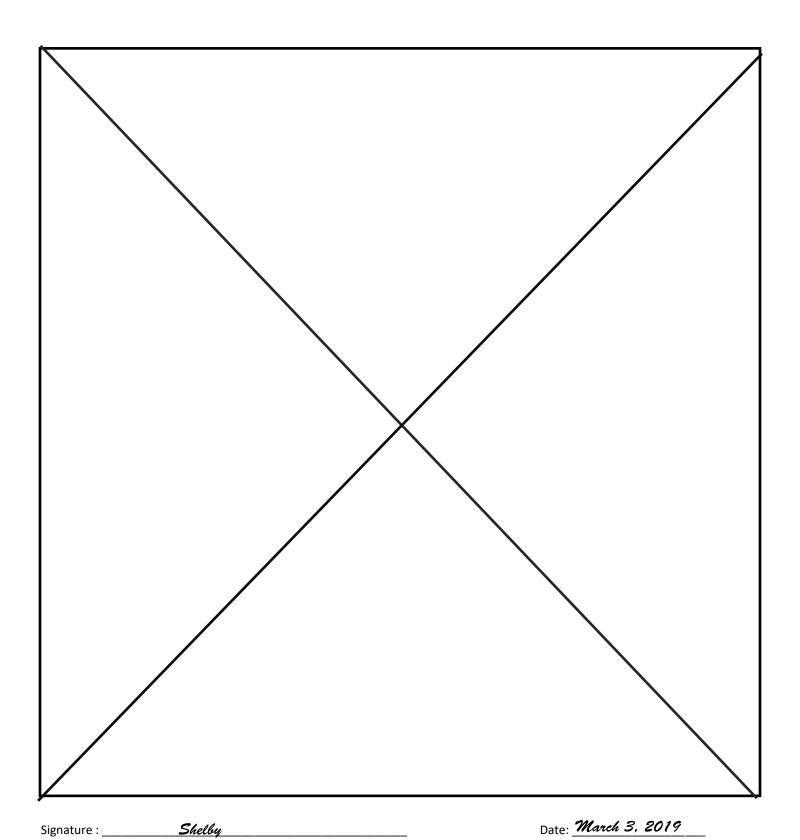


Signature: Revel Date: January 16, 2022

Ingineering Section 10 10 16 Filosophia 16

Team 7391

ToRoto MoCoMo ToRolotoSo



51

ToRoto MoCoMo ToRolotoSo

Engineering Activity

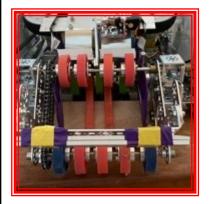
Date: Augu	st 4. 2021	Time:	2:30-5:00pm
Date: Augu	51 4, 2021	rime:	=p

Purpose of the Activity:

Change the intake from picking up rings to blocks, balls and ducks

Members:

Process:



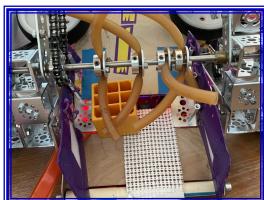
After FIRST announced that we were going to reuse the block and balls from an earlier challenge. We wanted to see if we could pick these items up using the technology that we finally overcome not being able to pickup items

from the floor using a sweeper.

After changing out the wheels for rubber tubing and raising the intake bar to allow for the size of the new elements. We made this change so we could bring the robot out to a Girl Scout Recruitment Event in Lake Mary.

We needed to change the lower conveyer





Signature : D	Date: August 4, 2021
---------------	----------------------

ToRoToNoCoNo ToRoLIESO

Engineering Activity "Continued"

Date: August 4, 2021

Process:

the

we land

of the

belt from two nylon belts that the rings fit across to a wider belt to accommodate the ball and the block at the same time. Since we

did not
know what
we needed
to do with
block or ball
had them
on the top
robot where

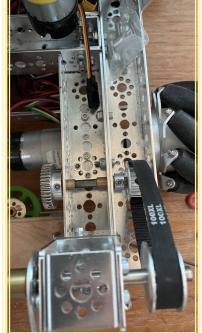
we could shoot them off the front. This would allow us to pick up the block and then have a reason to go

and fetch them again. While adjusting the height we needed to change how we powered the pickup

mechanism







Signature: ______ Date: August 4, 2021

ToRoto MoCoMo ToRoloto So

Engineering Activity

Date: August 11, 2021 Time: 2:30-5:45pm

Purpose of the Activity:

- Award
- Additional changes to the pickup

Members:

Process:



Our award from last season finally arrived in the mail. The girls were awarded for the large following on social media and the fact that we talked about our sharing of our journey.

We found one of our earlier ball retrievers and dismantled it to use one side to move the block or balls off the front of the robot. The initial mechanism was too bulky and heavy for the robot to pickup so we came up with a



Signature: _____ Date: August 11, 2021

TEAM TSAI

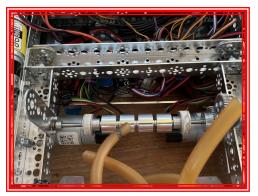
ToRoto MoComo ToRoloto So

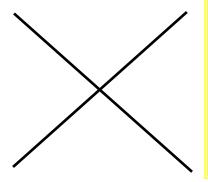
Engineering Activity "Continued"

Date: August 11, 2021

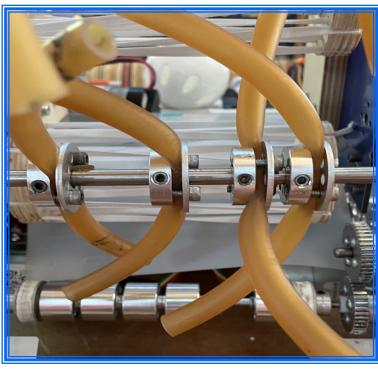
Process:

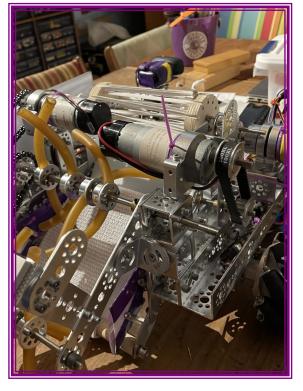
different solution. It was a good thing that we still had the parts to be reused for this demonstration on what is possible solution for a unknow mission.











Signature: _____ Date: August 11, 2021

Toroto Mocomo Torolotoso

Engineering Activity

Date: August 24, 2021 Time: 2:30-5:00pm

Purpose of the Activity:

- Test Driving
- Practice for the outreach event

Members:

Renee and Elle

Process:

Today we practiced driving and picking up the ball and blocks prior to the Outreach event. This is Renee's first day on the Team as she just moved up from the C.A.K.E. B.A.T.T.E.R.S FIRST LEGO League Challenge Team.

While practicing it was found that the rubber tubing was getting caught in the chain causing the mechanism to stop moving. We came up with the idea of a guard on the side of the tubing so that it would not fall down and get caught in the chain. We had some plastic shelf liner that we cut circles out of and attached the circles to the hubs holding the rubbing on the robot. This small correction supported

the tubing so it would not get in the chain and stop the chain

from moving.

and from We a ber wer

We adjusted the rubber tubing so they were better distribut-



Signature : ______ Date: *April 14, 2019*

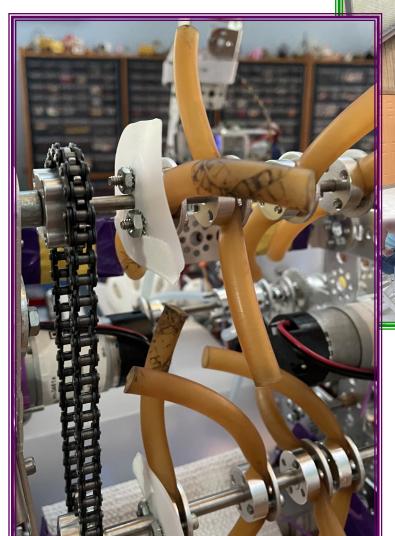
ToRoto Nocolo ToRoloto So

Engineering Activity "Continued"

Date: August 24, 2021

Process:

ed across the back of the robot allowing for a better pickup. We also



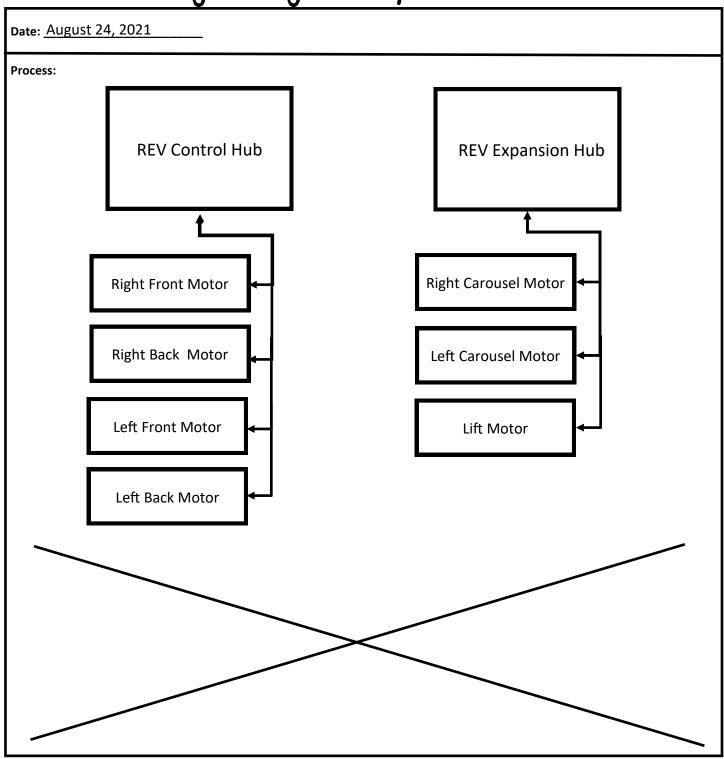
added side guards to insure the object were going to move up the middle of the conveyer belt and not over the edge causing the object to get stuck.in the ramp area.

Renee drove the robot with lots of confidence. She will be an asset to our team.

Signature : August 24, 2021
Date:

ToRoto NoCono ToRoloto So

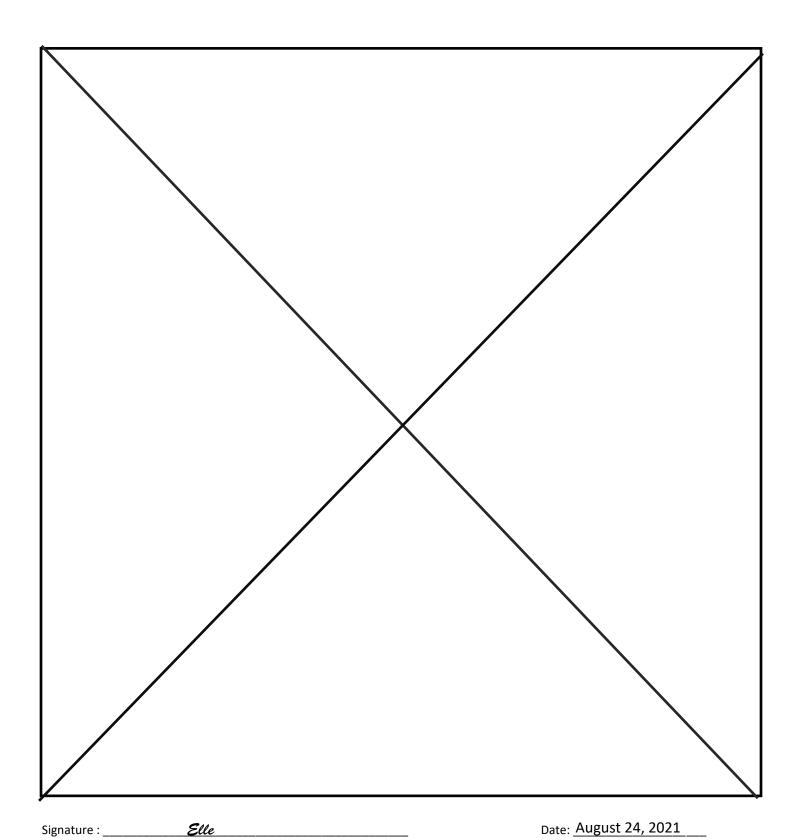
Engineering Activity "Continued"



Signature : _____ Date: August 24, 2021

Team 7391

ToRoto MoCoMo ToRolotoSo



59

ToRotto MoCoMo ToRolottoSo

Engineering Activity

Date: September 18, 2021 Time: 11:30-3:00pm

Purpose of the Activity:

Coming together to find out about the new challenge

Members:

Cailyn, Harper, Renee and Elle

Process:

We started the meeting out with a cookout. We had special made hamburgers with chips, fruit and desert.

After watching the videos and the online reveals start started our discussion on how we should pick up the times and what our team marker should be.

We decided to create a marker for small Mc Donald's French Fry boxes. We measured them and it was the perfect size. After taping the sides, we found that the box would not stay in the proper shape, so we added pieces in the corners, so the box would retain it's shape.

While we were building the Team Marker, we removed all the old mecha-







Signature	Cailyn	Date:	September 18,	2023

ToRoto Mocomo ToRoloto So

Engineering Activity "Continued"

Date: September 18, 2021

Process:



nisms from the robot so we can start add-ing the new mechanisms.

We talked about using a three or four pronged claw to pick up the cargo objects



since we could only hold one item at a time. So we looked online to find an example of a claw to build and we found one to build.



We printed out the diagram so we could build it tomorrow.

We determined how to move the carousel.

Signature: _____ Cailyn _____ Date: September 18, 2021

ToRoto No. Co. Ho ToRoloto So.

Engineering Activity

Date: September 19, 2021 Time: 2:30-5:00pm

Purpose of the Activity:

• Second day for our build start

Members:

Cailyn, Elle, Harper, and Renee

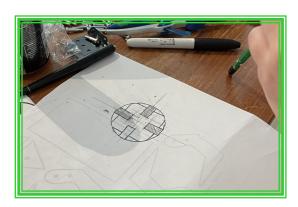
Process:



We finished removing all the mechanisms from last season. While removing the mechanisms we talked about the different options that are available for us to use. After completing our discussion we decided to add a motor with a green intake wheel to the back of the robot to move the

carousel. We placed the motor on the left side of the robot.

We created a cardboard prototype of a



three prong claw. It appears that it could work as our pickup mechanism.



We used a paper pattern to help us cut and assemble the claw.

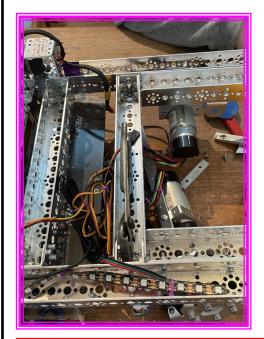
Signature: _____ September 19, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: September 19, 2021

Process:

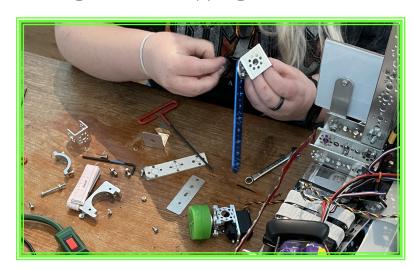


For the robot body we determined that we needed decrease the width of the robot by 4 inches, so we changed the center beams to be shorter beams. This potently will all the robot to not have to go over the barriers going to the warehouse. Our first thoughts were we would loose the freight from our mechanism.

Our first thought for the carousel motor we could use a continuous servo. So we added this where we had the arm to pick up the wobbler from last year.



We wrapped up our meeting talking about how we would pick up our mechanism to the freight in the Shipping Hub.



Signature: _____ September 19, 2021

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Date: September 19, 2021

Process:



The corner pieces for out Team Marker were completed and ready to try out when the challenge set comes in.

After removing the cross beams in our robot we ask Mr. Louis if he could cut them on the metal saw he has in his workshop.

We hope that we will have our field for the next meeting so we can put it together.



Signature: _____ September 19, 2021

ToRoto MoCoMo ToRoloto So

Engineering Activity

Date: September 26, 2021 Time: 2:30-5:00pm

Purpose of the Activity:

• Put the Challenge Field

Members:

Cailyn, Elle, Harper, and Renee

Process:

While Elle read the directions Cailyn put the Red Shipping Hub together, Harper put the other Shipping Hub.. Meanwhile

completed. We start-

Renee added the weights to the cargo blocks. After the shipping hubs were

Signature: _____ Benee _____ Date: September 26, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: September 26, 2021

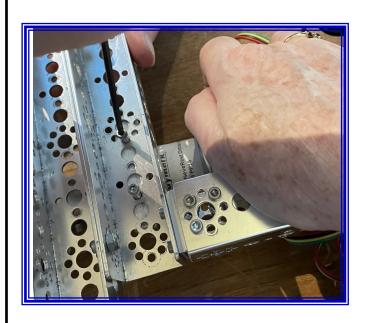
Process:

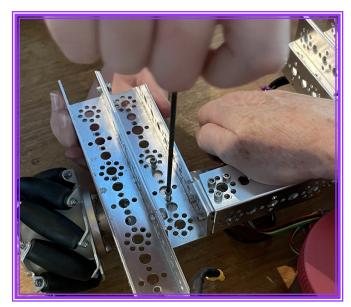
ed putting the carousel together., while snacking on some chips. While Elle, Harper and Cailyn worked on the Carousel.

Renee started to put the robot back together with the shorter center beams. After the base frame was all connected we added the motors and wheels. This also made the robot a little bit lighter or at-least eas-



ier to pickup. We discussed finding a skinnier wheels for the robot.





Signature : _____ September 26, 2021

ToRoto MoCoMo ToRoloto So

Engineering Activity

Date: October 3, 2021 _____ Time: 2:30-5:00pm

Purpose of the Activity:

- Complete the Challenge Field
- Change out the wheels for the new wheels.
- Talk about how to pickup the field elements

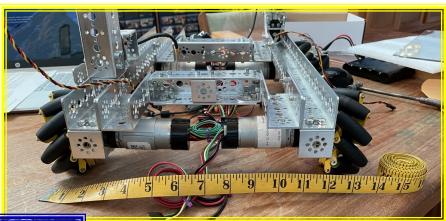
Members:

Cailyn, Elle, Harper, and Renee

Process:



our robot. Now our robot went from being 18" wide to 13" Coach ordered new wheels and they came in and we changed out the wheels. Changing out the wheels made a difference in the width of





wide. We might fit between the into the entrance to the Warehouse. Yay!! We added the electronic hardware so it is on two levels. Where the control hub is on top and the expansion hub is on the bottom. One concern is the

Signature :	Cailyn	October 3, 2021
DIBLIALULE.	C 1300 411	Date.

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Date: October 3, 2021

Process:

if we get a scoring element on the robot it will stay and we will not be able to score any thing else. Something to look at in the next few weeks.

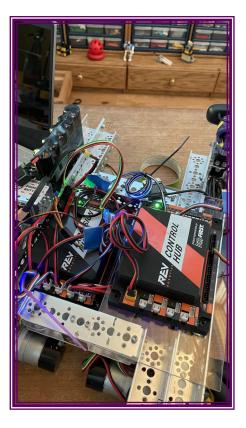


We added one motor on a stanchion to move the carousel.

We move the cam-



bot so we can use team marker. After tested out who our to work out.





era servo from what was the front of the robot to the new front of the roit to find the "Duck" or our this was completed we carousel motor was going

Signature :	Cailyn	October 3, 2	2021
-------------	--------	--------------	------

ToRoto Mocomo ToRoloto So

Engineering Activity "Continued"

Date: October 3, 2021

Process:



We found that we needed to change the program so the motor turned the other directions when pressing on the

front trigger.

The new control hub for the



driver station is working out great.



After trying out the servo, but we found that it was too slow to get the job completed in a timely manner after testing the speed. We upped our game and pulled out one of

our AndyMark 40 motor and tried it, which work a little better. More refinement is needed.



Signature :	Cailyn	Date:	October 3,	2021

ToRoto Nicono ToRoloto So

Engineering Activity

Date: November 7, 2021 _____ Time: 2:30-5:00pm

Purpose of the Activity:

- Update the stanchion bars
- Build up the pick up mechanism

• Talk more about autonomous

Members:

Cailyn, Elle, Harper, and Renee

Process:

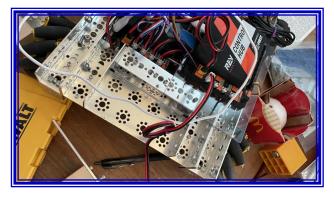


Today is a big day! Our robot is starting to look like it can do something new. We purchased some of the Pitsco blue parts as part of their 50th anniversary and so that our robot would have some color to make it look cool.

We added a plate to the back of the robot so that we could mount our lifting mechanism.



for the stanchion and pieces of our lifting
We found that we drill extra holes in the could add the bracket lifting mechanism on



We will be using wood the arm mechanism. needed to plate so we to hold the the robot.

Signature :	Renee	Date:	October 10,	2021

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021

Process:



Signature :	Renee	October 10, 2021
ngilature .	, 40.000	Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Process:

would not have to turn around for one of the sides, since the actions of the blue side are opposite of the red side.

Following are the things that we could do:

- 1. Pick up the block, move toward the carousel turn it until the duck comes off and then move to the Storage Unit
- 2. Pick up the block, move toward the carousel turn it until the duck comes off, go put the block in the Shipping hub and then move to the Storage Unit
- 3. Pick up the block, go put the block in the Shipping hub and then move to the Warehouse
- 4. Pick up the block, go to the Warehouse

Following is the sudo code to do each item:

Option 1:

- 1. Grip the block and raise the arm
- 2. Move forward 3" to line up with the middle of the carousel
- 3. Strafe left until you get to the carousel
- 4. Turn carousel until the duck falls off
- 5. Move forward to the Storage Unit
- 6. Strafe left to be in the Storage Unit

Signature :	Renee	Date:	October 10,	2021

ToRoto No. Co. No. ToRoloto So.

Engineering Activity "Continued"

Date: _	October 10, 2021	

Process:

Option 2:

- 1. Grip the block and raise the arm
- 2. Move forward 3" to line up with the middle of the carousel
- 3. Strafe left until you get to the carousel
- 4. Turn carousel until the duck falls off
- 5. Move past the Storage Unit and line up with the Shipping Hub
- 6. Turn right
- 7. Move towards the Shipping Hub
- 8. Raise arm to the appropriate Level
- 9. Move in so you can release the box
- 10. Release the block
- 11. Move back some
- 12. Lower the arm to just off the floor
- 13. Backup towards the wall
- 14. Strafe left to be in the Storage Unit

Option 3:

- Grip the block and raise the arm
- 2. Move forward 3" to line up with the middle of the carousel
- 3. Strafe left until you get inline with the Shipping Hub

Signature :	Renee	October 10, 202	21
Signature .	, 10.000	Date.	

ToRoto No. Co. No. ToRoloto So.

Engineering Activity "Continued"

Date: October 10, 202	21		

Process:

- 4. Move towards the Shipping Hub
- 5. Raise arm to the appropriate Level
- 6. Move in so you can release the block
- 7. Release the block
- 8. Move back some
- 9. Lower the arm to just off the floor
- 10. Backup a little
- 11. Turn right
- 12. Go to the Warehouse

Option 4:

- 1. Grip the block and raise the arm
- 2. Move forward 3"
- 3. Turn right
- 4. Go to the Warehouse

The preceding instructions are for the Red side, for the Blue side you would strafe right instead of left, you would turn left instead of right.

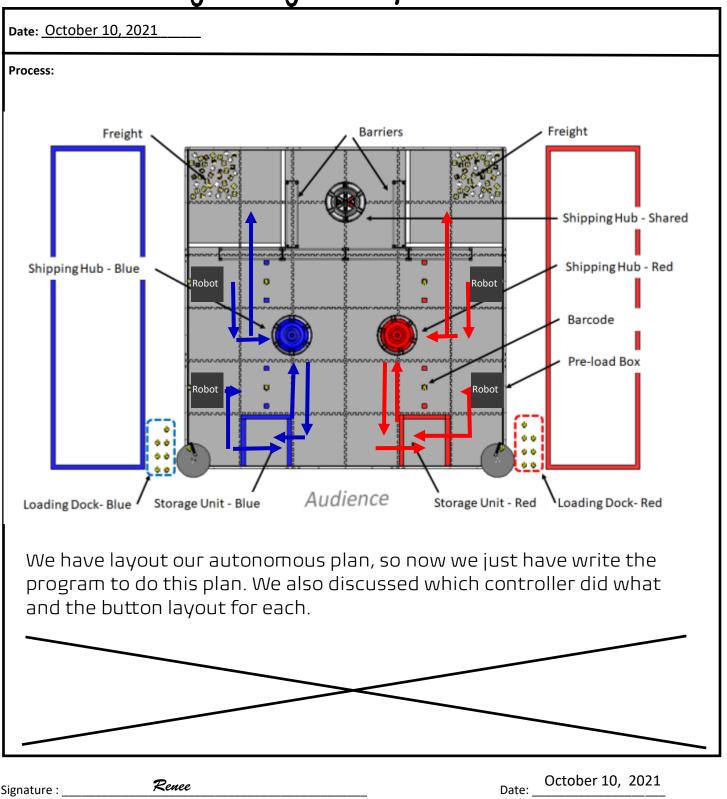
Signature :	Renee	Date:	October 10, 2021
Signature		Date	

TEAM TRAIN

ToRoto No Cono ToRoloto So

Renee

Signature:



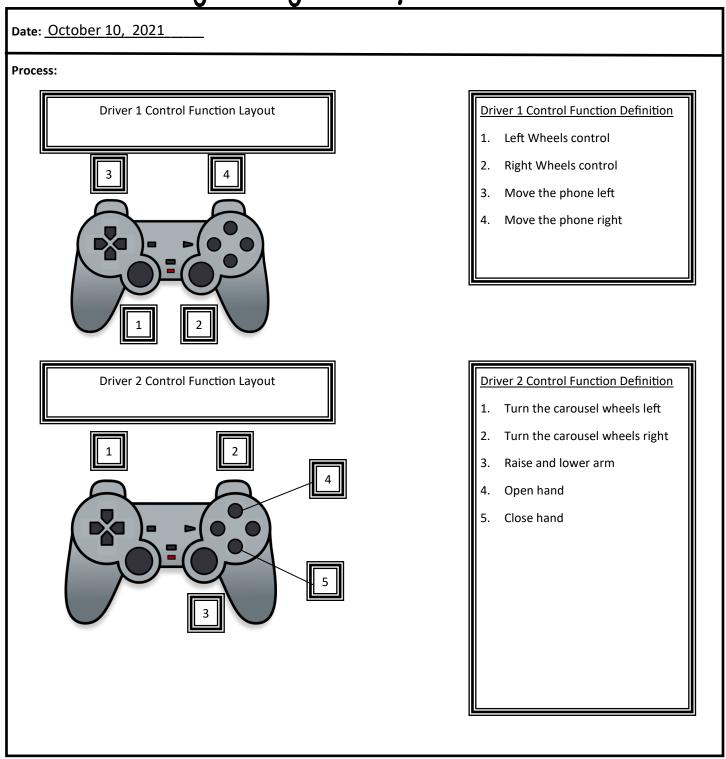
TEAM TSAI

ToRoto MoCoMo ToRoloto So

Renee

Signature : _____

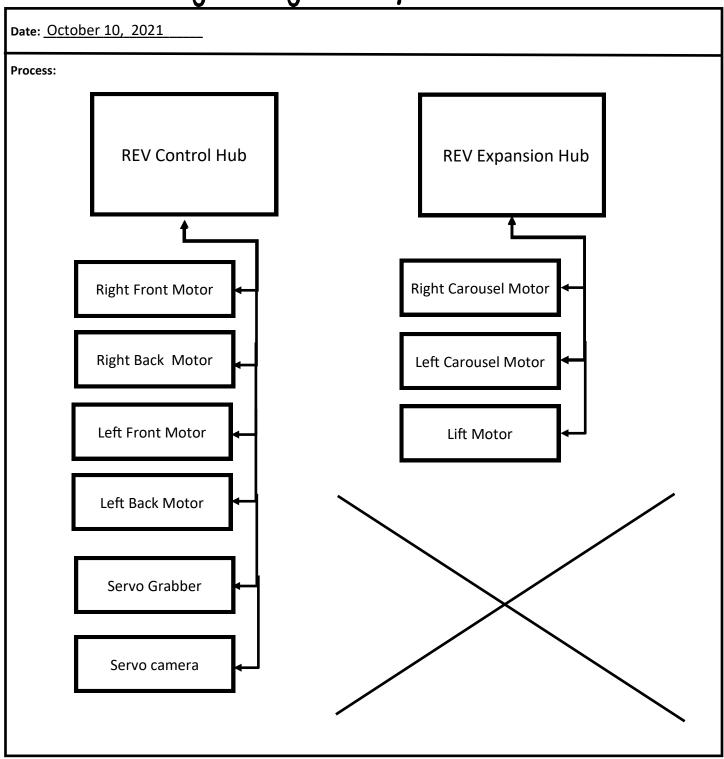
Engineering Activity "Continued"



Date: ___October 10, 2021

ToRoto NoCono ToRoloto So

Engineering Activity "Continued"



Signature: _____ October 10, 2021

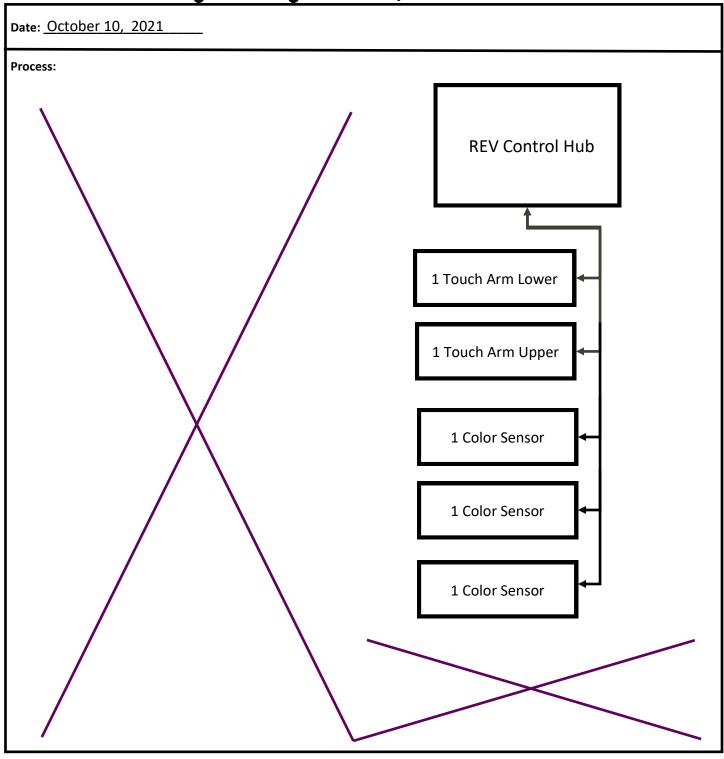
Tram 7341

ToRoto Nicono ToRoloto So

Renee

Signature:

Engineering Activity "Continued"



October 10, 2021

Tram 7341

Toroto Mocomo Torolotoso

Engineering Activity

Date: November 7, 2021

Purpose of the Activity:

Practice autonomous
Review the robot

Members:
Cailyn, Elle, Isabel, Harper, and Renee

Process:

We started the meeting with a discussion on what will happen at the meet this coming Saturday, which looks like it will start sometime after 9:00am. The girls located the following items on the robot:

- 1. Power switch
- 2. 7 Motors—4 for the drive mechanism, 2 for moving the carousel, 1 to lift the arm up and down
- 3. 2 Servos—1 to move the camera to scan the field, and 1 to grip the field elements
- 4. 2 Touch sensors—these are to control the movement of the arm (to stop the arm from going to high or to low by stopping the arm motor)
- 5. 1 Color sensor—used to determine which side of the field we are on viewing the alliance marker
- 6. 1 Camera—used to find the target

Lunch was discussed and all the girls will report by email what they would like from Publix. We will also have Cheetos, Dr. Pepper and flavored water at the tournament. Each family will drive to Palm Bay.

We decided that we will have our engineering notebook in a digital format

Signature :	Cailyn	November 7, 202:
Signature .	College	Date.

ToRoToNoCoNo ToRoLES

Engineering Activity "Continued"

Date: November 7, 202	1		

Process:

only for those who might want to look at our document.

We had a discussion on when to work on our outreach project for our local Veterans and decided that we would do it the next Sunday.

We went out to test our autonomous program. First try we had a few error with the color sensor. The color value for the sensor outside was not the same as the inside. After the code was change to check for lower values we were able to run the options. It was determined that some of the options we do not need to do certain things. The following things were changed:

- 1. If we are just going to the carousel and the storage we do not need to scan and find the target.
- 2. If we are just going to the warehouse we do not need to scan, nor pickup the block. We would need to back up a little so we can have a running start to get over the barrier.

While practicing pricing up the block we found that we need to be careful and not pick up two blocks at one time. Also slow up and what when at the shipping hub.

We did have an accident and broke one of the gripper



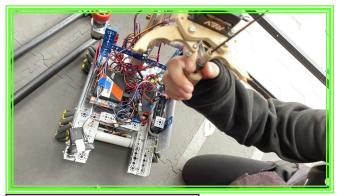
	Q - 11	_ November 7, 2021
ignature :	Cailyn	Date:

ToRoto Nicono ToRolotoso

Engineering Activity "Continued"

Date: November 7, 2021

Process:



arms. We were luck that our Mentor Mr. Louis had made several different version of the arm for us to try out.

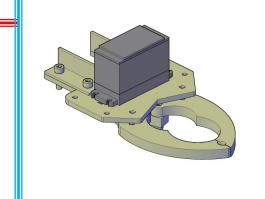
After several tries we re-assembled the gripper mechanism correctly so that we can finish our driving prac-

> tice. Our new gripper arm are made from a polycarbonate plastic, so we hope that it will not break.



While practicing we noticed that when gripping the flat sides of the block it

slips more now with the new gripper arms. We looked and saw that when the gripper closed against the block it was



Signature: _____ November 7, 2021

ToRoto MoComo ToRoloto So

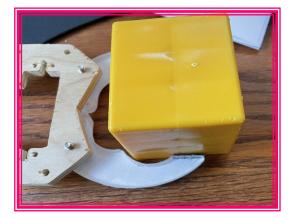
Engineering Activity "Continued"

Date: November 7, 2021

Process:

holding by only two points on the block. So, when we went over the barrier the block slipped out. After some consideration we changed the gripper to flat and angled to match the block when it was closed. Also we

added some sanding fabric to help with the gripping.









Signature: _____ November 7, 2021

TEAM TSAI

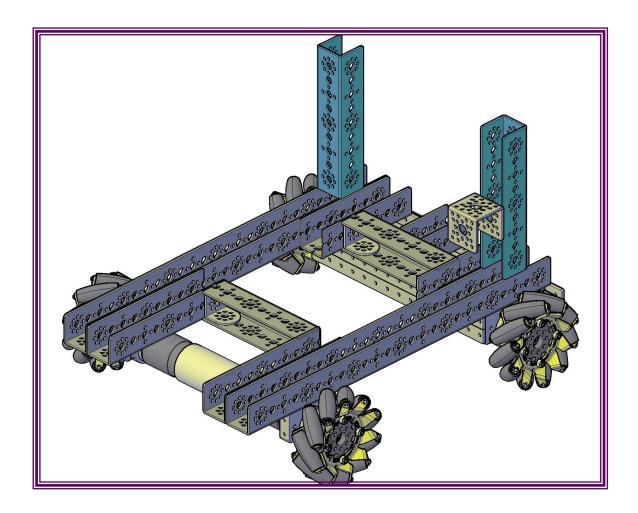
ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"

Date:	November 7, 2021	
-------	------------------	--

Process:

We have setup our robot to have several different mechanisms. The first is the drive system, where we have 4 motor that have encoders and are used during the autonomous mode to control the robot's driving.



Signature :	Cailyn	November 7, 202
-------------	--------	-----------------

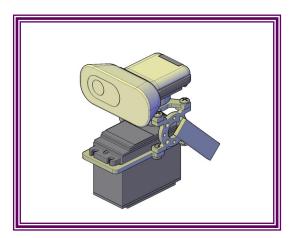
ToRoToNoCoNo ToRoLES

Engineering Activity "Continued"

Date: November 7, 2021

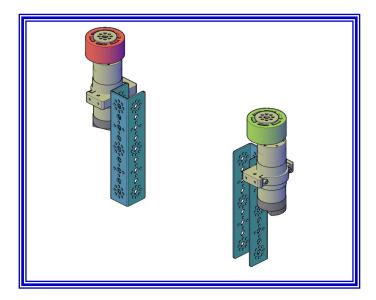
Process:

Our second subsystem is the camera subsystem, which is used to find the targets on the field. We have 1 Logitech camera and a servo. The servo turns while the camera is searching for one of the three positions the target element can be found.



Our third subsystem is the carousel subsystem, which is used to turn the carousel either during autonomous or driver control portion of the meet. We have to motors that have compliance wheel the will turn the carousel. The reason we have two is during the autonomous run the carousel are on opposite side of the

robot. With two motors we will not have to worry about turning the robot around to perform the function. This also helps during end game you drive up frontwards or backward to get the job done, getting all those ducks on the field.



	0 . 11.	November 7, 2021
ignature :	Cailyn	Date:

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

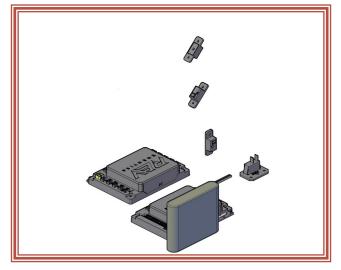
Date: November 7, 2021

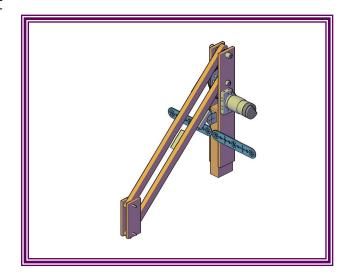
Process:

Our next subsystem is the arm or lift subsystem. This subsystem is made out for pine and maple wood for it's strength. This year we move

the lifting motor from being in front or back of the vertical stanchion to being in the middle of the mechanism providing a better configuration so that we have less gear hopping or slipping because the gears lost contact with each other.

This subsystem uses two touch sensors to control how high or low the motors will move the arm.





The final subsystem is the electronics, this contains the control hub, expansion hub, the color sensor, touch sensor, and color sensor. The color sensor is used to determine which alliance we are part of. We need to know this for autonomous since we only have one program and each side runs opposite of each other.

Signature: _____ November 7, 2021 _____ Date: _____

TEAM TSAI

ToRotto MoCoMo ToRolottoSo

l₂

Process:	Engineering Activity "Continued"
	Date: November 7, 2021
	Process:

Date: _____ Signature : Cailyn

Tram 7391

ToRotto MoCoMo ToRolottoSo

l₂

Date: _____ Signature: Cailyn

ToRoto MoCoMo ToRolotoSo

Renee

Signature:

Engineering Activity "Continued"

Engineering Noorvier Continued
Date: November 7, 2021
Process:
<u>Autonomous</u>
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run autonomously to put a ball into the vortex
push the big ball off the base and then and go on the base.
This will work on only the blue side.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */
package org.firstinspires.ftc.Team7341;

Date: _____

ToRotto MoCoMo ToRolottoSo

Date: November 7, 2021	
Process:	
import android.app.Activity;	
import android.content.Context;	
import android.graphics.Color;	
import android.view.View;	
import com.qualcomm.ftccommon.SoundPlayer;	
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;	
import com.qualcomm.robotcore.eventloop.opmode.Autonomous;	
import com.qualcomm.robotcore.eventloop.opmode.Disabled;	
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;	
import com.qualcomm.robotcore.hardware.ColorSensor;	
import com.qualcomm.robotcore.hardware.DcMotor;	
import com.qualcomm.robotcore.util.ElapsedTime;	
import org.firstinspires.ftc.robotcore.external.ClassFactory;	
$import\ org. first in spires. ftc. robot core. external. hardware. camera. We becam Name;$	
import org.firstinspires.ftc.robotcore.external.matrices.OpenGLMatrix;	
import org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer;	
import org.firstinspires.ftc.robotcore.external.tfod.Recognition;	
$import\ org. first in spires. ftc. robot core. external. tfod. TFO bject Detector;$	
import java.text.SimpleDateFormat;	
Signature · Rence	November 7, 2021
Signature :	Date:

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** import java.util.Date; import java.util.List; @Autonomous(name = "FF: Autonomous1", group = "Auto") //@Disabled public class Autonomous1 extends LinearOpMode { private ElapsedTime period = new ElapsedTime(); /* Note: This sample uses the all-objects Tensor Flow model (FreightFrenzy BCDM.tflite), which contains * the following 4 detectable objects * 0: Ball, * 1: Cube, * 2: Duck, * 3: Marker (duck location tape marker) * Two additional model assets are available which only contain a subset of the objects: * FreightFrenzy_BC.tflite 0: Ball, 1: Cube * FreightFrenzy_DM.tflite 0: Duck, 1: Marker */ private static final String TFOD MODEL ASSET = "FreightFrenzy BCDM.tflite"; private static final String[] LABELS = { "Ball", "Cube", "Duck", "Marker" };

Signature :	Renee	Date:November 7, 202

ToRotto MoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: November 7, 2021
Process:
String ringcount = "None";
int location = 0;
int attemp;
int count;
/*
* IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which
* 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function.
* A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer
* web site at https://developer.vuforia.com/license-manager.
*
* Vuforia license keys are always 380 characters long, and look as if they contain mostly
* random data. As an example, here is a example of a fragment of a valid key:
* ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOI2dRzKS4T0hQ8kT
* Once you've obtained a license key, copy the string from the Vuforia web site
* and paste it in to your code on the next line, between the double quotes.
*/
private static final String VUFORIA_KEY =
"Ad3dVfb////AAABmeuzevwxnUkXhEs/ ylggKdMEqN6gF28rbmVKeDVSAk9T8KMRzUkYXt2GjLLHHQemOBurtZ- F9uMN4xHQ28GLvuyT04rDTo4PXwhu513Yw2Eh8FY5LgDN9pQ0U1QTEJNKTHn/ E5T3HkFe70JHV5NVEos8r0nh42zrtKtPuG43TbgnqBREMPHQlk96+tRv4LsvMBxercYO5+YYEz08ySUro3lekghLfWrDx/ VoDwjDdYHtGU6GVte- qKqW0Tz3OUUcWAJC2h0+Gq+wH42o0QHpGUkX2MeUaehTHVsh6xb7OqliTGcL0/7u40Rl3yHCpnpDb9lvWd+BGlRcEDxgMqJF Mz74yyXoywTj1UXZ53nBLOTyic";
DefineFrenzy robot = new DefineFrenzy(); // Use a Princess's Charlie hardware /**

Date: _____

ToRotto NoCollo ToRolottoSo

n . Navember 7 2021
Date: November 7, 2021
Process:
* {@link #vuforia} is the variable we will use to store our instance of the Vuforia
* localization engine.
*/
private VuforiaLocalizer vuforia;
/**
* {@link #tfod} is the variable we will use to store our instance of the TensorFlow Object
* Detection engine.
*/
private TFObjectDetector tfod;
// Define your functions
DriveDef2 drive = new DriveDef2();
DriveColorDef2 color = new DriveColorDef2();
CarouselDef2 carousel = new CarouselDef2();
LiftDef2 arm = new LiftDef2();
HandDef hand = new HandDef();
Trainabel Harra Herricage ())
double \$stopphone1 = .1;
double \$stopphone2 = .3;
boolean phone_locked;
boolean phone_in;
boolean phone_out;
int phonecyclecount;
private int statusx;
// List of available sound resources

Signature :	Renee	November 7, 202
DIBLIALULE.		Date.

ToRoto Nocono ToRoloto So

Renee

Signature:

Engineering Activity "Continued"

```
Date: November 7, 2021
Process:
   //{"ss alarm" - 0, "ss bb8 down" - 1, "ss bb8 up" - 2, "ss darth vader" - 3, "ss fly by" - 4,
   // "ss_mf_fail" - 5, "ss_laser" - 6 "ss_laser_burst" - 7, "ss_light_saber" - 8,
   // "ss_light_saber_long" - 9, "ss_light_saber_short" - 10,
   // "ss_light_speed" - 11, "ss_mine" - 12, "ss_power_up" - 13, "ss_r2d2_up" - 14,
   // "ss roger roger" - 15, "ss siren" - 16, "ss wookie" - 17};
   String sounds[] = {"ss_alarm", "ss_bb8_down", "ss_bb8_up", "ss_darth_vader", "ss_fly_by",
        "ss_mf_fail", "ss_laser", "ss_laser_burst", "ss_light_saber", "ss_light_saber_long", "ss_light_saber_short",
        "ss light speed", "ss mine", "ss power up", "ss r2d2 up", "ss roger roger", "ss siren", "ss wookie" };
   boolean soundPlaying = false;
      * IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which
      * 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function.
      * A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer
      * web site at https://developer.vuforia.com/license-manager.
      * Vuforia license keys are always 380 characters long, and look as if they contain mostly
      * random data. As an example, here is a example of a fragment of a valid key:
           ... ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOI2dRzKS4T0hQ8kT ...
      * Once you've obtained a license key, copy the string from the Vuforia web site
      * and paste it in to your code onthe next line, between the double quotes.
      */
   public static final String TAG = "Vuforia VuMark Sample";
```

Date: _ November 7, 2021

PoRoto NoCono PoRolote So

Date: November 7, 2021		
Process:		
OpenGLMatrix lastLocation = null;		
/**		
/**		
* This is the webcam we are to use. As with other hardware devices such as motors and		
* servos, this device is identified using the robot configuration tool in the FTC application.		
*/		
WebcamName webcamName;		
private ElapsedTime runtime = new ElapsedTime();		
int soundID = -1;		
@Override public void runOpMode() throws InterruptedException {		
String print_val;		
print_val = "Test";		
String storeblock = "0";		
int attemp;		
int count;		
// Variables for choosing from the available sounds		
int soundIndex = 0;		
Context myApp = hardwareMap.appContext;		
// create a sound parameter that holds the desired player parameters.		
SoundPlayer.PlaySoundParams params = new SoundPlayer.PlaySoundParams();		
params.loopControl = 0;		
params.waitForNonLoopingSoundsToFinish = true;		
// Leave argument list empty if you want to disable the camera monitor view.		
TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters();		

Signature :	Renee	Date: _	November 7, 2021

ToRato NoCono ToRolatoSo

Date:	November 7, 2021
Proce	ss:
	/*
	* Initialize the drive syst;em variables.
	* The init() method of the hardware class does all the work here
	*/
	robot.init(hardwareMap, 1, statusx);
	drive.init(hardwareMap, this);
	arm.init(hardwareMap, this);
	hand.init(hardwareMap, this);
	color.init(hardwareMap, this);
	carousel.init(hardwareMap, this);
	(
	// Send telemetry message to signify robot waiting;
	telemetry.addData("Status", "Autonomous Position");
	String start Dato:
	String startDate; startDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date());
	startbate – new simplebateronnati yyyy/mivi/du mi.min.ss j.ionnat(new bate()),
	robot.left_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
	robot.left_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
	robot.right_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
	robot.right_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
	robot.left_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
	robot.left_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
	robot.right_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
	robot.right_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);

Signature :	Renee	November 7, 202 Date:
ngilatule .		Date.

ToRotto NoCollo ToRolottoSo

zigiteet ing teetroop contention
Date: November 7, 2021
Process:
// Send telemetry message to indicate successful Encoder reset
telemetry.addData("1", "Starting drive position at Left %7d - Right %7d left_back %7d - right_back %7d",
robot.left_front.getCurrentPosition(),
robot.right_front.getCurrentPosition(),
robot.left_back.getCurrentPosition(),
robot.right_back.getCurrentPosition());
/*
* Retrieve the camera we are to use.
*/
<pre>webcamName = hardwareMap.get(WebcamName.class, "Webcam 1");</pre>
initVuforia();
initTfod();
/**
* Activate TensorFlow Object Detection before we wait for the start command.
* Do it here so that the Camera Stream window will have the TensorFlow annotations visible.
**/
if (tfod != null) {
tfod.activate();
// The TensorFlow software will scale the input images from the camera to a lower resolution.
// This can result in lower detection accuracy at longer distances (> 55cm or 22").
// If your target is at distance greater than 50 cm (20") you can adjust the magnification value

Signature :	Renee	November 7, 2021
ngilatule.		Date.

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

zigiteering teatring continued

```
Date: November 7, 2021
Process:
        // to artificially zoom in to the center of image. For best results, the "aspectRatio" argument
        // should be set to the value of the images used to create the TensorFlow Object Detection model
        // (typically 1.78 or 16/9).
        // The TensorFlow software will scale the input images from the camera to a lower resolution.
        // This can result in lower detection accuracy at longer distances (> 55cm or 22").
        // If your target is at distance greater than 50 cm (20") you can adjust the magnification value
        // to artificially zoom in to the center of image. For best results, the "aspectRatio" argument
        // should be set to the value of the images used to create the TensorFlow Object Detection model
        // (typically 16/9).
        tfod.setZoom(2.5, 16.0/9.0);
     // closed - hand
     // robot.hand.setPosition(.35);
      robot.Alliance_color = hardwareMap.get(ColorSensor.class, "floor_color");
     if (robot.Alliance color.red() > 500){
        robot.Alliance_color_results = "RED";
        robot.position_side = 1;
     } else if (robot.Alliance_color.blue() > 250){
        robot.Alliance_color_results = "BLUE";
        robot.position_side = 2;
     telemetry.addData("6", "You are on %s- R %d - B %d side", robot.Alliance_color_results,
```

Signature :	Renee	November 7, 202

robot.waithalf(1); robot.count = 0;

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** robot.Alliance color.red(),robot.Alliance color.blue()); telemetry.update(); robot.count = 0; while (robot.position function == 0 && (!isStopRequested() || opModelsActive())) { robot.count++; if (gamepad2.y) { robot.position function = 1; } else if (gamepad2.b) { robot.position_function = 2; } else if (gamepad2.x) { robot.position_function = 3; } else if (gamepad2.a) { robot.position_function = 4; } else { telemetry.addData("5", "Select D2 - y (Yellow or Triangle button) for position 1 carousel then Storage Unit cnt - %d", robot.count); telemetry.addData("7", "Select D2 - b (Red or Circle Button) for position 1 carousel Freight to Shipping Hub back to Storage Unit"); telemetry.addData("7", "Select D2 - x (Blue or Square Button) for position 2 place Freight then Warehouse"); telemetry.addData("7", "Select D2 - a (Green or 'X' Button) for position 2 just Warehouse"); telemetry.update(); robot.waithalf(1); }

Signature :	Renee	November 7, 202

Tram 7341

ToRotto MoCoMo ToRolottoSo

	Enginee	ering Ac	civicy	Continued	
Data November 7, 202	01				

// Send telemetry message to indicate successful Encoder reset if (robot.position_side == 2) { telemetry.addData("1", "All setup at Blue Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE); } else if (robot.position_side == 1) { telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed. telemetry.update();	Date: November 7, 2021	
<pre>if (robot.position_side == 2) { telemetry.addData("1", "All setup at Blue Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE); } else if (robot.position_side == 1) { telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	Process:	
telemetry.addData("1", "All setup at Blue Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE); } else if (robot.position_side == 1) { telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	// Send telemetry message to indicate successful Encoder reset	
robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE); } else if (robot.position_side == 1) { telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	if (robot.position_side == 2) {	
<pre>} else if (robot.position_side == 1) { telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	telemetry.addData("1", "All setup at Blue Side");	
telemetry.addData("1", "All setup at Red Side"); robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);	
<pre>robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED); } if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	} else if (robot.position_side == 1) {	
<pre>if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	telemetry.addData("1", "All setup at Red Side");	
<pre>if (robot.position_function == 1) { telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED);	
<pre>telemetry.addData("2", "Going to move the carousel then go to the Storage Unit"); } else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	}	
<pre>} else if (robot.position_function == 2) { telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	if (robot.position_function == 1) {	
<pre>telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); } else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	telemetry.addData("2", "Going to move the carousel then go to the Storage Unit");	
<pre>} else if (robot.position_function == 3) { telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	} else if (robot.position_function == 2) {	
telemetry.addData("2", "Going to place the Freight and go to the Warehouse"); } else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit");	
<pre>} else if (robot.position_function == 4) { telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.</pre>	} else if (robot.position_function == 3) {	
telemetry.addData("2", "Going to the Warehouse"); } telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	telemetry.addData("2", "Going to place the Freight and go to the Warehouse");	
telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	} else if (robot.position_function == 4) {	
telemetry.addData("5", "Waiting to start"); // wait for the start button to be pressed.	telemetry.addData("2", "Going to the Warehouse");	
// wait for the start button to be pressed.	}	
	telemetry.addData("5", "Waiting to start");	
telemetry.update();	// wait for the start button to be pressed.	
	telemetry.update();	

Signature :	Renee	Date:	November 7, 2021

ToRotto NoCollo ToRolottoSo

Engineering Apprilia, Continues	
Date: November 7, 2021	
Process:	
waitForStart();	
while (opModelsActive()) {	
robot.phone_position = 0;	
robot.phone.setPosition(robot.phone_position);	
// find the rings to determine the option of A, B, or C	
telemetry.addData("6", " find the duck or our marker");	
telemetry.update();	
location = findDuck();	
robot.position_option = location;	
telemetry.addData("4", " - Target for carousel %s", robot.position_option);	
telemetry.update();	
//close on the cargo block	
hand.Hand(1, 1);	
// lift arm up so block does not drag the ground	
arm.liftmove(2, 1, 1);	
if (robot.position_side == 1 && robot.position_function == 1) {	
// side red - position 1 going to turn carousel and move to storage unit	
robot.blinkin.setPattern(robot.patterndisplay.RED);	
telemetry.addData("2", "Going to move the carousel then go to the Storage Unit");	
telemetry.update();	

Signature	Renee	Date: November 7, 2021

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** // neg is going backwards pos is going forwards, then strafe to the carousel drive.encoder2Drive(.5,1,0,0,3,4); drive.encoder2Drive(.5, 0, 0, 1, 22.9, 5); // Turn the carousel carousel.carousel(2, 12); // neg is going backwards pos is going forwards going to the depot robot.blinkin.setPattern(robot.patterndisplay.GREEN); drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5); drive.encoder2Drive(.7,0,0,1,6,8); robot.blinkin.setPattern(robot.patterndisplay.DARK RED); } else if (robot.position side == 1 && robot.position function == 2) { // side red - position 1 going to turn carousel putting block in the and move to storage unit robot.blinkin.setPattern(robot.patterndisplay.RED); telemetry.addData("2", "Going to move the Carousel, Freight to Shipping Hub, Storage Unit"); telemetry.update(); // neg is going backwards pos is going forwards, then strafe to the carousel drive.encoder2Drive(.5,1,0,0,3,4); drive.encoder2Drive(.5, 0, 0, 1, 22.9, 5); // Turn the carousel carousel.carousel(2, 6); robot.wait(6); // neg is going backwards pos is going forwards going to the depot

Signature :	Renee	Date:

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Engineering Neutron Continued

```
Date: November 7, 2021
Process:
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          drive.encoder2Drive(.7, 1, 0, 0, (2*12)+6, 5);
          // turn right toward the
          drive.encoder2Drive(.6,0,-1,0,19,4);
          // move toward the Shipping Hub
          drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
          // place freight in Shipping Hub
          deliver cargo(robot.position option);
          // Park in the Storage Unit
          drive.encoder2Drive(.7, -1, 0, 0, 2*12, 5);
          drive.encoder2Drive(.7,0,0,-1,8,8);
          robot.blinkin.setPattern(robot.patterndisplay.DARK_RED);
        } else if (robot.position_side == 1 && robot.position_function == 3) {
          // play the sound to indicate start of mission
          playsound(13);
          // side red - Going to place the Freight and go to the Warehouse
          robot.blinkin.setPattern(robot.patterndisplay.RED);
          telemetry.addData("2", "Going to place the Freight and go to the Warehouse");
          telemetry.update();
          // neg is going backwards pos is going forwards, then strafe to the carousel
          drive.encoder2Drive(.5,1,0,0,3,4);
          drive.encoder2Drive(.5, 0, 0, 1, 24, 5);
          drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
          // neg is going backwards pos is going forwards going to the depot
```

Signature :	Renee	Date:November 7,	202
Signature :	Kenee	Date:	_

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021

```
Process:
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          // place freight in Shipping Hub
          deliver_cargo(robot.position_option);
          drive.encoder2Drive(.7, -1, 0, 0, 12, 5);
          // turn right toward the
          drive.encoder2Drive(.6,0,-1,0,19,4);
          drive.encoder2Drive(.9,1,0,0,4*12,8);
          robot.blinkin.setPattern(robot.patterndisplay.DARK RED);
        } else if (robot.position_side == 1 && robot.position_function == 4) {
          // play the sound to indicate start of mission
          playsound(14);
          // side red - position 1 going to turn carousel putting block in the and move to storage unit
          robot.blinkin.setPattern(robot.patterndisplay.RED);
          telemetry.addData("2", "Going to the Warehouse");
          telemetry.update();
          // neg is going backwards pos is going forward
          drive.encoder2Drive(.5,1,0,0,2*12,4);
          // turn toward the Warehouse
          drive.encoder2Drive(.6,0,-1,0,19,4);
          // neg is going backwards pos is going forwards going to the depot
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          //Go into the Warehouse
          drive.encoder2Drive(.7, 1, 0, 0, 4*12, 5);
          robot.blinkin.setPattern(robot.patterndisplay.DARK_RED);
```

Signature :	Renee	Date: _	November 7, 2021

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Engineering Neutron Continued

```
Date: November 7, 2021
Process:
        } else if (robot.position_side == 2 && robot.position_function == 1) {
          // play the sound to indicate start of mission
          playsound(14);
          robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT BLUE);
          // side blue - position 2
          telemetry.addData("2", "BLUE Side - Going to move the carousel then go to the Storage Unit");
          telemetry.update();
          // neg is going backwards pos is going forwards, then strafe to the carousel
          drive.encoder2Drive(.5,1,0,0,3,4);
          drive.encoder2Drive(.5, 0, 0, -1, 22.9, 5);
          // Turn the carousel
          carousel.carousel(1, 12);
          // neg is going backwards pos is going forwards going to the Storage Unit
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          // goto the Storage Unit
          drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
          drive.encoder2Drive(.7,0,0,-1,6,8);
          robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
        } else if (robot.position_side == 2 && robot.position_function == 2) {
          // play the sound to indicate start of mission
          playsound(14);
          robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
          // side blue - position 2
```

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

```
Date: November 7, 2021
Process:
          telemetry.addData("2", "Blue side - Going to move the Carousel, Freight to Shipping Hub, Storage Unit");
          telemetry.update();
          // neg is going backwards pos is going forwards, then strafe to the carousel
          drive.encoder2Drive(.5,1,0,0,3,4);
          drive.encoder2Drive(.5, 0, 0, -1, 22.9, 5);
          // Turn the carousel
          carousel.carousel(2, 6);
          robot.wait(6);
          // neg is going backwards pos is going forwards going to the depot
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          drive.encoder2Drive(.7, 1, 0, 0, (2*12)+6, 5);
          // turn right toward the
          drive.encoder2Drive(.6,0,1,0,19,4);
          // move toward the Shipping Hub
          drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
          // place freight in Shipping Hub
          deliver_cargo(robot.position_option);
          // Goto Storage Unit
          drive.encoder2Drive(.7, -1, 0, 0, 2*12, 5);
          drive.encoder2Drive(.7,0,0,1,8,8);
          // all done
          robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
        } else if (robot.position_side == 2 && robot.position_function == 3) {
          // play the sound to indicate start of mission
```

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

```
Date: November 7, 2021
Process:
          playsound(14);
          robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
          // side blue - position 2
          telemetry.addData("2", "Blue side - Going to place the Freight and go to the Warehouse");
          telemetry.update();
          // neg is going backwards pos is going forwards, then strafe to the carousel
          drive.encoder2Drive(.5,1,0,0,3,4);
          drive.encoder2Drive(.5, 0, 0, -1, 24, 5);
          drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
          // neg is going backwards pos is going forwards going to the depot
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
          // place freight in Shipping Hub
          deliver cargo(robot.position option);
          drive.encoder2Drive(.7, -1, 0, 0, 12, 5);
          // turn right toward the
          drive.encoder2Drive(.6,0,1,0,19,4);
          drive.encoder2Drive(.9,1,0,0,4*12,8);
          // all done
          robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
        } else if (robot.position_side == 2 && robot.position_function == 4) {
          // play the sound to indicate start of mission
          playsound(14);
          robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
```

Signature : Date	November 7, 2021
------------------	------------------

ToRotto NoCollo ToRotottoSo

	Date: <u>November 7, 2021</u>			
Date: No				
Process:				
	// side blue - position 2			
	telemetry.addData("2", "Blue side - Going to the Warehouse");			
	telemetry.update();			
	// neg is going backwards pos is going forward			
	drive.encoder2Drive(.5,1,0,0,2*12,4);			
	// turn toward the Warehouse			
	drive.encoder2Drive(.6,0 , 1, 0, 19, 4);			
	// neg is going backwards pos is going forwards going to the depot			
	robot.blinkin.setPattern(robot.patterndisplay.GREEN);			
	//Go into the Warehouse			
	drive.encoder2Drive(.7, 1, 0, 0, 4*12, 5);			
	// all done			
	robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);			
}	else {			
	// invalid options			
	playsound(5);			
	telemetry.addData("6", " No Valid option picked");			
	telemetry.update();			
}				
ro	obot.waithalf(20);			
te	elemetry.addData("Path", "Autonomous Complete");			
te	elemetry.update();			

Signature :	Renee	November 7, 202 Date:

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** idle(); // Always call idle() stop(); * Initialize the Vuforia localization engine. private void initVuforia() { * Configure Vuforia by creating a Parameter object, and passing it to the Vuforia engine. */ VuforiaLocalizer.Parameters parameters = new VuforiaLocalizer.Parameters(); parameters.vuforiaLicenseKey = VUFORIA_KEY; parameters.cameraName = hardwareMap.get(WebcamName.class, "Webcam 1"); // Instantiate the Vuforia engine vuforia = ClassFactory.getInstance().createVuforia(parameters); // Loading trackables is not necessary for the TensorFlow Object Detection engine. } public void playsound (int sound_index) { Context myApp1 = hardwareMap.appContext;

Signature :	Renee	November 7, 2021
ngilatule.		Date.

ToRoToNoCoNo ToRoLoToSo

Engineering Activity "Continued"

Zinginicer ing Approving

Date: November 7, 2021
Process:
// create a sound parameter that holds the desired player parameters.
SoundPlayer.PlaySoundParams params = new SoundPlayer.PlaySoundParams();
params.loopControl = 0;
params.waitForNonLoopingSoundsToFinish = true;
// Determine Resource IDs for the sounds you want to play, and make sure it's valid.
if ((soundID = myApp1.getResources().getIdentifier(sounds[sound_index], "raw", myApp1.getPackageName())) != 0){
// Signal that the sound is now playing.
soundPlaying = true;
// Start playing, and also Create a callback that will clear the playing flag when the sound is complete.
SoundPlayer.getInstance().startPlaying(myApp1, soundID, params, null,
new Runnable() {
<pre>public void run() {</pre>
soundPlaying = false;
<pre>}});</pre>
}
}
public void waitForTick(long periodMs) {
long remaining = periodMs - (long)period.milliseconds();
// sleep for the remaining portion of the regular cycle period.
if (remaining > 0) {
try {
Thread.sleep(remaining);

Signature :	Renee	November 7, 202

ToRoToNoCoNo ToRoLESo

Date: November 7, 2021
Process:
} catch (InterruptedException e) {
Thread.currentThread().interrupt();
}
}
// Reset the cycle clock for the next pass.
period.reset();
}
String format(OpenGLMatrix transformationMatrix) {
return (transformationMatrix != null) ? transformationMatrix.formatAsTransform() : "null";
}
/**
* Initialize the TensorFlow Object Detection engine.
*/
private void initTfod() {
int tfodMonitorViewId = hardwareMap.appContext.getResources().getIdentifier(
"tfodMonitorViewId", "id", hardwareMap.appContext.getPackageName());
TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters(tfodMonitorViewId);
tfodParameters.minResultConfidence = 0.8f;
tfodParameters.isModelTensorFlow2 = true;
tfodParameters.inputSize = 320;
tfod = ClassFactory.getInstance().createTFObjectDetector(tfodParameters, vuforia);
tfod.loadModelFromAsset(TFOD_MODEL_ASSET, LABELS);
}

Signature :	Renee	November 7, 2021
Jigilatule.	* ** ***	Date.

TEAM TSAI

Date: November 7, 2021

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

```
Process:
   private void deliver_cargo (int position) {
      if (position == 1) {
        // Move foward 6inches
        drive.encoder2Drive(.5,1,0,0,3,4);
        //close on the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,3,4);
     } else if (position == 2) {
        // lift arm up so block does not drag the ground
        arm.liftmove(2, 1, 1);
        drive.encoder2Drive(.5,1,0,0,4,4);
        //close on the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,4,4);
        arm.liftmove(1, 1, 1);
      }else if (position == 3) {
        // lift arm up so block does not drag the ground
        arm.liftmove(2, 2, 1);
        drive.encoder2Drive(.5,1,0,0,5,4);
        //close on the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,5,4);
        arm.liftmove(1, 2, 1);
```

Signature :	Renee	November 7, 202

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Process:

}
// find the position of the duck

```
private int findDuck() {
  boolean phone_locked;
  int FoundDuck = -1;
  phone_in = true;
  phone locked = false;
  telemetry.addData("2", "in findDuck");
  telemetry.update();
  robot.phone_position = .0;
  robot.phone.setPosition(robot.phone_position);
  while (FoundDuck == -1 && (!isStopRequested() || opModelsActive()) ){
    if (tfod != null) {
      // getUpdatedRecognitions() will return null if no new information is available since
      // the last time that call was made.
      List<Recognition> updatedRecognitions = tfod.getUpdatedRecognitions();
      count++;
      if (updatedRecognitions != null) {
        telemetry.addData("# Object Detected", updatedRecognitions.size());
        if (count > 55000) {
           if (robot.phone_position < .3) {</pre>
             robot.phone_position += .02;
             robot.phone.setPosition(robot.phone_position);
             count = 0;
```

Signature :	Renee	November 7, 2021

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

zingineering (territor)

```
Date: November 7, 2021
Process:
              } else {
                 robot.phone_position = 0;
                 robot.phone.setPosition(robot.phone_position);
                count = 0;
                return (1);
              }
            }
            telemetry.addData("3", "Phone in pos %.3f count %d", robot.phone position, count);
            telemetry.addData("7", "Response %s ", ringcount);
            // step through the list of recognitions and display boundary info.
            int i = 0;
            for (Recognition recognition: updatedRecognitions) {
             // telemetry.addData(String.format("label (%d)", i), recognition.getLabel());
             // telemetry.addData(String.format(" left,top (%d)", i), "%.03f , %.03f",
                     recognition.getLeft(), recognition.getTop());
             // telemetry.addData(String.format(" right,bottom (%d)", i), "%.03f, %.03f",
             //
                     recognition.getRight(), recognition.getBottom());
              i++;
              ringcount = recognition.getLabel();
            if (ringcount == "Duck") {
              FoundDuck = 1;
              telemetry.addData("end","Duck data %d phone position %f object %s", FoundDuck,
                   robot.phone_position, ringcount);
              if (robot.phone_position < .11) {
```

Signature :	Renee	Date: _	November 7, 2021

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

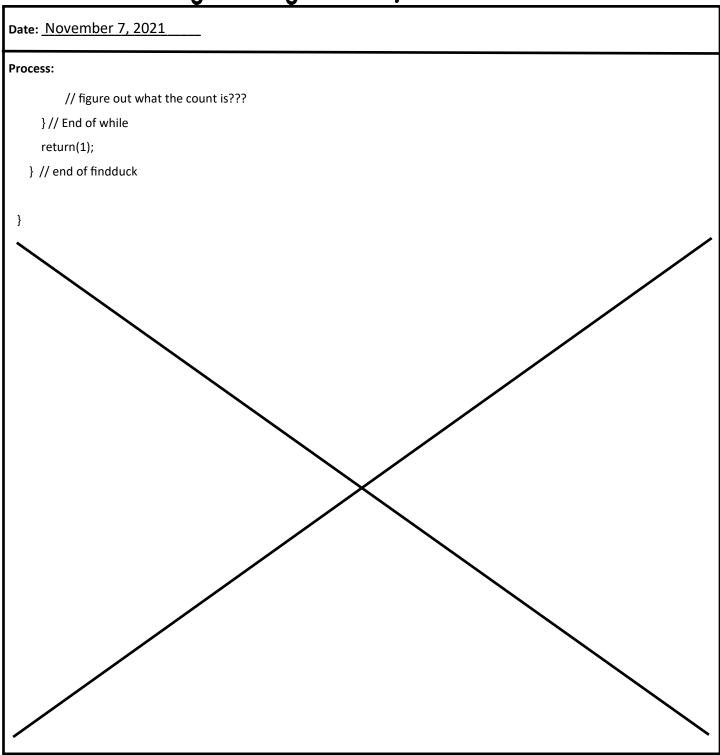
Date: November 7, 2021

```
Process:
                 return (1);
              } else if (robot.phone_position > .11 && robot.phone_position < .16 ){
                 return (2);
              } else if (robot.phone_position > .16) {
                 return (2);
            } else if (ringcount == "Ball") {
              telemetry.addData("end","Duck data %d phone position %f object %s", FoundDuck,
                   robot.phone position, ringcount);
            } else if (ringcount == "Cube") {
              telemetry.addData("end ","Duck data %d phone position %f object %s", FoundDuck,
                   robot.phone_position, ringcount);
            } else if (ringcount == "Marker" || ringcount == "none") {
              telemetry.addData("Marker data %d", FoundDuck);
              // move the phone box to find the target
             // movephone();
            } // end of the object test
          } // end of test the object
        } // Tfod not null
        telemetry.update();
        idle(); // Always call idle()
```

Signature :	Renee	November 7, 202

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"



Signature : Renee November 7, 2021
Date:

ToRotto NoCollo ToRolottoSo

<u> </u>
Date: November 7, 2021
Process:
Carousel Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode; import com.qualcomm.robotcore.hardware.DcMotor; import com.qualcomm.robotcore.hardware.HardwareMap; import com.qualcomm.robotcore.util.ElapsedTime;
import static java.lang.Boolean.TRUE; import static java.lang.Thread.currentThread; import static java.lang.Thread.sleep;
/** * * This class can be used to define all the specific hardware for a single robot. * In this case that robot is PrinceCharles. * See AutoBlue and others classes starting with "FF" for usage examples. * * This hardware class assumes the following device names have been configured on the robot: * Note: All names are lower case and some have single spaces between words.
*/ public class CarouselDef2 {
/* Declare OpMode members. */
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>
<pre>/* local OpMode members. */ HardwareMap hardwareMap = null; private ElapsedTime period = new ElapsedTime(); private int statusx;</pre>
// Private Members

Signature :	Renee	November 7, 202 Date:
ngilatule .		Date.

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** private LinearOpMode myOpMode; /* Constructor */ public CarouselDef2(){ } /* Initialize standard Hardware interfaces */ public void init(HardwareMap ahwMap, LinearOpMode opMode) { // Save reference to Hardware map hardwareMap = ahwMap; myOpMode = opMode; * Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file. */ robot.init(hardwareMap, 1, statusx); } * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time interval. * @param periodMs Length of wait cycle in mSec. public void waitForTick(long periodMs) { long remaining = periodMs - (long)period.milliseconds();

Signature :	Renee	November 7, 2021
JIEHALUIC.	* ** ***	Date.

// sleep for the remaining portion of the regular cycle period.

if (remaining > 0) {

sleep(remaining);

try {

Date: November 7, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

zigiizzi iig i territig

```
Process:
        } catch (InterruptedException e) {
          currentThread().interrupt();
       }
     // Reset the cycle clock for the next pass.
     period.reset();
    * Method to perform a relative move, based on encoder counts.
    * Encoders are not reset as the move is based on the current position.
    * Move will stop if any of three conditions occur:
    * 1) Speed negative is forward and positive is backwards
    * 2) leftInches - pass a negative to go forward and positive to backwards
    * 3) rightInches - pass a negative to go forward and positive to backwards
    * 4) direction - 1 - up, 2 - nowhere
    * 5) timeoutS - number of seconds before the function timeout
   public void carousel (int side, double timeoutS) {
     if (side == 1) {
        // left/right side
        robot.carouselleft.setPower(.2);
        robot.carouselright.setPower(.2);
        // keep looping while we are still active, and there is time left, and both motors are running.
        while (myOpMode.opModelsActive() && (runtime.seconds() < timeoutS)) {
          waitForTick (2);
          robot.carouselleft.setPower(.2);
          robot.carouselright.setPower(.2);
          myOpMode.telemetry.addData("Timer", runtime.seconds());
          myOpMode.telemetry.update();
        robot.carouselright.setPower(0);
        robot.carouselleft.setPower(0);
        // Stop all motion;
     } else if (side == 2){
        //right side
```

Signature :	Renee	Date:	November 7, 2021

Date: November 7, 2021

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Brighteering Neutron Continued

```
Process:
        // keep looping while we are still active, and there is time left, and both motors are running.
        // Reset the cycle clock for the next pass.
        period.reset();
        robot.carouselright.setPower(-.2);
        robot.carouselleft.setPower(-.2);
        while (myOpMode.opModelsActive() && (runtime.seconds() < timeoutS)) {
          waitForTick (2);
          robot.carouselright.setPower(-.2);
          robot.carouselleft.setPower(-.2);
          myOpMode.telemetry.addData("Timer", runtime.seconds());
          myOpMode.telemetry.update();
        robot.carouselright.setPower(0);
        robot.carouselleft.setPower(0);
        robot.carouselright.setPower(0);
        robot.carouselleft.setPower(0);
   public void robot_wait (int count) {
      for(int i=0;i<count;i++) {</pre>
       waitForTick(2000);
     }
   }
    * This method scales the joystick input so for low joystick values, the
    * scaled value is less than linear. This is to make it easier to drive
    * the robot more precisely at slower speeds.
    */
   double scaleInput(double dVal) {
      double[] scaleArray = {0.0, 0.05, 0.09, 0.10, 0.12, 0.15, 0.18, 0.24,
          0.30, 0.36, 0.43, 0.50, 0.60, 0.72, 0.85, 1.00, 1.00};
      // get the corresponding index for the scaleInput array.
      int index = (int) (dVal * 16.0);
      if (index < 0) {
        index = -index;
      } else if (index > 16) {
```

Signature :	Renee	Date: _	November 7, 2021

ToRoto Nicono ToRoloto So

Engineering Activity "Continued"

```
Date: November 7, 2021
Process:
       index = 16;
     double dScale = 0.0;
     if (dVal < 0) {
       dScale = -scaleArray[index];
     } else {
       dScale = scaleArray[index];
     return dScale;
  }
```

Signature: _____ November 7, 2021 _____

ToRotto NoCollo ToRolottoSo

Date: November 7, 2021		
rocess:		
Hand Function or End Effector		
package org.firstinspires.ftc.Team7341;		
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode; import com.qualcomm.robotcore.hardware.HardwareMap; import com.qualcomm.robotcore.util.ElapsedTime;		
import static java.lang.Thread.currentThread; import static java.lang.Thread.sleep;		
/** * * This class can be used to define all the specific hardware for a single robot. * In this case that robot is PrinceCharles. * See AutoBlue and others classes starting with "FF" for usage examples. * * This hardware class assumes the following device names have been configured on the robot:		
* Note: All names are lower case and some have single spaces between words.		
/ public class HandDef { / Declare OpMode members. */		
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware		
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>		
<pre>/* local OpMode members. */ HardwareMap</pre>		
// Private Members private LinearOpMode myOpMode;		

Signature :	Renee	Date:November 7, 202

ToRoto No Cono ToRoloto So

```
Date: November 7, 2021
Process:
   /* Constructor */
   public HandDef(){
   /* Initialize standard Hardware interfaces */
   public void init(HardwareMap ahwMap, LinearOpMode opMode) {
     // Save reference to Hardware map
     hardwareMap = ahwMap;
     myOpMode = opMode;
     /*
                   * Use the hardwareMap to get the dc motors and servos by name.
                   * Note that the names of the devices must match the names used
                   * when you configured your robot and created the configuration file.
     robot.init(hardwareMap, 1, statusx);
    * waitForTick implements a periodic delay. However, this acts like a metronome with a regular
    * periodic tick. This is used to compensate for varying processing times for each cycle.
    * The function looks at the elapsed cycle time, and sleeps for the remaining time interval.
    * @param periodMs Length of wait cycle in mSec.
   public void waitForTick(long periodMs) {
     long remaining = periodMs - (long)period.milliseconds();
     // sleep for the remaining portion of the regular cycle period.
     if (remaining > 0) {
       try {
          sleep(remaining);
       } catch (InterruptedException e) {
          currentThread().interrupt();
```

Signature :	Renee	Date:	November 7, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

Date: November 7, 2021

```
Process:
     // Reset the cycle clock for the next pass.
     period.reset();
    * Method to perform a relative move, based on encoder counts.
    * Encoders are not reset as the move is based on the current position.
    * Move will stop if any of three conditions occur:
    * 1) Speed negative is forward and positive is backwards
    * 2) leftInches - pass a negative to go forward and positive to backwards
    * 3) rightInches - pass a negative to go forward and positive to backwards
    * 4) direction - 1 - up, 2 - nowhere
    * 5) timeoutS - number of seconds before the function timeout
   public void Hand (int direction, double timeoutS) {
     int newPlatformArmTarget;
     // going up
     myOpMode.telemetry.addData("Start hand direction "," %d ", direction);
     myOpMode.telemetry.update();
     if (direction == 1) {
        robot.hand.setPosition(.35);
     } else {
        // open
        robot.hand.setPosition(.7);
   }
```

Signature :	Renee	Date:	November 7, 2021

ToRotto NoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

<u> </u>
Date: November 7, 2021
Process:
Arm Lift Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode; import com.qualcomm.robotcore.hardware.DcMotor; import com.qualcomm.robotcore.hardware.HardwareMap; import com.qualcomm.robotcore.util.ElapsedTime;
import static java.lang.Boolean.TRUE; import static java.lang.Thread.*; import static java.lang.Thread.sleep;
/** * * This class can be used to define all the specific hardware for a single robot. * In this case that robot is PrinceCharles. * See AutoBlue and others classes starting with "FF" for usage examples. * * This hardware class assumes the following device names have been configured on the robot: * Note: All names are lower case and some have single spaces between words.
*/ public class LiftDef2

Date: _____

ToRoto No. Como ToRoloto So

```
Date: November 7, 2021
Process:
  /* Declare OpMode members. */
   DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware
  private ElapsedTime runtime = new ElapsedTime();
  /* local OpMode members. */
  HardwareMap hardwareMap
                                   = null;
   private ElapsedTime period = new ElapsedTime();
   private int statusx;
  // Private Members
  private LinearOpMode myOpMode;
  /* Constructor */
  public LiftDef2(){
  }
  /* Initialize standard Hardware interfaces */
   public void init(HardwareMap ahwMap, LinearOpMode opMode) {
    // Save reference to Hardware map
     hardwareMap = ahwMap;
     myOpMode = opMode;
     /*
```

Signature :	Renee	Date:	November 7, 2022

Tram 7341

ToRoToNoCoNo ToRoLoToSo

Date: November 7, 2021
Process:
* Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file. */ robot.init(hardwareMap, 1, statusx);
}
/*** *
 * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time interval. *
* @param periodMs Length of wait cycle in mSec.*/
public void waitForTick(long periodMs) {
long remaining = periodMs - (long)period.milliseconds();
<pre>// sleep for the remaining portion of the regular cycle period. if (remaining > 0) { try { sleep(remaining); } catch (InterruptedException e) { currentThread().interrupt();</pre>

Signature :	Renee	Date:	November 7, 2021

ToRotto NoCollo ToRototto So

Date: November 7, 2021
Process:
} }
// Reset the cycle clock for the next pass. period.reset();
}
/*
 Method to perform a relative move, based on encoder counts. Encoders are not reset as the move is based on the current position. Move will stop if any of three conditions occur:
 * 1) Speed negative is forward and positive is backwards * 2) leftInches - pass a negative to go forward and positive to backwards
* 3) rightInches - pass a negative to go forward and positive to backwards* 4) direction - 1 - up, 2 - nowhere
* 5) timeoutS - number of seconds before the function timeout*/
public void liftmove (int direction, double position, double timeoutS) {
<pre>int newarmTarget; int currentarmTarget; int Countrev = 0; if (direction == 1) { // going down</pre>
<pre>// Determine new target position, and pass to motor controller robot.arm_drive.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER); robot.arm_drive.setMode(DcMotor.RunMode.RUN_USING_ENCODER);</pre>

Signature :	Renee	Date:November 7, 202

ToRotto NoCollo ToRotottoSo

Date: November 7, 2021		
Process:		
// Turn On RUN_TO_POSITION robot.arm_drive.setMode(DcMotor.RunMode.RUN_TO_POSITION);		
<pre>myOpMode.telemetry.addData("Start lift positions"," L- %d position %f", ro- bot.arm_drive.getCurrentPosition(), position); // determine the position 1, 2, or 3 if(position == 1.0) Countrev = (int)(robot.ARM_PER_MOTOR_REV/(float)58); if(position == 2.0) Countrev = (int)(robot.ARM_PER_MOTOR_REV/(float)46); if(position == 3.0) Countrev = (int)(robot.ARM_PER_MOTOR_REV/(float)40); newarmTarget = (int)robot.arm_drive.getCurrentPosition() + Countrev; myOpMode.telemetry.addData("End lift positions"," Current- %f - %f ",robot.ARM_PER_MOTOR_REV, (robot.ARM_PER_MOTOR_REV/16.)); myOpMode.telemetry.addData("End lift "," Current- %d count = %d New- %d ", robot.arm_drive.getCurrentPosition(),Countrev,newarmTarget); myOpMode.telemetry.update();</pre>		
robot.arm_drive.setTargetPosition(newarmTarget); // reset the timeout time and start motion. runtime.reset(); robot.arm_drive.setPower(robot.LIFT_SPEED); // Motor is setup reverse // keep looping while we are still active, and there is time left, and both motors are running. while (myOpMode.opModelsActive() && (runtime.seconds() < timeoutS) && ((robot.arm_drive.isBusy())		

Signature :	Renee	Date:	November 7, 2022

TEAM TSAI

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** (robot.lower_stop.getState() == TRUE | | robot.upper_stop.getState() == TRUE))) { waitForTick (1); currentarmTarget = robot.arm drive.getCurrentPosition(); robot.arm drive.setPower(robot.LIFT SPEED); myOpMode.telemetry.addData("End lift positions"," Current- %d New- %d ", currentarmTarget ,newarmTarget); myOpMode.telemetry.addData("Timer", runtime.seconds()); myOpMode.telemetry.update(); } // Stop all motion; robot.arm drive.setPower(robot.STOP SPEED); } else if (direction == 2) { // going up // Determine new target position, and pass to motor controller robot.arm drive.setMode(DcMotor.RunMode.RUN USING ENCODER); robot.arm drive.setMode(DcMotor.RunMode.STOP AND RESET ENCODER); currentarmTarget = robot.arm drive.getCurrentPosition(); myOpMode.telemetry.addData("Start lift positions"," L- %d ", robot.arm drive.getCurrentPosition()); // determine the position 1, 2, or 3 if(position == 1.0) Countrev = (int)(robot.ARM PER MOTOR REV/(float)58);

Signature :	Renee	Date: _	November 7, 2021

ToRotto NoCollo ToRolottoSo

Date: November 7, 2021
Process:
<pre>if(position == 2.0) Countrev = (int)(robot.ARM_PER_MOTOR_REV/(float)46); if(position == 3.0) Countrev = (int)(robot.ARM_PER_MOTOR_REV/(float)40); newarmTarget = (int)robot.arm_drive.getCurrentPosition() - Countrev;</pre>
myOpMode.telemetry.addData("End lift positions"," Current- %d New- %d ", currentarmTarget, newarmTarget);
robot.arm_drive.setTargetPosition(newarmTarget);
// Turn On RUN_TO_POSITION
robot.arm_drive.setMode(DcMotor.RunMode.RUN_TO_POSITION);
<pre>// reset the timeout time and start motion. runtime.reset(); myOpMode.telemetry.update(); // Motor is setup reverse robot.arm_drive.setPower(-robot.LIFT_SPEED);</pre>
<pre>// keep looping while we are still active, and there is time left, and both motors are running. while (myOpMode.opModelsActive() && (runtime.seconds() < timeoutS) &&</pre>

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** currentarmTarget = robot.arm drive.getCurrentPosition(); myOpMode.telemetry.addData("End lift positions"," L- %d R- %d ", currentarmTarget ,newarmTarget); myOpMode.telemetry.addData("Timer", runtime.seconds()); myOpMode.telemetry.addData("Timer %f", timeoutS); myOpMode.telemetry.update(); } // Stop all motion; robot.arm drive.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); robot.arm_drive.setPower(robot.STOP_SPEED); } else { robot.arm drive.setPower(robot.STOP SPEED); } } public void robot wait (int count) { for(int i=0;i<count;i++) {</pre> waitForTick(2000); } } * This method scales the joystick input so for low joystick values, the * scaled value is less than linear. This is to make it easier to drive * the robot more precisely at slower speeds. */ double scaleInput(double dVal) {

Signature :	Renee	Date: _	November 7, 2021

TEAM TSAI

ToRoto Mocomo ToRoloto So

Renee

Signature:____

Engineering Activity "Continued"

```
Date: November 7, 2021
Process:
       double[] scaleArray = {0.0, 0.05, 0.09, 0.10, 0.12, 0.15, 0.18, 0.24,
            0.30, 0.36, 0.43, 0.50, 0.60, 0.72, 0.85, 1.00, 1.00;
       // get the corresponding index for the scaleInput array.
       int index = (int) (dVal * 16.0);
       if (index < 0) {
          index = -index;
       } else if (index > 16) {
          index = 16;
       }
       double dScale = 0.0;
       if (dVal < 0) {
          dScale = -scaleArray[index];
       } else {
          dScale = scaleArray[index];
       return dScale;
     }
```

November 7, 2021

Date: _

ToRotto NoCollo ToRolottoSo

Engineering Activity Continued	
Date: November 7, 2021	
Process:	_
<u>Drive Definition</u>	
package org.firstinspires.ftc.Team7341;	
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode; import com.qualcomm.robotcore.hardware.DcMotor; import com.qualcomm.robotcore.hardware.HardwareMap; import com.qualcomm.robotcore.util.ElapsedTime; import com.qualcomm.robotcore.util.Range; import org.firstinspires.ftc.robotcore.external.Func; import org.firstinspires.ftc.robotcore.external.navigation.AngleUnit; import org.firstinspires.ftc.robotcore.external.navigation.AxesOrder; import org.firstinspires.ftc.robotcore.external.navigation.AxesReference; import org.firstinspires.ftc.robotcore.external.navigation.Position; import org.firstinspires.ftc.robotcore.external.navigation.Velocity; import java.util.Locale;	
/** * This is NOT an opmode. * * This class can be used to define all the specific hardware for a single robot. * In this case that robot is PrinceCharles. * See AutoBlue and others classes starting with "FF" for usage examples.	

Signature :	Renee	November 7, 202
JIRHALUI C .		Date.

ToRoToNoCoNo ToRoLoToSo

Date: November 7, 2021
Process:
*
* This hardware class assumes the following device names have been configured on the robot:
* Note: All names are lower case and some have single spaces between words.
*/
public class DriveDef2
/* Declare OpMode members. */ DefineFrenzy robot = new DefineFrenzy(); // Use a Prince Charles's hardware
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>
// Private Members
private LinearOpMode myOpMode; private int statusx;
/* local OpMode members. */
HardwareMap = null; private ElapsedTime period = new ElapsedTime();
public float x, y, z, w, pwr;
public static double deadzone = 0.2;
/* Constructor */ public DriveDef2(){
}

Signature :	Renee	November 7, 202

Tram 7341

ToRotto NoCoMo ToRolottoSo

Date: November 7, 2021
Process:
<pre>/* Initialize standard Hardware interfaces */ public void init(HardwareMap ahwMap, LinearOpMode opMode) { // Save reference to Hardware map hardwareMap = ahwMap;</pre>
<pre>myOpMode = opMode; /* * Initialize the drive system variables. * The init() method of the hardware class does all the work here */ robot.init(hardwareMap, 1, statusx);</pre>
<pre>/* * Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file. */ }</pre>
/*** * * waitForTick implements a periodic delay. However, this acts like a metronome with
* periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time in-

Signature :	Renee	November 7, 202
ngilatal C .		Date.

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** terval. * @param periodMs Length of wait cycle in mSec. public void waitForTick(long periodMs) { long remaining = periodMs - (long)period.milliseconds(); // sleep for the remaining portion of the regular cycle period. if (remaining > 0) { try { Thread.sleep(remaining); } catch (InterruptedException e) { Thread.currentThread().interrupt(); } // Reset the cycle clock for the next pass. period.reset(); } * Method to perform a relative move, based on encoder counts. * Encoders are not reset as the move is based on the current position. * Move will stop if any of three conditions occur: 1) Move gets to the desired position 2) Move runs out of time

Signature :	Renee	Date:November 7,	202
Signature :	Kenee	Date:	_

ToRoto No Cono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** * 3) Driver stops the opmode running. public void encoder2Drive(double speed, int front back, int right left, int sright sleft, double Inches, double timeoutS) { int newLeftTarget = 0; int newRightTarget = 0; int newleft backTarget = 0; int newright backTarget = 0; robot.left front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER); robot.left front.setMode(DcMotor.RunMode.RUN USING ENCODER); robot.right front.setMode(DcMotor.RunMode.STOP AND RESET ENCODER); robot.right front.setMode(DcMotor.RunMode.RUN USING ENCODER); robot.left back.setMode(DcMotor.RunMode.STOP AND RESET ENCODER); robot.left back.setMode(DcMotor.RunMode.RUN USING ENCODER); robot.right back.setMode(DcMotor.RunMode.STOP AND RESET ENCODER); robot.right back.setMode(DcMotor.RunMode.RUN USING ENCODER); waitForTick (20); pwr = (float)speed; //this can be tweaked for exponential power increase // Determine new target position, and pass to motor controller if (sright sleft != 0) { if (sright sleft == 1){ // going left newLeftTarget = robot.left front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1);

Signature :	Renee	November 7, 202
JIKII alui C .		Date.

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); newRightTarget = robot.right front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1); robot.left front.setTargetPosition(newLeftTarget); robot.right_front.setTargetPosition(newRightTarget); robot.left back.setTargetPosition(newleft backTarget); robot.right back.setTargetPosition(newright backTarget); // set the direction of the robot based on the input pwr = pwr * sright sleft; robot.right_frontpwr =(Range.clip((pwr * -sright_sleft), -1, 1)); // frontright robot.right backpwr =(Range.clip((pwr * sright sleft), -1, 1)); // backright robot.left_frontpwr =(Range.clip((pwr * sright_sleft), -1, 1)); // frontleft robot.left_backpwr =(Range.clip((pwr * -sright_sleft), -1, 1)); // backleft } else if (sright sleft == -1) { // going right newLeftTarget = robot.left front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1); newRightTarget = robot.right front.getCurrentPosition() + ((int) (Inches * ro-

Signature :	Renee	November 7, 202 Date:

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** bot.COUNTS PER INCH) * 1); newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); // set the direction of the robot based on the input pwr = pwr * sright sleft; robot.left front.setTargetPosition(newLeftTarget); robot.right front.setTargetPosition(newRightTarget); robot.left back.setTargetPosition(newleft backTarget); robot.right back.setTargetPosition(newright backTarget); robot.right frontpwr =(Range.clip((pwr * sright sleft), -1, 1)); // frontright robot.right backpwr =(Range.clip((pwr * -sright sleft), -1, 1)); // backright robot.left frontpwr =(Range.clip((pwr * -sright sleft), -1, 1)); // frontleft robot.left_backpwr =(Range.clip((pwr * sright_sleft), -1, 1)); // backleft // robot.right frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontright // robot.right_backpwr =(Range.clip(pwr * 1, -1, 1)); // backright // robot.left frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontleft // robot.left_backpwr =(Range.clip(pwr * 1, -1, 1)); // backleft } else if (right left != 0) { if (right left == 1){ // going left newLeftTarget = robot.left front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1); newRightTarget = robot.right front.getCurrentPosition() + ((int) (Inches * ro-

Signature :	Renee	November 7, 202
ngilatal C .		Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** bot.COUNTS PER INCH) * -1); robot.left front.setTargetPosition(newLeftTarget); robot.right front.setTargetPosition(newRightTarget); newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1); newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); robot.left back.setTargetPosition(newleft backTarget); robot.right back.setTargetPosition(newright backTarget); robot.right_frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontright robot.right backpwr =(Range.clip(pwr * -1, -1, 1)); // backright robot.left frontpwr =(Range.clip(pwr * 1, -1, 1)); // frontleft robot.left backpwr =(Range.clip(pwr * 1, -1, 1)); // backleft } else if (right left == -1) { // going right newLeftTarget = robot.left front.getCurrentPosition() + ((int) ((Inches * robot.COUNTS PER INCH) * -1)); newRightTarget = robot.right front.getCurrentPosition() + ((int) ((Inches * robot.COUNTS_PER_INCH) * 1)); robot.left front.setTargetPosition(newLeftTarget); robot.right front.setTargetPosition(newRightTarget); newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1); newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1); robot.left back.setTargetPosition(newleft backTarget); robot.right back.setTargetPosition(newright backTarget);

Signature : Date	November 7, 202
------------------	-----------------

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** robot.right frontpwr =(Range.clip(pwr * 1, -1, 1)); // frontright robot.right backpwr =(Range.clip(pwr * 1, -1, 1)); // backright robot.left frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontleft robot.left backpwr =(Range.clip(pwr * -1, -1, 1)); // backleft } } else { newLeftTarget = robot.left_front.getCurrentPosition() + (int)(Inches * -front_back * robot.COUNTS PER INCH); newRightTarget = robot.right front.getCurrentPosition() + (int)(Inches * front back * robot.COUNTS PER INCH); robot.left front.setTargetPosition(newLeftTarget); robot.right front.setTargetPosition(newRightTarget); newleft_backTarget = robot.left_back.getCurrentPosition() + (int)(Inches * front back * robot.COUNTS PER INCH); newright backTarget = robot.right back.getCurrentPosition() + (int)(Inches * front back * robot.COUNTS PER INCH); robot.left back.setTargetPosition(newleft backTarget); robot.right back.setTargetPosition(newright backTarget); robot.right_frontpwr =(Range.clip(pwr * -front_back, -1, 1)); // frontright robot.right_backpwr =(Range.clip(pwr * -front_back, -1, 1)); // backright robot.left frontpwr =(Range.clip(pwr * -front back, -1, 1)); // frontleft robot.left backpwr =(Range.clip(pwr * -front back, -1, 1)); // backleft } // Turn On RUN TO POSITION robot.left front.setMode(DcMotor.RunMode.RUN TO POSITION); robot.right front.setMode(DcMotor.RunMode.RUN TO POSITION);

Signature :	Renee	November 7, 202
-------------	-------	-----------------

ToRotto NoCollo ToRolottoSo

<u> </u>
Date: November 7, 2021
Process:
robot.left_back.setMode(DcMotor.RunMode.RUN_TO_POSITION); robot.right_back.setMode(DcMotor.RunMode.RUN_TO_POSITION);
// reset the timeout time and start motion. runtime.reset();
// if (sright_sleft != 0) { // robot.left_front.setPower((float) robot.left_frontpwr);
<pre>// robot.left_back.setPower((float) robot.left_backpwr); // robot.right_front.setPower((float) robot.right_frontpwr);</pre>
<pre>// robot.right_back.setPower((float) robot.right_backpwr); // } else {</pre>
robot.left_front.setPower((float) robot.left_frontpwr);
robot.right_front.setPower((float) robot.right_frontpwr); robot.left_back.setPower((float) robot.left_backpwr);
robot.right_back.setPower((float) robot.right_backpwr); // }
//telemetry.addData("Path1", "Running to %7d :%7d", newLeftTarget,
newRightTarget); // keep looping while we are still active, and there is time left, and both motors
are running.
// keep looping while we are still active, and there is time left, and both motors are running.
while ((runtime.seconds() < timeoutS) &&
(robot.left_front.isBusy() && robot.right_front.isBusy() &&
<pre>robot.left_back.isBusy() && robot.right_back.isBusy())) { // myOpMode.telemetry.addData("3", "new left %d", newLeftTarget);</pre>

Signature :	Renee	Date:	November 7, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** // myOpMode.telemetry.addData("3", "new right %d", newRightTarget); // myOpMode.telemetry.addData("3", "new left %d", newleft_backTarget); // myOpMode.telemetry.addData("3", "new right %d", newright backTarget); // myOpMode.telemetry.addData("3", "curr back left %d", robot.left back.getCurrentPosition()); // myOpMode.telemetry.addData("3", "curr back right %d", robot.right_back.getCurrentPosition()); // myOpMode.telemetry.addData("3", "curr front left %d", robot.left_front.getCurrentPosition()); // myOpMode.telemetry.addData("3", "curr front right %d", robot.right_front.getCurrentPosition()); // myOpMode.telemetry.update(); waitForTick (5); } // Stop all motion; robot.left back.setPower(robot.STOP SPEED); robot.right back.setPower(robot.STOP SPEED); robot.left front.setPower(robot.STOP SPEED); robot.right front.setPower(robot.STOP SPEED); // Turn off RUN TO POSITION robot.left back.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER); robot.right back.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER); robot.left front.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER); robot.right front.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER);

Signature :	Renee	November 7, 202
nenature.		Date.

ToRotto NoCollo ToRolottoSo

<u> </u>
Date: November 7, 2021
Process:
package org.firstinspires.ftc.Team7341;
import android.content.Context;
import android.speech.tts.TextToSpeech;
import com.qualcomm.hardware.bosch.BNO055IMU;
import com.qualcomm.hardware.bosch.JustLoggingAccelerationIntegrator;
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;
import com.qualcomm.robotcore.hardware.CRServo;
import com.qualcomm.robotcore.hardware.ColorSensor;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.DigitalChannel;
import com.qualcomm.robotcore.hardware.HardwareMap;
import com.qualcomm.robotcore.hardware.Servo;
import com.qualcomm.robotcore.util.ElapsedTime;
import org.firstinspires.ftc.robotcore.external.navigation.Acceleration;
import org.firstinspires.ftc.robotcore.external.navigation.Orientation;
import static com.qualcomm.robotcore.hardware.DcMotorSimple.Direction.REVERSE; import static java.lang.Thread.currentThread; import static java.lang.Thread.sleep;

Signature :	Renee	November 7, 2021
ngilatule.		Date.

ToRotto MoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: November 7, 2021		
Process:		
/* <i>*</i>		
* This is NOT an opmode.		
*		
* This class can be used to define all the specific hardware for a single robot. * In this case that robot is PrinceCharles.		
* See AutoBlue and others classes starting with "FF" for usage examples.		
*		
* This hardware class assumes the following device names have been configured on		
the robot:		
* Note: All names are lower case and some have single spaces between words.		
*/		
public class DefineFrenzy {		
// setup for calculation of the how far to move		
static final double P_TURN_COEFF = 0.1; // Larger is more responsive, but also less stable		
static final double HEADING_THRESHOLD = 1; // As tight as we can make it		
with an integer gyro		
// Andymark 3.7 - 103.6		
// Andymark 40 - 1120		
// Andymaark 60 - 1680		

Date: _____

ToRoto MoCoMo ToRoloto So

```
Date: November 7, 2021
Process:
                                 // Andymark 20 - 537.6
                      COUNTS_PER_MOTOR_REV = 537.6; // eg: AndyMark Motor
    static final double
  Encoder
    static final double
                     DRIVE GEAR REDUCTION = 1; // This is < 1.0 if geared UP
    static final double
                      WHEEL DIAMETER INCHES = 4.0; // For figuring circumfer-
  ence
    static final double
                      GEAR DIAMETER INCHES = 1.0; // For figuring circumfer-
  ence
    static final double
                      P DRIVE COEFF = 0.15; // Larger is more responsive,
  but also less stable
    static final double
                      ARM PER MOTOR REV = 1120;
                     COUNTS_PER_INCH = (COUNTS PER MOTOR REV *
    static final double
  DRIVE GEAR REDUCTION) /
        (WHEEL DIAMETER INCHES * 3.1415);
    static final double LIFT_COUNTS_PER_INCH = (COUNTS_PER_MOTOR_REV *
  DRIVE GEAR REDUCTION) /
        (GEAR DIAMETER_INCHES * 3.1415);
    static final double
                      DRIVE SPEED1
                                          = 0.1;
                      DRIVE SPEED2
    static final double
                                          = 0.2;
    static final double
                      DRIVE SPEED3
                                          = 0.3:
```

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRoto Nocono ToRoloto So

```
Date: November 7, 2021
Process:
     static final double
                                               = 0.4;
                        DRIVE_SPEED4
     static final double
                        DRIVE_SPEED5
                                               = 0.5;
     static final double
                        DRIVE SPEED6
                                               = 0.6;
     static final double
                        LIFT_SPEED
                                             = 0.5;
     static final double TURN SPEED
                                              = 0.1;
                        STOP SPEED
     static final double
                                              = 0;
     int position option = 0;
     int position function = 0;
     int position side = 0;
     int gold_position = 0;
     int count = 0;
     boolean block lock = false;
     boolean blockprogress = false;
     // Driver motors
     DcMotor right front;
     DcMotor left_front;
     DcMotor right_back;
     DcMotor left back;
     float left = 0;
     float right = 0;
     float left backpwr = 0;
```

Signature :	Renee	November 7, 202

ToRotto NoCoMo ToRolottoSo

Date: November 7, 2021		
Process:		
float right_backpwr = 0;		
float right_frontpwr = 0;		
float left_frontpwr = 0;		
int status = 0;		
// Block Intake Motors		
// DcMotor right_intake;		
// DcMotor ramp_intake;		
// float ramp_pwr;		
// float intake_pwr;		
// pickup motor		
// DcMotor lift;		
// float lift_pwr;		
//motors to lift and lower arm		
DcMotor arm_drive;		
float arm_power = 0;		
// hand/block registration		
Servo hand;		
DcMotor carouselright;		

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRotto NoCollo ToRolottoSo

<u> </u>
Date: November 7, 2021
Process:
DcMotor carouselleft;
float carousel_pwr = 0;
RevBlinkinLedDriver blinkin;
RevBlinkinLedDriver.BlinkinPattern pattern;
RevBlinkinLedDriver.BlinkinPattern patterndisplay;
// Side phone
Servo phone;
double phone_position = 0.2;
DigitalChannel lower_stop;
DigitalChannel upper_stop;
ColorSensor Alliance_color;
String Alliance_color_results;
// sometimes it helps to multiply the raw RGB values with a scale factor
// to amplify/attentuate the measured values.
final double SCALE_FACTOR = 255;
// hsvValues is an array that will hold the hue, saturation, and value information.
float hsvValues[] = {0F, 0F, 0F};

Signature :	Renee	November 7, 202

ToRotto NoCollo ToRotottoSo

Date: November 7, 2021	
Process:	
// values is a reference to the hsvValues array.	
final float values[] = hsvValues;	
// Our sensors, motors, and other devices go here, along with other long term state	j '
BNO055IMU imu; public TextToSpeech textToSpeech;	
private Context context;	
// State used for updating telemetry	
Orientation angles;	
Acceleration gravity;	
/* local OpMode members. */	
HardwareMap hardwareMap = null;	
<pre>private ElapsedTime period = new ElapsedTime();</pre>	
// Private Members	
/* Constructor */	
public DefineFrenzy() {	
}	

Signature :	Renee	Date:	November 7, 2022

ToRato NoCono ToRolatoSo

Date: November 7, 2021		
Process:		
/* Initialize standard Hardware interfaces */		
public void init(HardwareMap ahwMap, int option, int status) {		
// Save reference to Hardware map		
hardwareMap = ahwMap;		
/ *		
* Use the hardwareMap to get the dc motors and servos by name.		
* Note that the names of the devices must match the names used		
* when you configured your robot and created the configuration file.		
*/		
// if option is one define hardware otherwise put it start position		
if (option == 1) {		
// start of drive train definitions		
right_front = hardwareMap.dcMotor.get("right_front");		
left_front = hardwareMap.dcMotor.get("left_front");		
left_front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);		
right_front.setDirection(REVERSE);		
right_front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);		
right_back = hardwareMap.dcMotor.get("right_back");		
<pre>left_back = hardwareMap.dcMotor.get("left_back");</pre>		
left_back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);		
right_back.setDirection(REVERSE);		

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRotto NoCollo ToRolottoSo

	<u> </u>		
Date: November 7, 2021			
Process:			
right_back.se	tZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);		
arm_drive.se	nardwareMap.dcMotor.get("arm_drive"); tDirection(REVERSE); tZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);		
_	= hardwareMap.dcMotor.get("carouselright");		
carouselright.	setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); hardwareMap.dcMotor.get("carouselleft");		
	etZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); etDirection(REVERSE);		
// stop the lift	ter when down flat		
lower_stop =	hardwareMap.get(DigitalChannel.class, "lower_stop");		
upper_stop =	hardwareMap.get(DigitalChannel.class, "upper_stop");		
// set the digi	tal channel to input.		
lower_stop.se	etMode(DigitalChannel.Mode.INPUT);		
upper_stop.so	etMode(DigitalChannel.Mode.INPUT);		
// Pickup mot	or		
// lift = hardw	areMap.dcMotor.get("lift");		

Signature :	Renee	November 7, 202
JIRHALUIC .	• • • • • • • • • • • • • • • • • • • •	Date.

ToRoto Mocomo ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** Alliance color = hardwareMap.get(ColorSensor.class, "floor color"); if (Alliance color.red() > 500){ Alliance color results = "RED"; } else if (Alliance_color.blue() > 250){ Alliance color results = "BLUE"; } phone = hardwareMap.servo.get("phone"); hand = hardwareMap.get(Servo.class, "hand"); hand.setPosition(1); // set up the blinkin lights blinkin = hardwareMap.get(RevBlinkinLedDriver.class, "blinkin"); blinkin.setPattern(pattern.GREEN); // Set up the parameters with which we will use our IMU. Note that integration // algorithm here just reports accelerations to the logcat log; it doesn't actually // provide positional information. BNO055IMU.Parameters parameters = new BNO055IMU.Parameters(); parameters.angleUnit = BNO055IMU.AngleUnit.DEGREES; parameters.accelUnit = BNO055IMU.AccelUnit.METERS PERSEC PERSEC; parameters.calibrationDataFile = "BNO055IMUCalibration.json"; // see the calibration sample opmode

Signature :	Renee	Date: _	November 7, 2021

ToRato NoCono ToRolatoSo

Date: November 7, 2021					
Process:					
<pre>parameters.loggingEnabled = true; parameters.loggingTag = "IMU"; parameters.accelerationIntegrationAlgorithm = new JustLoggingAccelerationIntegrator();</pre>					
// Retrieve and initialize the IMU. We expect the IMU to be attached to an I2C port					
// on a Core Device Interface Module, configured to be a sensor of type "AdaFruit IMU",					
} else if (option == 3) {					
<pre> } if (option == 4) { // start of drive train definitions right_front = hardwareMap.dcMotor.get("right_front"); left_front = hardwareMap.dcMotor.get("left_front"); left_front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); } </pre>					

Signature :	Renee	November 7, 202
SIRHALUIE.	,	Date.

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** right_front.setDirection(REVERSE); right front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); right back = hardwareMap.dcMotor.get("right back"); left_back = hardwareMap.dcMotor.get("left_back"); left back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); right back.setDirection(REVERSE); right back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE); }else { // set hand // hand.setPosition(.4); } public void waithalf(int count) { for (int i = 0; i < count; i++) { try { sleep(500); } catch (InterruptedException e) { currentThread().interrupt(); break;

Signature :	Renee	Date: _	November 7, 2022

TEAM TSAI

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** public void wait(int sec) { for (int i = 0; $i < 2 * sec; i++) {$ try { sleep(500); } catch (InterruptedException e) { currentThread().interrupt(); break; } * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time interval.

Signature :	Renee	November 7, 2021
Jigilatule.	* ** ***	Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: November 7, 2021 **Process:** * @param periodMs Length of wait cycle in mSec. */ public void waitForTick(long periodMs) { long remaining = periodMs - (long) period.milliseconds(); // sleep for the remaining portion of the regular cycle period. if (remaining > 0) { try { sleep(remaining); } catch (InterruptedException e) { currentThread().interrupt(); } // Reset the cycle clock for the next pass. period.reset(); } }

Signature :	Renee	November 7, 202

ToRoto MoCoMo ToRoloto So

Cailyn

Signature:

Engineering Activity

Date: November 13, 2021	Time: 9:00AM—6:00pm			
Purpose of the Activity: • First Meet of the season				
Members: Cailyn, Elle, Harper and Renee				
This is our first in person meet in a year. It was greater a year of remote meets. We all met at the Octone of the Field Inspectors and Lead Queuer for all er of a day as we were all over the map in the day' we were at the top for a lot of the day. At the end matches and lost 3 matches.	lyssey Charter School. Our coach was I the matches. This was a roller coast- s ranking. It was exciting to see that			
We did not experience any hardware failures for metween our last two matches the camera was hit and fell off and was dragging under the robot for the extension that the table we thought we had lost the camera, but	nd during our final match the camera ntire match. When we got back to			
Our coach gave us the news that some of the Refehead FTA for the state) was impressed with their a countering an error. Over all we think that the day 22 teams in the ranking. We played 6 matches and	bility to get the robot going after en- went well as we ended up 9 out of			

Date: ______

TEAM TSAI

ToRoto Nicono ToRoloto So

Engineering Activity "Continued"

Date: November 13, 2021

Process:

Match	Time	Red	Red	Blue	Blue	Red Score	Blue Score
Qualification 5	Sat 11/13 - 2:25 PM	<u>7341</u>	<u>7592</u>	<u>14976</u>	<u>4717</u>	- 55	- 73 -
Qualification 9	Sat 11/13 - 3:03 PM	<u>4228</u>	<u>7341</u>	<u>18172</u>	<u>20016</u>	- 59 -	52
Qualification 12	Sat 11/13 - 3:31 PM	<u>19997</u>	<u>4227</u>	<u>16290</u>	<u>7341</u>	51	- 105 -
Qualification 19	Sat 11/13 - 4:33 PM	<u>7477</u>	<u>7592</u>	20014	<u>7341</u>	- 118 -	- 42 -
Qualification 22	Sat 11/13 - 4:58 PM	<u>18747</u>	<u>15401</u>	<u>7341</u>	6323	29	- 37 -
Qualification 29	Sat 11/13 - 6:02 PM	<u>7341</u>	<u>17197</u>	9013	<u>14673</u>	- 54 -	- 57 -



This is our first match of the season....

The six matches made for a very long day. Our first match, we were against a fellow Titusville team from Park Avenue

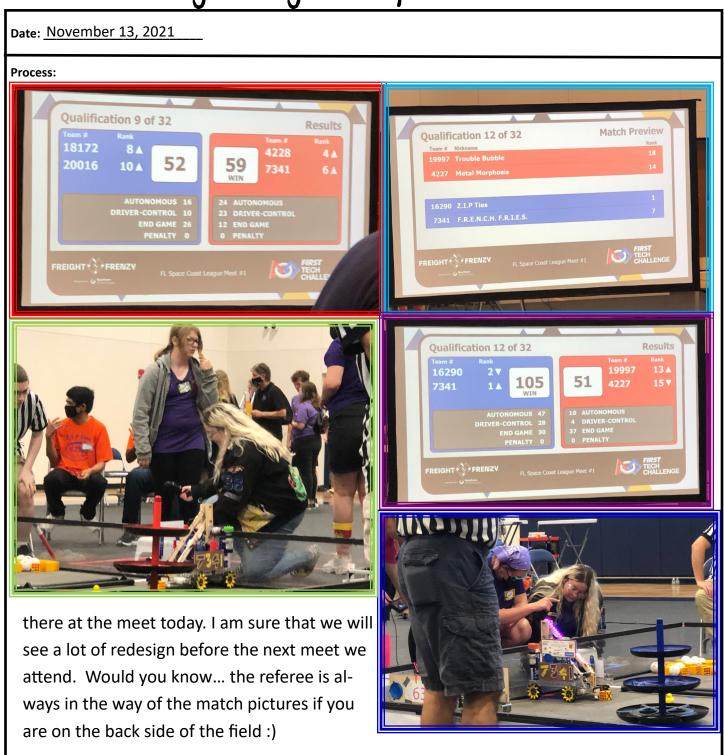
Baptist Church School. It seemed that our robot design looked very durable compared to some of the other robots that were

	Madab Bassian
Qualification 5 of 32	Match Preview
Team # Nickname	Rank
7341 F.R.E.N.C.H. F.R.I.E.S.	
7592 Roarbots	NP
	NP
14976 PAC RATS	NP
4717 Mechromancers	
A	FIRST TECH CHALLENGE
FREIGHT FRENZY FL Space Coast League Meet #1	CHALLENGE
meneral to September (Commence of the Commence	

Signature : Cailyn Date: November 13, 2021

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"



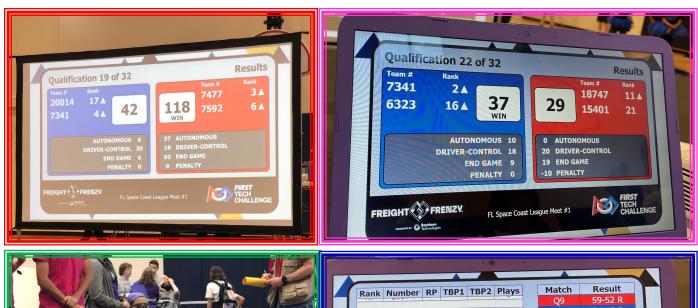
Signature: _____ Rovember 13, 2021

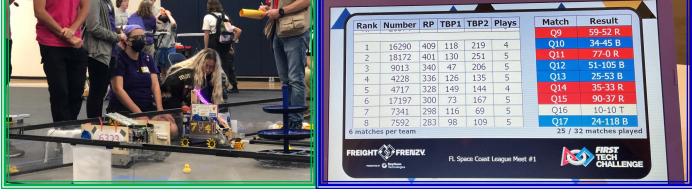
ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: November 13, 2021







At the end of match 12 we made it to the top of the ranking and by the 12th matches and the start of the 19th we were in 2nd.

We did find out that out carousel motors were at the wrong level for the league's walls, we made a quick adjustment lowering the motors to accommodated the wall height difference.

For our next meet we hope to have the robot able to search for our team marker and properly place the block in the correct level of the shipping hub. Currently we have an issue where it is a hit or miss situation.

Signature :	Cailyn	November 13, 202
signature :	0.0009.0	Date:

TEAM TSAI

ToRoto Nicono ToRoloto So

Engineering Activity

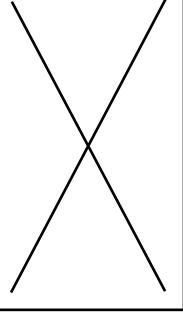
Date: December 5, 2021	Time: 2:30pm—!	5:00pm
Purpose of the Activity: • Practice driving		
Members: Elle and Renee		

Process:

We spent a few hours practicing the our driving skills while our coach is out of town for the next few weeks. Our next set meet will be January 15th. We skillfully placed our marker on the top of the carousel as well as place blocks and ducks in all levels.



For some fun we placed a duck inside the our "Frybox".



Signature :	Renee	December 5, 2021
ngilatule.		Date.

ToRoto MoComo ToRoloto So

Engineering Activity

Date: December 26, 2021 _____ Time: 2:30pm — 5:00pm

Purpose of the Activity:

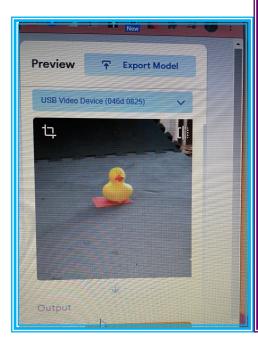
Learning about Machine Learning

Members:

Process:

Our coach helped us learn about Machine Learning so that we can have our Marker work as the target to find at the beginning of the match. We started out first trying the FIRST Machine Learning functions and had learning issues and could not get the model created before running out of model building time.

We found the Google
"Teachable
Machine" and successfully created the model and found that it worked very reliable from

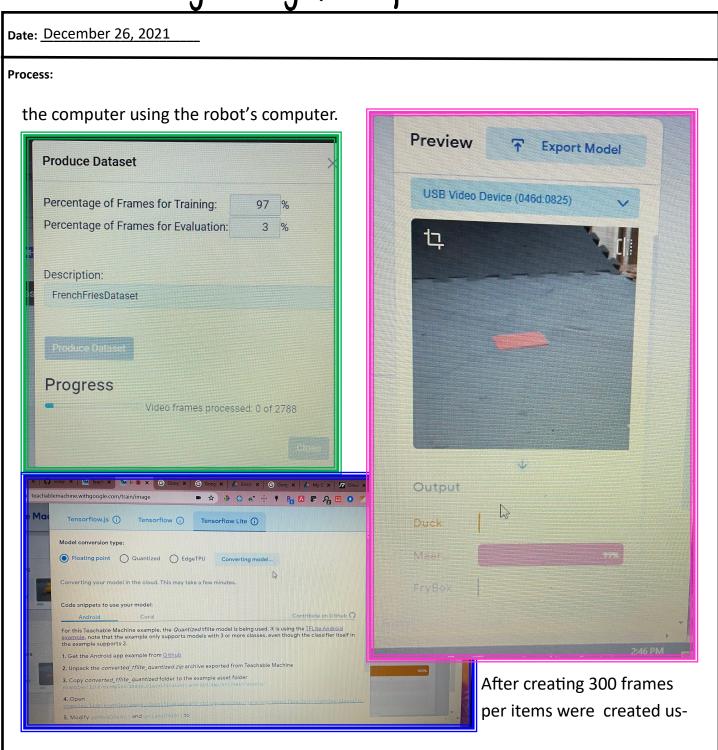




Signature :	Harper	Date: _	December 26, 2021

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"



Signature : _____ December 26 2021 Date: _____

ToRotto NoCoMo ToRolottoSo

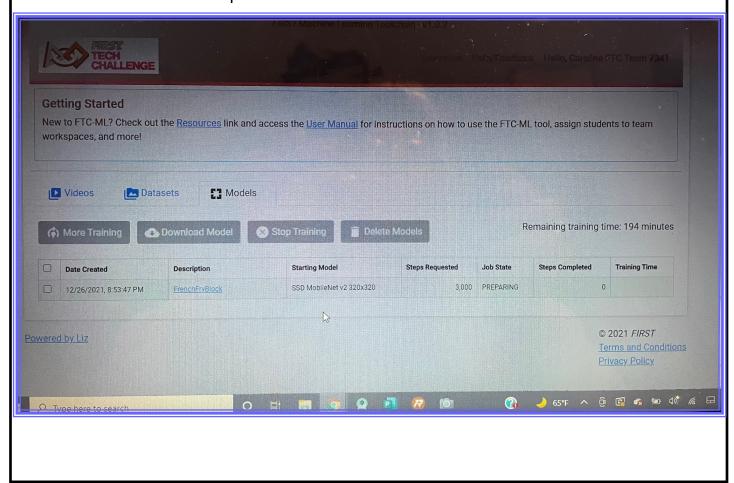
Engineering Activity "Continued"

Date:	December	26,	2021	
-------	----------	-----	------	--

Process:

ing the robot camera we created the Google Model and loaded on the robot. After restarting the robot the program aborted and the search online did not find a answer we understood. So using the information gained in building the Google Model. We recreated the videos for the FTC Model Learning function to be at least 1 minute long. When the model was created we had several items in the video at the same time.

Once the videos were completed then the dataset had to be created. These datasets con-



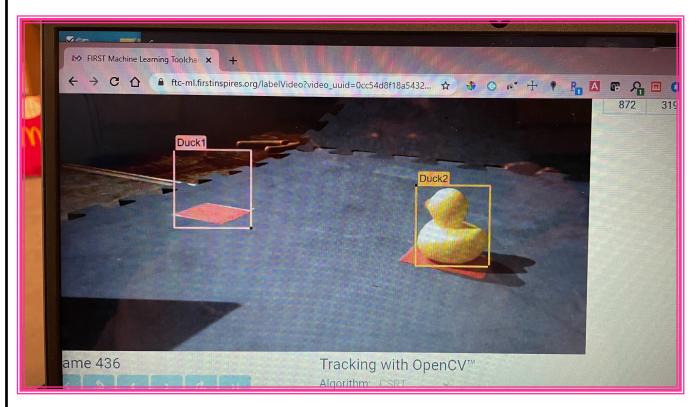
Signature :	Harper	Date:	December 26 2021
ngilatale.	•	Date.	

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: December 26, 2021

Process:



tained the mapping of where the target items were on the video. A mapping name was created for each of the items in the video. After the mapping was completed the "model learning" needed to take place. The model was first "QUEUED" for processing and the processed 3000 Frames in 00:44:06 min/sec. Frybox was being flagged as the Duck and The Duck was the Frybox. More research to determine this issue. After discovering that we had some more time on the FTC Machine Learning Tool we tried to create our model using that tool.

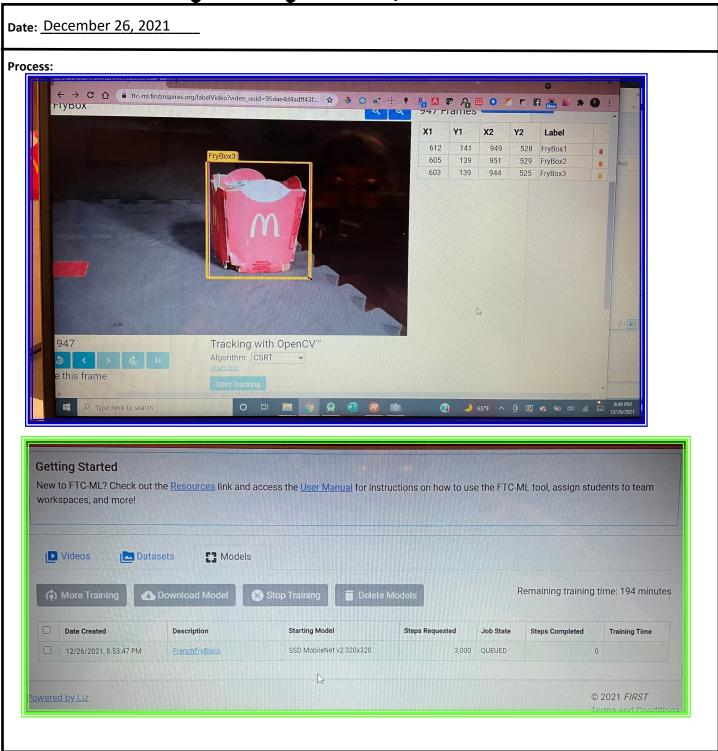
Signature :	Harper	Date:	December 26, 2021

ToRoto MoComo ToRoloto So

Harper

Signature:

Engineering Activity "Continued"

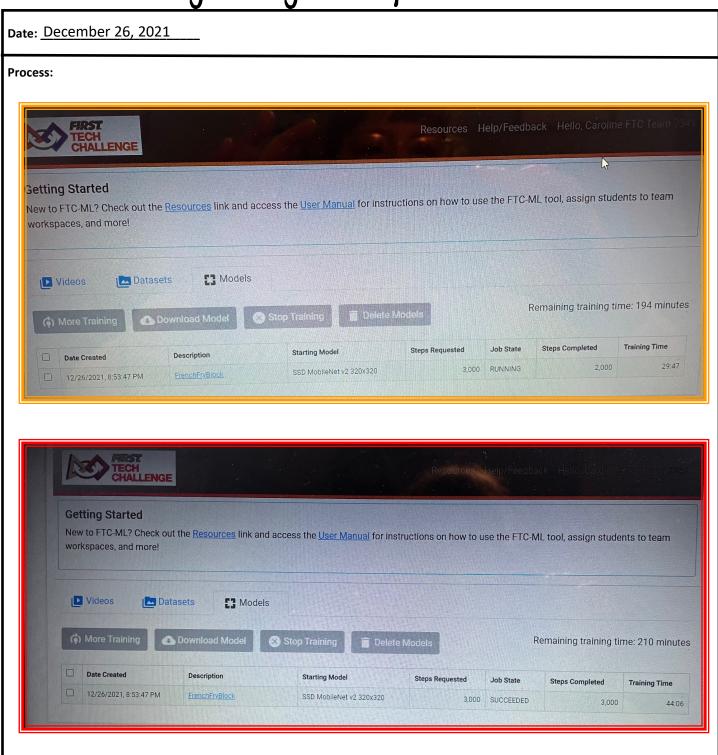


December 26 2021

Date:

T.R.I.O.N.C.N. T.R.L.I.S.

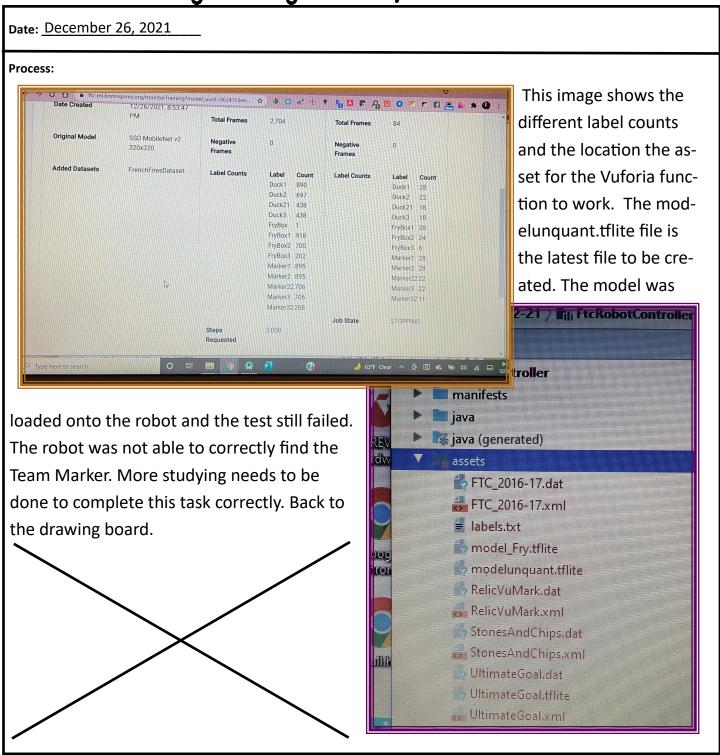
Engineering Activity "Continued"



Signature : Harper December 26 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"



Signature : _____ December 26 2021 Date: _____

Toroto Mocomo Torolotoso

Engineering Activity

Date: December 27, 2021	Time:	2:30pm-	5:00pm
-------------------------	-------	---------	--------

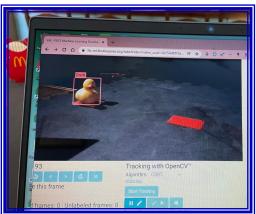
Purpose of the Activity:

Learning more about Machine Learning—using FTC Machine Learning tool

Members:

Process:

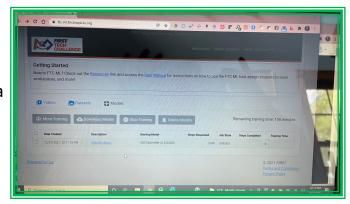
Most testing was completed using the FTC Machine Learning Tool. The biggest change is that we created 3 videos: 1 for the Duck, 1 for the FryBox and 1 for the Floor Marker. There was 3 one minute videos created using the computers camera function and the robot's camera connected to the computer. Each of the videos made had the camera angel changed and the position of each element was moved. This is so the "learning tool" had move than one thing to use for the description of the item. Once the videos were made then the tracking of the



items was completed for each of the videos. The box around the target time had to be moved through out the video so that is was around the object at all times. After the tracking was completed then you needed to walk through the entire video and mark the frames that needed to be ignored. I.E. frames where the box was not around

the target items. The video was

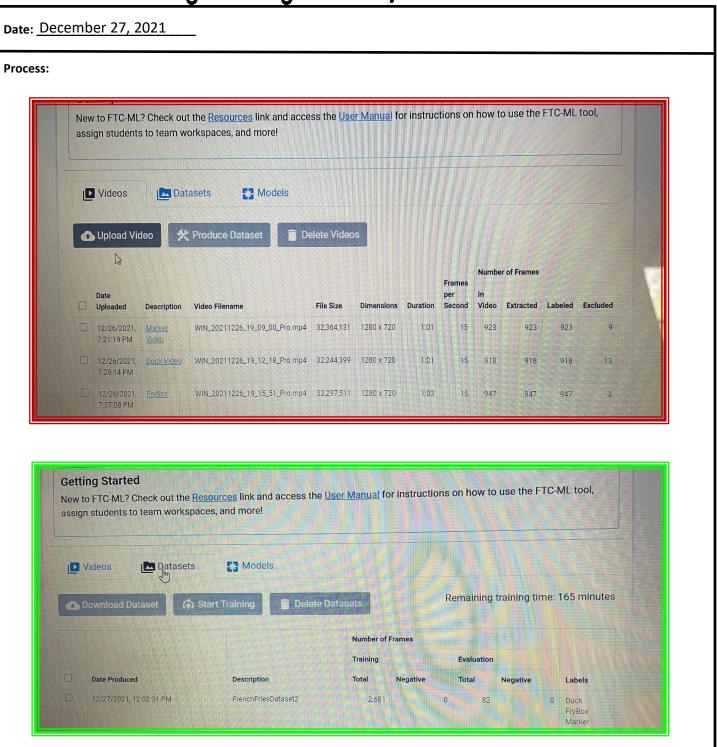
queued to be processed by the system. After a few minutes the model learning began. This learning took about 45 minutes leaving us 165 minutes to use at a later time. Following



Signature: _____ December 27, 2021

ToRoToNoCoNo ToRoLES

Engineering Activity "Continued"

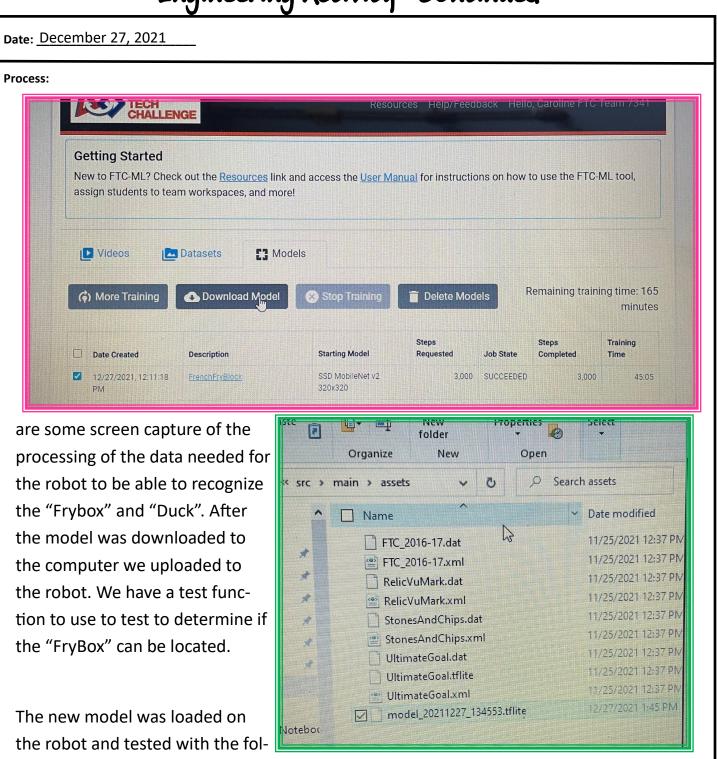


Signature : _____ December 27, 2021

TEAM TSA

ToRoto Nicono ToRolotoso

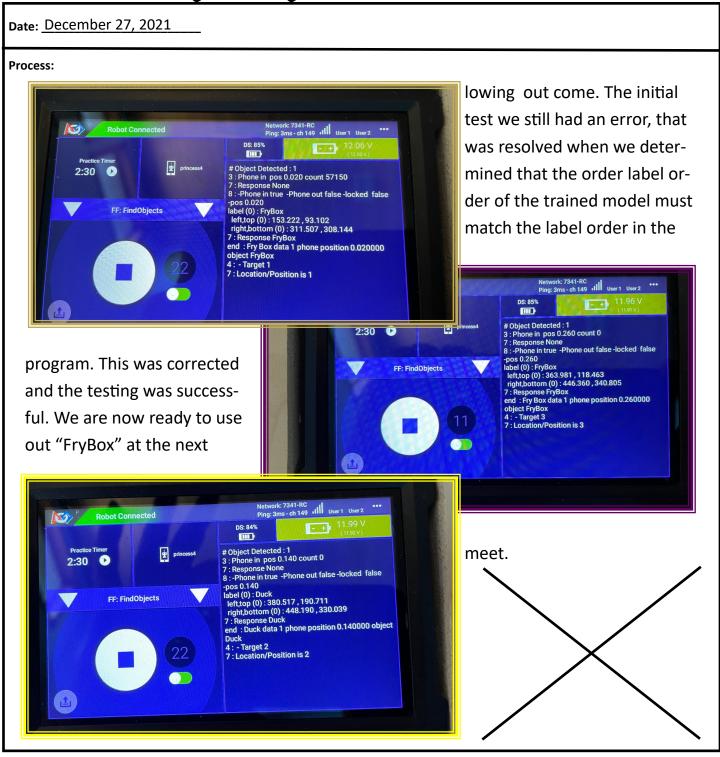
Engineering Activity "Continued"



Signature : _____ December 27, 2021

ToRoto Nicono ToRolotoso

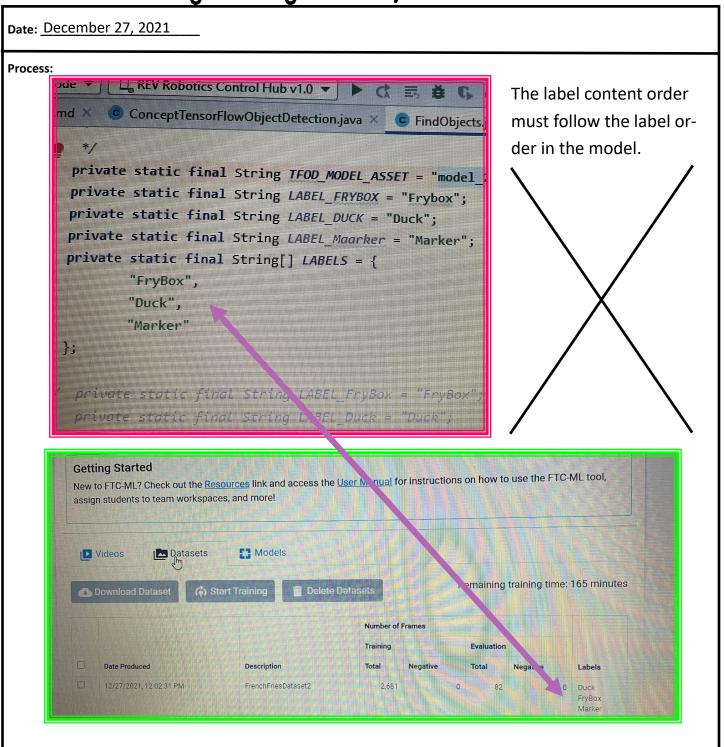
Engineering Activity "Continued"



Signature: _____ December 27, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"



Signature: _____ December 27, 2021

ToRotto NoCoMo ToRolottoSo

Elle

Signature : _____

Engineering Activity "Continued"

Date: <u>December 27, 2021</u>
Process:
Test Program for tracking of the "FryBox"
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run autonomously to put a ball into the vortex
push the big ball off the base and then and go on the base.
This will work on only the blue side.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBU- TORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,

Date: _____

ToRotto MoCoMo ToRolottoSo

Signature:

ate: <u>December 27, 2021</u>	
rocess:	
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND POSE	O FITNESS FOR A PARTICULAR PUR-
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT	TOWNER OR CONTRIBUTORS BE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXE	MPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCU OR	REMENT OF SUBSTITUTE GOODS
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSIN	ESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER	R IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) A USE	RISING IN ANY WAY OUT OF THE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBI	LITY OF SUCH DAMAGE. */
package org.firstinspires.ftc.Team7341;	
import android.app.Activity;	
import android.content.Context;	
import android.graphics.Color;	
import android.view.View;	
	Docombor 27, 2021
nature :	Date:

ToRotto NoCollo ToRolottoSo

Date: <u>December 27, 2021</u>		
rocess:		
import com.qualcomm.ftccommon.SoundPlayer;		
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;		
import com.qualcomm.robotcore.eventloop.opmode.Autonomous;		
import com.qualcomm.robotcore.eventloop.opmode.Disabled;		
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;		
import com.qualcomm.robotcore.hardware.DcMotor;		
import com.qualcomm.robotcore.util.ElapsedTime;		
import java.util.List;		
import org.firstinspires.ftc.robotcore.external.ClassFactory;		
$import\ org. first in spires. ftc. robot core. external. hardware. camera. We be cam Name;$		
import org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer;		
import		
org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer.CameraDirection;		
import org.firstinspires.ftc.robotcore.external.tfod.TFObjectDetector;		
import org.firstinspires.ftc.robotcore.external.tfod.Recognition;		

Signature :	Elle	December 27,	2021
ngilatule .	_	Date.	

ToRotto NoCoMo ToRolottoSo

Date: <u>December 27, 2021</u>
Process:
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.List;
<pre>@Autonomous(name = "FF: FindObjects", group = "Test")</pre>
//@Disabled
public class FindObjects extends LinearOpMode {
<pre>private ElapsedTime period = new ElapsedTime();</pre>
/* Note: This sample uses the all-objects Tensor Flow model
(FreightFrenzy_BCDM.tflite), which contains
* the following 4 detectable objects
* 0: FryBox,
* 1: Duck,
* 2: Marker (duck location tape marker)
*
*/
private static final String TFOD_MODEL_ASSET = "model_20211227_134553.tflite";

ignature :	Elle	December 27, 202
ignature.	_	Date.

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** private static final String LABEL FRYBOX = "Frybox"; private static final String LABEL DUCK = "Duck"; private static final String LABEL Maarker = "Marker"; private static final String[] LABELS = { "Duck", "FryBox", "Marker" **}**; // private static final String LABEL FryBox = "FryBox"; // private static final String LABEL_Duck = "Duck"; // private static final String LABEL Marker = "Marker"; String ringcount = "None"; int location = 0; int attemp; int count;

Signature : _____ December 27, 2021

ToRotto NoCollo ToRolottoSo

Date: December 27, 2021		
Process:		
/*		
* IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which		
* 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function.		
* A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer		
* web site at https://developer.vuforia.com/license-manager. *		
* Vuforia license keys are always 380 characters long, and look as if they contain most- ly		
* random data. As an example, here is a example of a fragment of a valid key:		
* ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOl2dRzKS4T0hQ8kT		
* Once you've obtained a license key, copy the string from the Vuforia web site		
* and paste it in to your code on the next line, between the double quotes.		
*/		
private static final String VUFORIA_KEY =		
"Ad3dVfb////AAABmeuzevwxnUkXhEs/ ylggKdMEqN6gF28rbmVKeDVSAk9T8KMRzUkYXt2GjLLHHQemOBurtZ- F9uMN4xHQ28GLvuyT04rDTo4PXwhu513Yw2Eh8FY5LgDN9pQ0U1QTEJNKTHn/		

Signature :	Elle	December 27, 202
Signature :	3 0000	Date:

ToRotto NoCollo ToRolottoSo

Date: December 27, 2021
Process:
E5T3HkFe70JHV5NVEos8r0nh42zrtKtPuG43TbgnqBREM-PHQlk96+tRv4LsvMBxercYO5+YYEz08ySUro3lekghLfWrDx/VoDwjDdYHtGU6GVte-qKqW0Tz3OUUcWAJC2h0+Gq+wH42o0QHpGUkX2MeUaehTHVsh6xb7OqliTGcL0/7u40RI3yHCpnpDb9lvWd+BGlRcEDxgMqJFMz74yyXoywTj1UXZ53nBLOTyic";
DefineFrenzy robot = new DefineFrenzy(); // Use a Princess's Charlie hardware /**
* {@link #vuforia} is the variable we will use to store our instance of the Vuforia * localization engine. */ private VuforiaLocalizer vuforia;
/** * {@link #tfod} is the variable we will use to store our instance of the TensorFlow Object * Detection engine. */ private TFObjectDetector tfod; // Define your functions

ignature :	Elle	December 27, 202
ignature.	_	Date.

ToRoto Nocolo ToRoloto So

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** DriveDef2 drive = new DriveDef2(); DriveColorDef2 color = new DriveColorDef2(); double \$stopphone1 = .4; double \$stopphone2 = .9; boolean phone locked; boolean phone in; boolean phone out; int phonecyclecount; private int statusx; // List of available sound resources //{"ss alarm" - 0, "ss bb8 down" - 1, "ss bb8 up" - 2, "ss darth vader" - 3, "ss_fly_by" - 4, // "ss mf fail" - 5, "ss laser" - 6 "ss laser burst" - 7, "ss light saber" - 8, // "ss light saber long" - 9, "ss light saber short" - 10, // "ss light speed" - 11, "ss mine" - 12, "ss power up" - 13, "ss r2d2 up" - 14, // "ss roger roger" - 15, "ss siren" - 16, "ss wookie" - 17};

Signature : _____ December 27, 2021

ToRoto No. Co. Ho ToRoloto So.

Elle

Signature : _____

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** String sounds[] = {"ss alarm", "ss bb8 down", "ss bb8 up", "ss darth vader", "ss fly by", "ss mf fail", "ss laser", "ss laser burst", "ss light saber", "ss light saber long", "ss_light_saber_short", "ss light speed", "ss mine", "ss power up", "ss r2d2 up", "ss roger roger", "ss siren", "ss wookie"}; boolean soundPlaying = false; /* * IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which * 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function. * A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer * web site at https://developer.vuforia.com/license-manager. * Vuforia license keys are always 380 characters long, and look as if they contain mostly * random data. As an example, here is a example of a fragment of a valid key:

Date: _ December 27, 2021

ToRotto MoCoMo ToRolottoSo

0 0		
Date: December 27, 2021		
Process:		
* ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOl	2dRzKS4T0hQ8kT	
* Once you've obtained a license key, copy the string	from the Vuforia web site	
* and paste it in to your code onthe next line, between	en the double quotes.	
*/		
public static final String TAG = "Vuforia VuMark Samp	le";	
/**		
* This is the webcam we are to use. As with other ha	rdware devices such as motors	
and		
* servos, this device is identified using the robot configuration tool in the FTC applica-		
tion.		
*/		
WebcamName webcamName;		
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>		
int soundID = -1;		
@Override		
ignature :	December 27, 2021	

ToRotto NoCollo ToRolottoSo

<u> </u>
Date: December 27, 2021
Process:
<pre>public void runOpMode() throws InterruptedException {</pre>
String print_val;
print_val = "Test";
int attemp;
int count;
// Variables for choosing from the available sounds
int soundIndex = 0;
Context myApp = hardwareMap.appContext;
// create a sound parameter that holds the desired player parameters.
SoundPlayer.PlaySoundParams params = new SoundPlayer.PlaySoundParams();
params.loopControl = 0;
params.waitForNonLoopingSoundsToFinish = true;
// Leave argument list empty if you want to disable the camera monitor view.
TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters();

ignature :	Elle	December 27, 202
ignature.		Date.

ToRotto NoCollo ToRolottoSo

Date: <u>December 27, 2021</u>		
Process:		
/*		
* Initialize the drive syst;em variables.		
* The init() method of the hardware class does all the work here		
*/		
robot.init(hardwareMap, 1, statusx);		
telemetry.addData("6", " init robot");		
telemetry.update();		
drive.init(hardwareMap, this);		
telemetry.addData("6", " init drive");		
telemetry.update();		
// hand.init(hardwareMap, this);		
// arm.init(hardwareMap, this);		
color.init(hardwareMap, this);		
telemetry.addData("6", " init color");		
telemetry.update();		
// shooter.init(hardwareMap, this);		

ignature :	Elle	December 27, 2021 Date:

ToRotto NoCollo ToRolottoSo

0 0
Date: December 27, 2021
Process:
// Send telemetry message to signify robot waiting;
telemetry.addData("Status", "Test Find Object Position");
telemetry.update();
String startDate;
startDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date());
// robot.left_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
// robot.left_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
// robot.right_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
<pre>// robot.right_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER);</pre>
// robot.left_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
// robot.left_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
// robot.right_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
<pre>// robot.right_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);</pre>
// Send telemetry message to indicate successful Encoder reset
// telemetry.addData("1", "Starting drive position at Left %7d - Right %7d left_back %7d - right_back %7d",

ignature :	Elle	December 27, 202
ignature.	_	Date.

ToRotto NoCollo ToRolottoSo

Date: December 27, 2021			
Process	:		
	// robot.left_front.getCurrentPosition(),		
	// robot.right_front.getCurrentPosition(),		
	// robot.left_back.getCurrentPosition(),		
	// robot.right_back.getCurrentPosition());		
	/ *		
	* Retrieve the camera we are to use.		
	*/		
	<pre>webcamName = hardwareMap.get(WebcamName.class, "Webcam 1");</pre>		
	initVuforia();		
	telemetry.addData("6", " Vuforia");		
	telemetry.update();		
	initTfod();		
	telemetry.addData("7", " initTfod");		
	telemetry.update();		

ignature :	Elle	December 27, 202
igilatule.	O ****	Date.

ToRotto NoCoMo ToRolottoSo

Elle

Signature : _____

Engineering Activity "Continued"

<u> </u>
Date: December 27, 2021
Process:
/**
* Activate TensorFlow Object Detection before we wait for the start command.
* Do it here so that the Camera Stream window will have the TensorFlow annotations visible.
**/
if (tfod != null) {
tfod.activate();
// The TensorFlow software will scale the input images from the camera to a lower resolution.
// This can result in lower detection accuracy at longer distances (> 55cm or 22").
// If your target is at distance greater than 50 cm (20") you can adjust the magnification value
// to artificially zoom in to the center of image. For best results, the "aspectRatio" argument
// should be set to the value of the images used to create the TensorFlow Object Detection model
// (typically 1.78 or 16/9).

Date: _____

ToRotto NoCoMo ToRolottoSo

Elle

Signature : _____

Engineering Activity "Continued"

<u> </u>	
Date: December 27, 2021	
Process:	•
// The TensorFlow software will scale the input images from the camera to a lower resolution.	
// This can result in lower detection accuracy at longer distances (> 55cm or 22").	
// If your target is at distance greater than 50 cm (20") you can adjust the magnification value	
// to artificially zoom in to the center of image. For best results, the "aspectRatio" argument	
// should be set to the value of the images used to create the TensorFlow Object Detection model	
// (typically 16/9).	
tfod.setZoom(2.5, 16.0/16.0);	
}	
// closed - hand	
// robot.hand.setPosition(.35);	
// find the rings to determine the option of A, B, or C	
telemetry.addData("6", " find the FryBox, Duck or Marker");	
telemetry.update();	
waitForStart();	

Date: _____

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: December 27, 2021		
Process:		
while (opModeIsActive()) {		
robot.phone_position = 0;		
robot.phone.setPosition(robot.phone_position);		
// find the rings to determine the option of A, B, or C		
telemetry.addData("6", " find the duck or FryBox");		
telemetry.update();		
location = FindDuck();		
robot.position_option = location;		
telemetry.addData("4", " - Target %d", robot.position_option);		
telemetry.addData("7", "Location/Position is %d", location);		
telemetry.update();		

ToRotto MoCoMo ToRolottoSo

Date: <u>December 27, 2021</u>		
Process:		
	// robot.kicker.setPosition(.4);	
	robot.wait(30);	
	// make sure the hand is close and pick up the wobbler	
	robot.waithalf(20);	
	telemetry.addData("Path", "Autonomous Complete");	
	telemetry.update();	
	idle(); // Always call idle()	
	stop();	
}		
}		
pro	tected void displayPattern() {	
ro	bbot.pattern = RevBlinkinLedDriver.BlinkinPattern.SHOT_WHITE;	
ro	obot.blinkin.setPattern(robot.pattern);	
}		

ignature :	Elle	Date: _	December 27, 2023

ToRato NoCono ToRolatoSo

Date: <u>December 27, 2021</u>
Process:
/ **
* Initialize the Vuforia localization engine.
*/
<pre>private void initVuforia() {</pre>
/*
* Configure Vuforia by creating a Parameter object, and passing it to the Vuforia en-
gine.
*/
VuforiaLocalizer.Parameters parameters = new VuforiaLocalizer.Parameters();
parameters.vuforiaLicenseKey = VUFORIA_KEY;
<pre>parameters.cameraName = hardwareMap.get(WebcamName.class, "Webcam 1");</pre>
// Instantiate the Vuforia engine
<pre>vuforia = ClassFactory.getInstance().createVuforia(parameters);</pre>
// Loading trackables is not necessary for the TensorFlow Object Detection engine.

Signature :	Elle	December 27,	, 2021
ngnature :		Date:	

ToRotto NoCoMo ToRolottoSo

Elle

Signature:

Engineering Activity "Continued"

Date: December 27, 2021
Process:
}
<pre>public void playsound(int sound_index) {</pre>
Context myApp1 = hardwareMap.appContext;
// create a sound parameter that holds the desired player parameters.
SoundPlayer.PlaySoundParams params = new SoundPlayer.PlaySoundParams();
params.loopControl = 0;
params.waitForNonLoopingSoundsToFinish = true;
// Determine Resource IDs for the sounds you want to play, and make sure it's valid.
<pre>if ((soundID = myApp1.getResources().getIdentifier(sounds[sound_index], "raw", my- App1.getPackageName())) != 0) {</pre>
// Signal that the sound is now playing.
soundPlaying = true;
// Start playing, and also Create a callback that will clear the playing flag when the sound is complete.
SoundPlayer.getInstance().startPlaying(myApp1, soundID, params, null,

Date: _____

ToRoto No. Como ToRoloto So

```
Date: December 27, 2021
Process:
             new Runnable() {
               public void run() {
                 soundPlaying = false;
             });
      }
    }
    public void waitForTick(long periodMs) {
      long remaining = periodMs - (long) period.milliseconds();
      // sleep for the remaining portion of the regular cycle period.
      if (remaining > 0) {
        try {
           Thread.sleep(remaining);
        } catch (InterruptedException e) {
           Thread.currentThread().interrupt();
```

Signature :	Date:	December 27, 202
-------------	-------	------------------

ToRotto MoCoMo ToRolottoSo

Elle

Signature:

Engineering Activity "Continued"

Date: December 27, 2021
Process:
}
}
// Reset the cycle clock for the next pass.
period.reset();
}
/ **
* Initialize the TensorFlow Object Detection engine.
*/
<pre>private void initTfod() {</pre>
int tfodMonitorViewId = hardwareMap.appContext.getResources().getIdentifier(
"tfodMonitorViewId", "id", hardwareMap.appContext.getPackageName());
TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters (tfodMonitorViewId);
<pre>// tfod = ClassFactory.getInstance().createTFObjectDetector(tfodParameters, vuforia);</pre>
<pre>// tfod.loadModelFromAsset(TFOD_MODEL_ASSET, LABEL_FRYBOX, LABEL_DUCK, LA- BEL_Maarker);</pre>
tfodParameters.minResultConfidence = 0.8f;

Date: _____

ToRotto NoCollo ToRolottoSo

Date: December 27, 2021		
Process:		
// tfodParameters.useObjectTracker = true;		
tfodParameters.isModelTensorFlow2 = true;		
tfodParameters.inputSize = 320;		
telemetry.addData("1", " - Target %s", TFOD_MODEL_ASSET);		
telemetry.addData("4", " - Target 3 %s %S %s", LABELS[0],LABELS[1],LABELS[2]);		
tfod = ClassFactory.getInstance().createTFObjectDetector(tfodParameters, vuforia);		
tfod.loadModelFromAsset(TFOD_MODEL_ASSET, LABELS);		
telemetry.addData("5", " - TFOD Done");		
telemetry.update();		
robot.wait(10);		
}		
// find the position of the duck		
private int FindDuck() {		
boolean phone_locked;		

Signature: Elle	Date:	December 27, 202
-----------------	-------	------------------

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** int FoundDuck = -1; phone in = true; phone locked = false; telemetry.addData("2", "in findDuck"); telemetry.update(); robot.phone_position = 0; robot.phone.setPosition(robot.phone position); while (FoundDuck == -1 && (!isStopRequested() || opModelsActive())) { if (tfod != null) { // getUpdatedRecognitions() will return null if no new information is available since // the last time that call was made. List<Recognition> updatedRecognitions = tfod.getUpdatedRecognitions(); count++; if (updatedRecognitions != null) { telemetry.addData("# Object Detected", updatedRecognitions.size()); if (count > 75000) {

Signature : Elle	Date:	December 27, 202
------------------	-------	------------------

ToRoto No. Co. Ho ToRoloto So.

Engineering Activity "Continued"

```
Date: December 27, 2021
Process:
               if (robot.phone position < .25) {
                 robot.phone position += .02;
                 robot.phone.setPosition(robot.phone position);
                 count = 0;
               } else {
                 robot.phone_position = 0;
                 robot.phone.setPosition(robot.phone position);
                 count = 0;
            }
            telemetry.addData("3", "Phone in pos %.3f count %d", robot.phone position,
 count);
            telemetry.addData("7", "Response %s ", ringcount);
            telemetry.addData("8", "-Phone in %b -Phone out %b -locked %b -pos %.3f",
 phone in, phone out, phone locked, robot.phone position);
            // step through the list of recognitions and display boundary info.
            int i = 0;
```

Signature : _____ December 27, 2021

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** for (Recognition recognition : updatedRecognitions) { telemetry.addData(String.format("label (%d)", i), recognition.getLabel()); telemetry.addData(String.format(" left,top (%d)", i), "%.03f", %.03f", recognition.getLeft(), recognition.getTop()); telemetry.addData(String.format(" right,bottom (%d)", i), "%.03f", %.03f", recognition.getRight(), recognition.getBottom()); i++; ringcount = recognition.getLabel(); telemetry.addData("7", "Response %s ", ringcount); if (recognition.getLabel().equals("Duck")) { FoundDuck = 1; telemetry.addData("end", "Duck data %d phone position %f object %s", FoundDuck, robot.phone position, ringcount); if (robot.phone position < .06) { return (1); } else if (robot.phone position > .06 && robot.phone position < .19) {

Signature : Elle	December 27, 2021
------------------	-------------------

ToRoto Mocomo ToRoloto So

Engineering Activity "Continued"

```
Date: December 27, 2021
Process:
                    return (2);
                 } else if (robot.phone position > .19) {
                    return (3);
                  }
               } else if (recognition.getLabel().equals("FryBox")) {
                  FoundDuck = 1;
                 telemetry.addData("end", "Fry Box data %d phone position %f object %
 s", FoundDuck,
                      robot.phone position, ringcount);
                  if (robot.phone position < .06) {
                    return (1);
                  } else if (robot.phone_position > .06 && robot.phone_position < .19) {
                    return (2);
                 } else if (robot.phone position > .19) {
                    return (3);
                  }
```

Signature : _____ December 27, 2021

ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Date: December 27, 2021 **Process:** } else if (ringcount == "Marker" | | ringcount == "none") { telemetry.addData("Marker data %d", FoundDuck); } // end of the object test } } // end of test the object telemetry.update(); } // Tfod not null idle(); // Always call idle() // figure out what the count is??? }//end of while telemetry.addData("end","Duck data %d phone position %f object %s", FoundDuck, robot.phone position, ringcount); return (1); }

Signature :	Elle	Date:	December 27, 202

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: December 27, 2021
Process:
private void releasearm () {
// lower arm
// arm.liftmove(2,1);
// open your hand
// hand.Hand(2, 1);
// wait for the arms to go down
robot.waithalf(1);
// raise arm
// arm.liftmove(1, 1);
// wait for the arms to go down
robot.waithalf(1);
}
}

Signature : _____ December 27, 2021

Toroto Mocomo Torolotoso

Engineering Activity

Date:	January 3, 2022	Time	2:30pm-	- 5:00pm
vale.	, ,	I IIII E.		

Purpose of the Activity:

- Practice driving
- Testing Autonomous

Members:

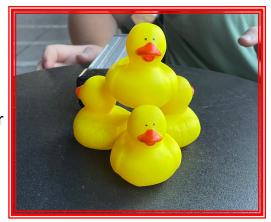
Cailyn, Elle, Harper, and Renee

Process:

We talked about the Machine Learning and how it works with everyone on the team, so everyone can talk about if needed. We also talked about adding an addition Meet to our list, so now we will be going to Oviedo High on January 8 and then we will be going to Melbourne the following weekend to increase the number of matches we played before the Championship Meet. This upcoming meet looks like there will be few teams.

Everyone is to let the coach know what they want for lunch before Friday so it can be ordered from Publix. The parent will be driving the girls to the competition.

During our practice we determined it takes about 7seconds for our robot to travel the length of the field. So we need to start heading to the warehouse at 10 seconds to go. As they approached the warehouse the team did not lift the arm, so the hand (claw) went under the barrier and pushed the attachment open beyond the servo position. This stripped out the gearing in the plastic piece that connects to the servo enabling the



Signature :	Harper	January 3, 2022 Date:
signature :	,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Date:

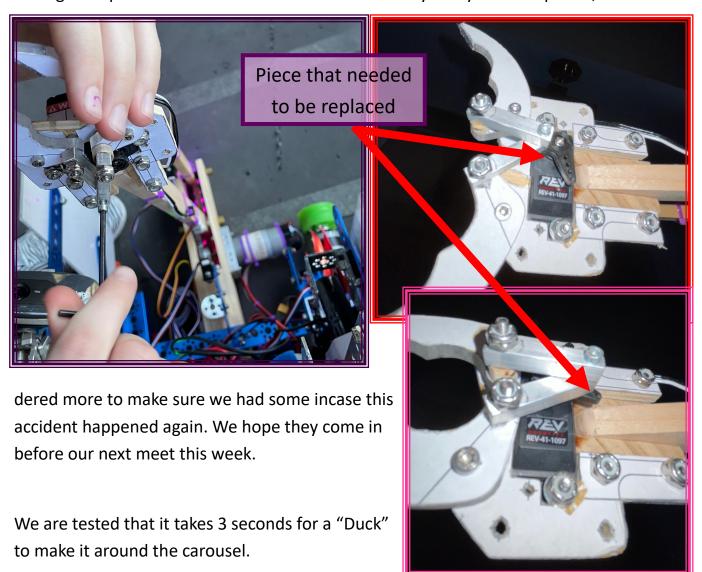
ToRoto MoComo ToRoloto So

Engineering Activity "Continued"

Data	January 3. 2022	

Process:

horn to move the mechanism open and closed. We needed to replace and re-align the servo horn before continuing the practice. This was completed after a short search through our parts. We noted that we did not have very many of these pieces, so we or-



Signature : _	Harper	Date:

TEAM TSAI

ToRoto NoCono ToRoloto So

Engineering Activity "Continued"

Date: January 3, 2022





Once we determined our repair worked and we had a plan to put our marker on the top of the carousel, the robot had a dance party with the duck!!

Next is Meet 3!!

Signature : _____ January 3, 2022 _____ Date: _____

PoRoto MoCoMo PoRoloteoSo

Engineering Activity

Date: January 8, 2022	Time: _	7:30am— 3:30pm
Purpose of the Activity: • Meet 3		
Members: Cailyn, Elle, Harper and Renee		

Process:

It was a busy day, with only 12 participating our matches were close together. It was a tough day with only one win, but we learned a lot about our driving so we are ready for next weekend.

Match	Red		Blue		Red Score	Blue Score
Qualification 2	<u>7477</u>	<u>7341</u>	<u>19885</u>	<u>4228</u>	23	- 53 -
Qualification 6	<u>15401</u>	<u>7341</u>	<u>14673</u>	<u>16290</u>	55	- 105 -
Qualification 9	<u>14765</u>	<u>19885</u>	<u>7341</u>	<u>16290</u>	12	- 100 -
Qualification 11	<u>4227</u>	<u>4717</u>	<u>19885</u>	<u>7341</u>	- 178 -	51
Qualification 15	<u>7341</u>	<u>14673</u>	<u>7592</u>	<u>14765</u>	52	- 123 -
Qualification 17	<u>15401</u>	<u>18172</u>	<u>7341</u>	14765	- 157 -	48

We thank the following teams we were paired with for the great matches:

- 1. Super 7
- 2. CyberNoles
- 3. Z.I.P. Ties
- 4. Phantom Panthers
- 5. Odyssey One
- 6. Mechatronic Mustangs

Signature :	Cailyn	January 8, 2022
oigilatule :	C	Date:

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 8, 2022

Process:







Great day from the Referee. We worked hard all day!





Signature :	Cailyn	Date:	January 8, 2022
ngnature.	- ,	Date.	

TEAM TOA

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 8, 2022 Process: 14673 16290 Qualification 11 of 18 19885 80 END GAME

January 8, 2022 Cailyn Date: Signature : _____

PoRoto NoCono PoRolote So

Engineering Activity "Continued"

Date: January 8, 2022

Process:



Team picture day!

Signature :	Cailyn	January 8, 2022
Signature.	Cittory	Date.

ToRotto MoCoMo ToRolottoSo

Engineering Activity

Date: _January 15, 2022	Time: 7:30pm— 400pm
Purpose of the Activity: • Meet 4	
Members: Cailyn, Elle, Harper and Renee	

Process:

Two meets in two week-end, we will get a lots of extra drive time. Some of our matches were close and others we had resting time. We competed with 18 other teams and at the end we are now ranked 13th out of 34 teams. Today was great in that we had 4 wins.

Match	Red		Blue		Red Score	Blue Score
Qualification 4	<u>14989</u>	<u>18172</u>	<u>19885</u>	<u>7341</u>	- 97 -	64
Qualification 7	<u>7341</u>	<u>4228</u>	<u>8617</u>	<u>18258</u>	- 81 -	13
Qualification 13	<u>7341</u>	<u>14856</u>	<u>4717</u>	<u>9013</u>	79	- 160 -
Qualification 15	<u>7341</u>	19997	<u>14976</u>	<u>15401</u>	- 88 -	22
Qualification 21	<u>4228</u>	<u>7477</u>	<u>16290</u>	<u>7341</u>	75	- 166 -
Qualification 24	<u>14673</u>	<u>16290</u>	<u>4227</u>	<u>7341</u>	77	- 138 -

We thank the following teams we were paired with for the great matches:

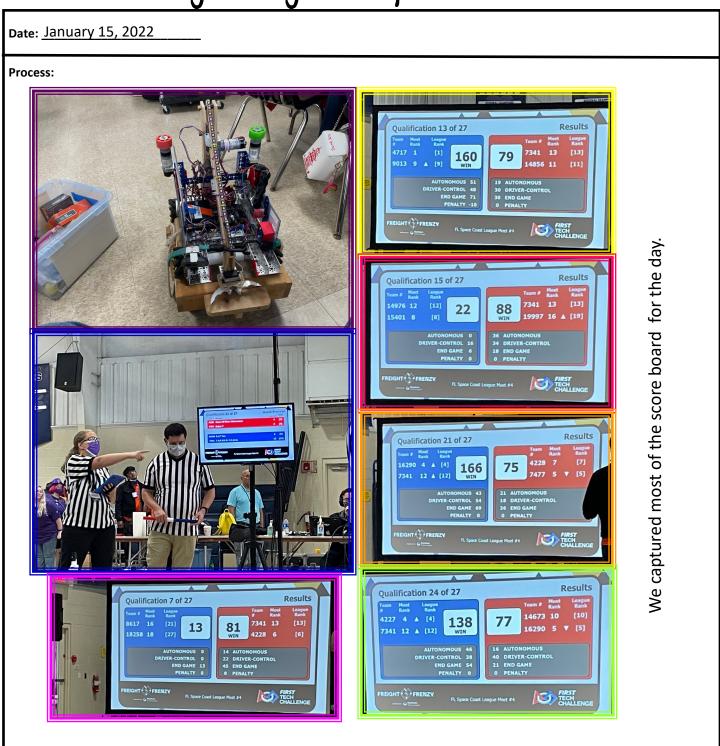
- 1. Phantom Panthers
- 2. Gears Of Other Dimensions
- 3. T.I.R.E.D.
- 4. Trouble Bubble
- 5. Z.I.P. Ties
- 6. Metal Morphosis

Signature :	Cailyn	January 15, 2	.022
Jigilatai C .	- ,	Date.	

TEAM TSAI

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"



Signature: _____ January 15, 2022
Date: _____

TEAM TSAI

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 15, 2022

Process:



It looks like we might just be ready for the Championship Tournament coming up in just a few weeks.

Signature :	Cailyn	January 15, 2022

ToRoto MoCoMo ToRoloto So

Engineering Activity

Date: January 16, 2022 Time: 2:30pm — 5:00pm

Purpose of the Activity:

- Review Tenor Flow files
- Add the other color sensor for autonomous setup

Members:

Cailyn, Elle and Renee

Process:

In reviewing the tensor flow model we found that some frames in our FryBox video were not tagged correctly. After retagging the frames and regenerating the model it appears that the robot detects the FryBox correctly and does not indicate a box is present in an empty space. We used out Object test program to verify the accuracy of the tensor flow model. We also talked about have a fry box made out of aluminum to replace our box



that is very tattered. We asked Mr. Louis if he could cut and bend the an aluminum box for us. This will also allow the box to go down onto the top of the shipping hub.

Our coach ordered more color sensors so that we can have the robot learn the tasks to be preformed during the autonomous portion of the match. We installed all the new sensors and test using out color test function.







Signature :	Cailyn	January 16, 2022
DIBLIALULE.		Date.

TEAM TRAIN

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 16, 2022

Process:









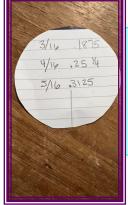
We have a color sensor to indicate that we will place or not place the freight in the shipping hub and the other color sen-

sor is used to let the robot know that it is near the "carousel" or the "warehouse". The robot will use this information to learn what task are to performed during the autonomous period of the match.

We have been struggling with the calculating the value to send to the encoder to move our arm to the correct position for the different levels of the "Shipping Hub". The distance to travel is in the fraction of the inch.









Date: _ Cailyn Signature:

ToRotto MoCoMo ToRolottoSo

Engineering Activity

Date: January 23, 2022	Time	2:30pm-	5:00pm
Date: January 23, 2022	Time:	=	

Purpose of the Activity:

- Review Tenor Flow files
- Add the other color sensor for autonomous setup

Members:

Elle, Harper and Renee

Process:



We re-applied the fry boxes on the outside of our new aluminum box. We found that because the box is much stiffer (not as flexible) our hand gripper did not hold the box level so we added cushions on the side so the box could be gripped.









After testing we found littler felt pads to use on the box. We will paint them red so they are not as noticeable.

We also started the work on the display board to put at our table. Need to finish putting all the pieces on the board.

Signature :	Renee	January 23, 2022
JIKITALUI C .	* ** ***	Date.

ToRotto NoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

Date: January 23, 2022
Process:
LIFT/Arm Mechanism Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.hardware.DcMotor; import com.qualcomm.robotcore.hardware.HardwareMap;
import com.qualcomm.robotcore.util.ElapsedTime;
import static java.lang.Boolean.TRUE;
import static java.lang.Thread.*; import static java.lang.Thread.sleep;
/**
*
* This class can be used to define all the specific hardware for a single robot.
* In this case that robot is PrinceCharles.
* See AutoBlue and others classes starting with "FF" for usage examples. *
* This hardware class assumes the following device names have been configured on the robot:
* Note: All names are lower case and some have single spaces between words.
*/
public class LiftDef2
/* Declare OpMode members. */
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware
DriveDef2 drive = new DriveDef2();
HandDef hand = new HandDef();
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>
/* local OpMode members. */

Date: _____

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** HardwareMap hardwareMap private ElapsedTime period = new ElapsedTime(); private int statusx; // Private Members private LinearOpMode myOpMode; /* Constructor */ public LiftDef2(){ /* Initialize standard Hardware interfaces */ public void init(HardwareMap ahwMap, LinearOpMode opMode) { // Save reference to Hardware map hardwareMap = ahwMap; myOpMode = opMode; * Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file. */ robot.init(hardwareMap, 1, statusx); * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time interval.

Signature :	Renee	January 23, 202 Date:
Signature :	Rence	Date: ' '

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** * @param periodMs Length of wait cycle in mSec. public void waitForTick(long periodMs) { long remaining = periodMs - (long)period.milliseconds(); // sleep for the remaining portion of the regular cycle period. if (remaining > 0) { try { sleep(remaining); } catch (InterruptedException e) { currentThread().interrupt(); } } // Reset the cycle clock for the next pass. period.reset(); } * Method to perform a relative move, based on encoder counts. * Encoders are not reset as the move is based on the current position. * Move will stop if any of three conditions occur: * 1) Speed negative is forward and positive is backwards * 2) leftInches - pass a negative to go forward and positive to backwards * 3) rightInches - pass a negative to go forward and positive to backwards * 4) direction - 1 - up, 2 - nowhere * 5) timeoutS - number of seconds before the function timeout public void liftmove (int direction, double position, double timeoutS) { int newarmTarget;

Signature :	Renee	January 23, 2022 Date:
JIKI I ALUI C.	* ** ***	Date.

Team 7341

ToRotto NoCollo ToRototto So

Engineering Activity "Continued"

Date: January 23, 2022	
Process:	
double currentarmTarget;	
double Countrev = 0;	
double directionvalue;	
double speed;	
if (direction == 1) {	
directionvalue = 1;	
speed = robot.LIFT_SPEED_Down;	
} else if (direction == 2) {	
directionvalue = -1;	
speed = -robot.LIFT_SPEED;	
} else {	
robot.arm_drive.setPower(robot.STOP_SPEED);	
return;	
}	
// determine the position 1, 2, or 3	
//newLeftTarget = robot.left_front.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1);	
// 5 inches up	
if(position == 1.0) Countrev = 0.125;	
// 12 inches up	
if(position == 2.0) Countrev = 0.25;	
// 18 inches up	
if(position == 3.0) Countrev = 0.375;	
<pre>currentarmTarget = robot.arm_drive.getCurrentPosition();</pre>	
<pre>newarmTarget = robot.arm_drive.getCurrentPosition() + (int)((robot.LIFT_COUNTS_PER_INCH *Countrev)</pre>	
*directionvalue);	
myOpMode.telemetry.addData("End lift positions"," Current rotations %.4f ",((robot.LIFT_COUNTS_PER_INCH	
*Countrev)*directionvalue));	
myOpMode.telemetry.addData("End lift "," Current- %.4f Newtarget- %d ", currentarmTarget, newarmTarget);	
myOpMode.telemetry.update();	
//remove when testing is completed	

Signature :	Renee	Date:	January 23, 2022
		_	

Tram 7341

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 23, 2022

Date: January 23, 2022
Process:
robot.wait(10);
// Turn On RUN_TO_POSITION
robot.arm_drive.setTargetPosition(newarmTarget);
robot.arm_drive.setMode(DcMotor.RunMode.RUN_TO_POSITION);
robot.arm_drive.setPower(speed);
// reset the timeout time and start motion.
runtime.reset();
// Motor is setup reverse
// keep looping while we are still active, and there is time left, and both motors are running.
while (myOpMode.opModeIsActive() && (runtime.seconds() < timeoutS) &&
((robot.arm_drive.isBusy())
(robot.lower_stop.getState() == TRUE robot.upper_stop.getState() == TRUE))) {
waitForTick(200);
myOpMode.telemetry.addData("End lift positions"," Current- %7d New- %7d ", robot.arm_drive.getCurrentPosition
() ,newarmTarget);
myOpMode.telemetry.addData("Timer", runtime.seconds());
myOpMode.telemetry.update();
}
// Stop all motion;
robot.arm_drive.setPower(robot.STOP_SPEED);
}
// This function is to deliver the freight into the shipping hub - robot is infront of the hub
public void deliver_cargo (int position) {
// the Actions are to lower the arm to set the freight, then raise the arm to the
<pre>// proper level, then move forward to be close enough in the hub, release the freight(cargo) // then back up</pre>
// first lower the arm to reset the position to a known place (the floor
liftmove(1, 2, 1);
robot.wait(1);
// Placing the fright in the lower level

Signature :	Renee	Date: _	January 23, 2022

Date: January 23, 2022

ToRoto Nocono ToRoloto So

```
Process:
     if (position == 1) {
        // lift the arm to the proper level
        liftmove(2, 1, 1);
        // Move foward 6inches
        drive.encoder2Drive(.5,1,0,0,6,4);
        //release the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,6,4);
     } else if (position == 2) {
        // Placing the freight in the middle level
        // lift arm to the proper level
        liftmove(2, 2, 1);
        drive.encoder2Drive(.5,1,0,0,6,4);
        //release the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,6,4);
     }else if (position == 3) {
        // Placing the freight in the upper level
        // lift arm to the proper level
        liftmove(2, 3, 1);
        drive.encoder2Drive(.5,1,0,0,10,4);
        //release the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,10,4);
     } else {
        // could not decide where to place the block, so put it on top
        liftmove(2, 3, 1);
        drive.encoder2Drive(.5,1,0,0,10,4);
        //release the cargo block
        hand.Hand(2, 1);
        drive.encoder2Drive(.5,-1,0,0,10,4);
   }
```

Signature :	Renee	Date: _	January 23, 2022

Team 7391

ToRotto MoCoMo ToRolottoSo

Engineering Reported Continued
Date: January 23, 2022
Process:
Claw/Hand Mechanism Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.hardware.HardwareMap;
import com.qualcomm.robotcore.util.ElapsedTime;
import static java.lang.Thread.currentThread;
import static java.lang.Thread.sleep;
/ **
*
*
* This class can be used to define all the specific hardware for a single robot.
* In this case that robot is PrinceCharles.
* See AutoBlue and others classes starting with "FF" for usage examples. *
* This hardware class assumes the following device names have been configured on the robot:
* Note: All names are lower case and some have single spaces between words.
*/
public class HandDef
{
/* Declare OpMode members. */
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware
private ElapsedTime runtime = new ElapsedTime();
/* local OpMode members. */
HardwareMap hardwareMap = null;
<pre>private ElapsedTime period = new ElapsedTime();</pre>

Signature :	Renee	Date:	January 23, 2022
		_	

Team 7341

ToRotto NoCollo ToRolottoSo

Date: January 23, 2022
Process:
private int statusx;
// Private Members
private LinearOpMode myOpMode;
/* Constructor */
public HandDef(){
}
/* Initialize standard Hardware interfaces */
public void init(HardwareMap ahwMap, LinearOpMode opMode) {
// Save reference to Hardware map
hardwareMap = ahwMap;
myOpMode = opMode;
/ *
* Use the hardwareMap to get the dc motors and servos by name.
* Note that the names of the devices must match the names used
* when you configured your robot and created the configuration file.
*/
robot.init(hardwareMap, 1, statusx);
}
/*
* Method to perform a relative move, based on encoder counts.
* Encoders are not reset as the move is based on the current position.
* Move will stop if any of three conditions occur:
* 1) Speed negative is forward and positive is backwards
* 2) leftInches - pass a negative to go forward and positive to backwards
* 3) rightInches - pass a negative to go forward and positive to backwards

Signature :	Renee	January 23, 202 Date:
Signature :	Rence	Date: ' '

ToRoto Nicono ToRoloto So

Engineering Activity "Continued"

Date: <u>January 23, 20</u>22 **Process:** * 4) direction - 1 - up, 2 - nowhere * 5) timeoutS - number of seconds before the function timeout */ public void Hand (int direction, double timeoutS) { int newPlatformArmTarget; // going up myOpMode.telemetry.addData("Start hand direction"," %d ", direction); myOpMode.telemetry.update(); if (direction == 1) { //close robot.hand.setPosition(.35); } else { // open robot.hand.setPosition(.7);

Signature : _____ January 23, 2022
Date: _____

ToRotto MoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

<u> </u>		
Date: <u>January 23, 2022</u>		
Process:		
Find Object Function		
package org.firstinspires.ftc.Team7341;		
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;		
import com.qualcomm.robotcore.hardware.HardwareMap;		
import com.qualcomm.robotcore.util.ElapsedTime;		
import org.firstinspires.ftc.robotcore.external.ClassFactory;		
import org.firstinspires.ftc.robotcore.external.hardware.camera.WebcamName;		
import org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer;		
import org.firstinspires.ftc.robotcore.external.tfod.Recognition;		
import org.firstinspires.ftc.robotcore.external.tfod.TFObjectDetector;		
import java.util.List;		
import static java.lang.Thread.currentThread;		
import static java.lang.Thread.sleep;		
/**		
*		
* This class can be used to define all the specific hardware for a single robot.		
* In this case that robot is PrinceCharles.		
* See AutoBlue and others classes starting with "FF" for usage examples. *		
* This hardware class assumes the following device names have been configured on the robot:		
* Note: All names are lower case and some have single spaces between words.		
*/		
public class ObjectDef		
/* Declare OpMode members. */		
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware		
private ElapsedTime runtime = new ElapsedTime();		

Date: _____

ToRoto Nicono ToRolotoso

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** /* local OpMode members. */ HardwareMap hardwareMap = null; private ElapsedTime period = new ElapsedTime(); private int statusx; private TFObjectDetector tfod; // Private Members private LinearOpMode myOpMode; /* Note: This is our Tensor Flow file where we have the following defined. the order must match the order in the file that was created in the FTC Model Learning software */ private static final String TFOD MODEL ASSET = "model 20220116 154511.tflite"; private static final String[] LABELS = { "Duck", "FryBox", "Marker" **}**; * IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which * 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function. * A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer * web site at https://developer.vuforia.com/license-manager. * Vuforia license keys are always 380 characters long, and look as if they contain mostly * random data. As an example, here is a example of a fragment of a valid key: ... ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOI2dRzKS4T0hQ8kT ... * Once you've obtained a license key, copy the string from the Vuforia web site * and paste it in to your code on the next line, between the double guotes. private static final String VUFORIA_KEY = "Ad3dVfb////AAABmeuzevwxnUkXhEs/ ylggKdMEqN6gF28rbmVKeDVSAk9T8KMRzUkYXt2GjLLHHQemOBurtZ-

Signature :	Renee	January 23, 2022 Date:
JIKI I ALUI C.	* ** ***	Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** F9uMN4xHQ28GLvuyT04rDTo4PXwhu513Yw2Eh8FY5LgDN9pQ0U1QTEJNKTHn/ E5T3HkFe70JHV5NVEos8r0nh42zrtKtPuG43TbgnqBREMPHQlk96+tRv4LsvMBxercYO5+YYEz08ySUro3lekghLfWrDx/ VoDwjDdYHtGU6GVteqKqW0Tz3OUUcWAJC2h0+Gq+wH42o0QHpGUkX2MeUaehTHVsh6xb7OqliTGcL0/7u40Rl3yHCpnpDb9lvWd+BGlRcEDxgMqJF Mz74yyXoywTj1UXZ53nBLOTyic"; /** * {@link #vuforia} is the variable we will use to store our instance of the Vuforia * localization engine. private VuforiaLocalizer vuforia; // Define your functions // Leave argument list empty if you want to disable the camera monitor view. TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters(); /* Constructor */ public ObjectDef(){ } /* Initialize standard Hardware interfaces */ public void init(HardwareMap ahwMap, LinearOpMode opMode) { // Save reference to Hardware map hardwareMap = ahwMap; myOpMode = opMode; * Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file.

Signature :	Renee	January 23, 202	22
ignature.		Date.	

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** */ robot.init(hardwareMap, 1, statusx); robot.phone_position = 0; robot.phone.setPosition(robot.phone position); initVuforia(); initTfod(); myOpMode.telemetry.addData("2", "in init tfod"); * Activate TensorFlow Object Detection before we wait for the start command. * Do it here so that the Camera Stream window will have the TensorFlow annotations visible. **/ if (tfod != null) { tfod.activate(); // The TensorFlow software will scale the input images from the camera to a lower resolution. // This can result in lower detection accuracy at longer distances (> 55cm or 22"). // If your target is at distance greater than 50 cm (20") you can adjust the magnification value // to artificially zoom in to the center of image. For best results, the "aspectRatio" argument // should be set to the value of the images used to create the TensorFlow Object Detection model // (typically 1.78 or 16/9). tfod.setZoom(2.5, 16.0/9.0); } * Initialize the TensorFlow Object Detection engine. private void initTfod() { int tfodMonitorViewId = hardwareMap.appContext.getResources().getIdentifier("tfodMonitorViewId", "id", hardwareMap.appContext.getPackageName()); TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters(tfodMonitorViewId);

Signature :	Renee	January 23, 2022 Date:
JIKI I ALUI C.	* ** ***	Date.

Tram 7341

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Zinginiosi nig i (portio)

Date: January 25, 2022	
Process:	
tfodParameters.minResultConfidence = 0.8f;	
tfodParameters.isModelTensorFlow2 = true;	
tfodParameters.inputSize = 320;	
tfod = ClassFactory.getInstance().createTFObjectDetector(tfodParameters, vuforia);	
tfod.loadModelFromAsset(TFOD_MODEL_ASSET, LABELS);	
}	
/**	
* Initialize the Vuforia localization engine.	
*/	
private void initVuforia() {	
/*	
* Configure Vuforia by creating a Parameter object, and passing it to the Vuforia engine.	
*/	
VuforiaLocalizer.Parameters parameters = new VuforiaLocalizer.Parameters();	
parameters.vuforiaLicenseKey = VUFORIA_KEY;	
parameters.cameraName = hardwareMap.get(WebcamName.class, "Webcam 1");	
// Instantiate the Vuforia engine	
<pre>vuforia = ClassFactory.getInstance().createVuforia(parameters);</pre>	
// Loading trackables is not necessary for the TensorFlow Object Detection engine.	
}	
/***	
*	
* waitForTick implements a periodic delay. However, this acts like a metronome with a regular	
* periodic tick. This is used to compensate for varying processing times for each cycle.	
* The function looks at the elapsed cycle time, and sleeps for the remaining time interval.	
*	
* @param periodMs Length of wait cycle in mSec.	

Signature :	Renee	Date: _	January 23, 2022
		_	

ToRoToNoCoNo ToRoLESo

Engineering Activity "Continued"

Date: January 23, 2022

Process:
*/
public void waitForTick(long periodMs) {
long remaining = periodMs - (long)period.milliseconds();
// sleep for the remaining portion of the regular cycle period.
if (remaining > 0) {
try {
sleep(remaining);
} catch (InterruptedException e) {
currentThread().interrupt();
}
}
// Reset the cycle clock for the next pass.
period.reset();
}
/*
* Method to perform a relative move, based on encoder counts.
* Encoders are not reset as the move is based on the current position.
* Move will stop if any of three conditions occur:
* 1) Speed negative is forward and positive is backwards
* 2) leftInches - pass a negative to go forward and positive to backwards
* 3) rightInches - pass a negative to go forward and positive to backwards
* 4) direction - 1 - up, 2 - nowhere
* 5) timeoutS - number of seconds before the function timeout
*/
// find the position of the Box
public int FindBox() {
String ringcount = "None";
int count=0;
boolean phone_locked;

Signature :	Renee	Date:	January 23, 2022
		_	

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

zigineenig reprint

```
Date: January 23, 2022
Process:
      boolean phone in;
      int FoundDuck = -1;
      phone_in = true;
      phone locked = false;
      myOpMode.telemetry.addData("2", "in findDuck");
      myOpMode.telemetry.update();
      while (FoundDuck == -1 && (!myOpMode.isStopRequested() | | myOpMode.opModeIsActive())) {
        if (tfod != null) {
          // getUpdatedRecognitions() will return null if no new information is available since
          // the last time that call was made.
          List<Recognition> updatedRecognitions = tfod.getUpdatedRecognitions();
          count++;
          if (updatedRecognitions != null) {
            myOpMode.telemetry.addData("# Object Detected", updatedRecognitions.size());
            if (count > 25) {
              if (robot.phone_position < .32) {
                robot.phone position += .01;
                robot.phone.setPosition(robot.phone_position);
                count = 0;
              } else {
                robot.phone_position = 0;
                robot.phone.setPosition(robot.phone_position);
                count = 0;
              }
            }
            myOpMode.telemetry.addData("3", "Phone in pos %.3f count %d", robot.phone_position, count);
            myOpMode.telemetry.addData("7", "Response %s ", ringcount);
            // step through the list of recognitions and display boundary info.
            int i = 0;
```

Signature :	Renee	Date:	January 23, 2022
		_	

TEAM TSA

ToRoto Nicono ToRolotoso

Engineering Activity "Continued"

21.91.1001.11.91.001.11.10.4

Date: January 23, 2022 **Process:** for (Recognition recognition: updatedRecognitions) { myOpMode.telemetry.addData(String.format("label (%d)", i), recognition.getLabel()); myOpMode.telemetry.addData(String.format(" left,top (%d)", i), "%.03f, %.03f", recognition.getLeft(), recognition.getTop()); myOpMode.telemetry.addData(String.format("right,bottom (%d)",i),"%.03f",%.03f",recognition.getRight(), recognition.getBottom()); i++; ringcount = recognition.getLabel(); myOpMode.telemetry.addData("7", "Response %s ", ringcount); if (recognition.getLabel().equals("Duck")) { myOpMode.telemetry.addData("end", "Duck data %d phone position %f object %s", FoundDuck, robot.phone_position, ringcount); } else if (recognition.getLabel().equals("FryBox")) { FoundDuck = 1; myOpMode.telemetry.addData("end ", "Fry Box data %d phone position %f object %s", FoundDuck, robot.phone position, ringcount); if (robot.phone_position <= .06) {</pre> } else if (robot.phone position > .06 && robot.phone position < .19) { return (2); } else if (robot.phone_position >= .19) { return (3); } else if (ringcount == "Marker" || ringcount == "none") { myOpMode.telemetry.addData("Marker data %d", FoundDuck); } // end of the object test } } // end of test the object myOpMode.telemetry.update();

Signature :	Renee	Date: _	January 23, 2022

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 23, 2022
Process:
} // Tfod not null
waitForTick(10); // Always call idle()
// figure out what the count is??? }//end of while myOpMode.telemetry.addData("end ","Duck data %d phone position %f object %s", FoundDuck, robot.phone_position, ringcount);
return (1); } }

Signature : _____ January 23, 2022 Date:

ToRotto NoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

Date: January 23, 2022
Process:
Carousel Mechanism Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.HardwareMap; import com.qualcomm.robotcore.util.ElapsedTime;
import static java.lang.Boolean.TRUE;
import static java.lang.Thread.currentThread;
import static java.lang.Thread.sleep;
/**
*
* This class can be used to define all the specific hardware for a single robot.
* In this case that robot is PrinceCharles.
* See AutoBlue and others classes starting with "FF" for usage examples.
*
* This hardware class assumes the following device names have been configured on the robot: * Note: All names are lower case and some have single spaces between words.
*/
public class CarouselDef2
{
/* Declare OpMode members. */
DefineFrenzy robot = new DefineFrenzy(); // UsePrincess's Charlie hardware
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>

Date: _____

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** /* local OpMode members. */ HardwareMap hardwareMap = null; private ElapsedTime period = new ElapsedTime(); private int statusx; // Private Members private LinearOpMode myOpMode; /* Constructor */ public CarouselDef2(){ } /* Initialize standard Hardware interfaces */ public void init(HardwareMap ahwMap, LinearOpMode opMode) { // Save reference to Hardware map hardwareMap = ahwMap; myOpMode = opMode; /* * Use the hardwareMap to get the dc motors and servos by name. * Note that the names of the devices must match the names used * when you configured your robot and created the configuration file. robot.init(hardwareMap, 1, statusx); * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle.

Signature :	Renee	January 23, 2022 Date:
Jigilatule.		Date.

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Engineering Neutron Continued

```
Date: January 23, 2022
Process:
    * The function looks at the elapsed cycle time, and sleeps for the remaining time interval.
    * @param periodMs Length of wait cycle in mSec.
    public void waitForTick(long periodMs) {
      long remaining = periodMs - (long)period.milliseconds();
      // sleep for the remaining portion of the regular cycle period.
      if (remaining > 0) {
        try {
          sleep(remaining);
        } catch (InterruptedException e) {
          currentThread().interrupt();
        }
      }
      // Reset the cycle clock for the next pass.
      period.reset();
    * Method to perform a relative move, based on encoder counts.
    * Encoders are not reset as the move is based on the current position.
    * Move will stop if any of three conditions occur:
    * 1) Speed negative is forward and positive is backwards
    * 2) leftInches - pass a negative to go forward and positive to backwards
    * 3) rightInches - pass a negative to go forward and positive to backwards
    * 4) direction - 1 - up, 2 - nowhere
    * 5) timeoutS - number of seconds before the function timeout
    */
    public void carousel (int direction, double timeoutS) {
      // reset the timeout time and start motion.
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Engineering Noorvier Continues

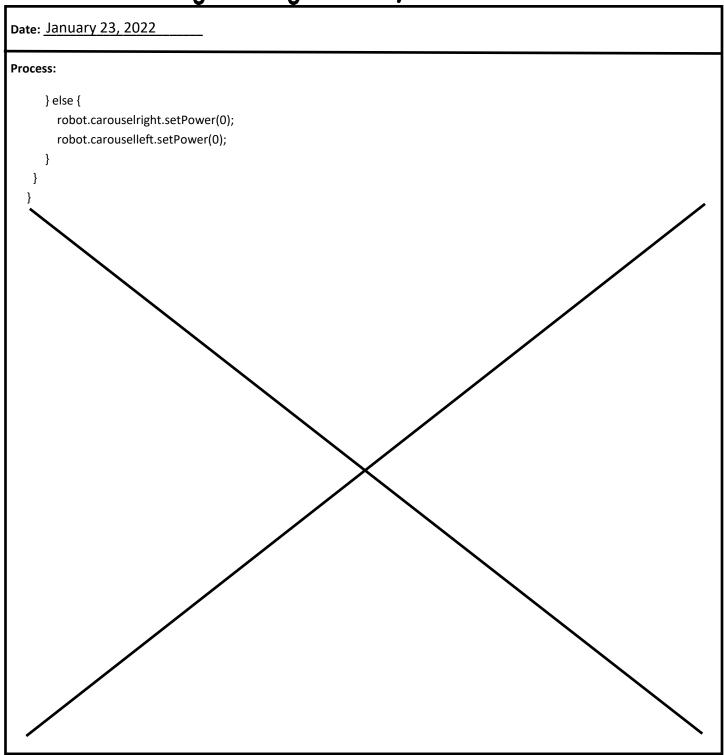
```
Date: January 23, 2022
Process:
      runtime.reset();
      if (direction == 1) {
        // left/right side
        robot.carouselleft.setPower(.35);
        robot.carouselright.setPower(.35);
        // keep looping while we are still active, and there is time left, and both motors are running.
        while (myOpMode.opModelsActive() && (runtime.seconds() < timeoutS)) {
          waitForTick (2);
          robot.carouselleft.setPower(.35);
          robot.carouselright.setPower(.35);
          myOpMode.telemetry.addData("Timer", runtime.seconds());
          myOpMode.telemetry.update();
        }
        robot.carouselright.setPower(0);
        robot.carouselleft.setPower(0);
        // Stop all motion;
      } else if (direction == 2){
        //right side
        // keep looping while we are still active, and there is time left, and both motors are running.
        // Reset the cycle clock for the next pass.
        period.reset();
        robot.carouselright.setPower(-.35);
        robot.carouselleft.setPower(-.35);
        while (myOpMode.opModeIsActive() && (runtime.seconds() < timeoutS)) {
          waitForTick (2);
          robot.carouselright.setPower(-.35);
          robot.carouselleft.setPower(-.35);
          myOpMode.telemetry.addData("Timer", runtime.seconds());
          myOpMode.telemetry.update();
        }
        robot.carouselright.setPower(0);
        robot.carouselleft.setPower(0);
```

Signature :	Renee	Date: _	January 23, 2022
		_	

TEAM TSAI

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"



Signature : _____ January 23, 2022 Date: _____

ToRotto NoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: January 23, 2022
Process:
Drive Mechanism Function
package org.firstinspires.ftc.Team7341;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.HardwareMap;
import com.qualcomm.robotcore.util.ElapsedTime;
import com.qualcomm.robotcore.util.Range;
import org.firstinspires.ftc.robotcore.external.Func;
import org.firstinspires.ftc.robotcore.external.navigation.AngleUnit;
import org.firstinspires.ftc.robotcore.external.navigation.AxesOrder;
import org.firstinspires.ftc.robotcore.external.navigation.AxesReference;
import org.firstinspires.ftc.robotcore.external.navigation.Position;
import org.firstinspires.ftc.robotcore.external.navigation.Velocity;
import java.util.Locale;
/**
* This is NOT an opmode.
* * This along on he wood to define all the anneife handware for a simple value.
* This class can be used to define all the specific hardware for a single robot.
* In this case that robot is PrinceCharles.
* See AutoBlue and others classes starting with "FF" for usage examples. *
* This hardware class assumes the following device names have been configured on the robot:
* Note: All names are lower case and some have single spaces between words.
*/ mublic class DriveDef2
public class DriveDef2
* Declare OnMade members */
/* Declare OpMode members. */
DefineFrenzy robot = new DefineFrenzy(); // Use a Prince Charles's hardware

Date: _____

Team 7391

ToRotto NoCoMo ToRolottoSo

Engineering Nebritory Continued
Date: January 23, 2022
Process:
private ElapsedTime runtime = new ElapsedTime();
// Private Members
private LinearOpMode myOpMode;
private int statusx;
/* local OpMode members. */
HardwareMap hardwareMap = null;
private ElapsedTime period = new ElapsedTime();
public float x, y, z, w, pwr;
public static double deadzone = 0.2;
/* Constructor */
public DriveDef2(){
}
/* Initialize standard Hardware interfaces */
<pre>public void init(HardwareMap ahwMap, LinearOpMode opMode) {</pre>
// Save reference to Hardware map
hardwareMap = ahwMap;
myOpMode = opMode;
/*
* Initialize the drive system variables.
* The init() method of the hardware class does all the work here */
robot.init(hardwareMap, 1, statusx);
/*
* Use the hardwareMap to get the dc motors and servos by name.
* Note that the names of the devices must match the names used

Signature :	Renee	January 23, 202 Date:
Signature :	Rence	Date: ' '

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** * when you configured your robot and created the configuration file. */ * waitForTick implements a periodic delay. However, this acts like a metronome with a regular * periodic tick. This is used to compensate for varying processing times for each cycle. * The function looks at the elapsed cycle time, and sleeps for the remaining time interval. * @param periodMs Length of wait cycle in mSec. public void waitForTick(long periodMs) { long remaining = periodMs - (long)period.milliseconds(); // sleep for the remaining portion of the regular cycle period. if (remaining > 0) { try { Thread.sleep(remaining); } catch (InterruptedException e) { Thread.currentThread().interrupt(); } } // Reset the cycle clock for the next pass. period.reset(); } * Method to perform a relative move, based on encoder counts. * Encoders are not reset as the move is based on the current position. * Move will stop if any of three conditions occur: * 1) Move gets to the desired position

Signature :	Renee	January 23, 2022 Date:
JIKITALUTE .	* ** ***	Date.

Date: January 23, 2022

ToRoto Nocono ToRoloto So

```
Process:
            } else if (right_left != 0) {
                if (right_left == 1){
                     // going left
                     newLeftTarget = robot.left_front.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1);
                     newRightTarget = robot.right front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1);
                     robot.left front.setTargetPosition(newLeftTarget);
                     robot.right_front.setTargetPosition(newRightTarget);
                     newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1);
                     newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1);
                     robot.left back.setTargetPosition(newleft backTarget);
                     robot.right back.setTargetPosition(newright backTarget);
                     robot.right_frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontright
                     robot.right backpwr =(Range.clip(pwr * -1, -1, 1)); // backright
                     robot.left_frontpwr =(Range.clip(pwr * 1, -1, 1)); // frontleft
                     robot.left backpwr =(Range.clip(pwr * 1, -1, 1)); // backleft
                 ellipse elli
                     // going right
                     newLeftTarget = robot.left_front.getCurrentPosition() + ((int) ((Inches * robot.COUNTS_PER_INCH) * -1));
                     newRightTarget = robot.right front.getCurrentPosition() + ((int) ((Inches * robot.COUNTS PER INCH) * 1));
                     robot.left front.setTargetPosition(newLeftTarget);
                     robot.right front.setTargetPosition(newRightTarget);
                     newleft_backTarget = robot.left_back.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * -1);
                     newright_backTarget = robot.right_back.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1);
                     robot.left_back.setTargetPosition(newleft_backTarget);
                     robot.right back.setTargetPosition(newright backTarget);
                     robot.right frontpwr =(Range.clip(pwr * 1, -1, 1)); // frontright
                     robot.right backpwr =(Range.clip(pwr * 1, -1, 1)); // backright
                     robot.left_frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontleft
                     robot.left_backpwr =(Range.clip(pwr * -1, -1, 1)); // backleft
                }
                 newLeftTarget = robot.left front.getCurrentPosition() + (int)(Inches * -front back * robot.COUNTS PER INCH);
```

Signature :	Renee	Date:	January 23, 2022

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022

```
Process:
   * 2) Move runs out of time
   * 3) Driver stops the opmode running.
   public void encoder2Drive(double speed, int front back, int right left, int sright sleft, double Inches,
                 double timeoutS) {
     int newLeftTarget = 0;
     int newRightTarget = 0;
     int newleft_backTarget = 0;
     int newright backTarget = 0;
     robot.left_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
     robot.left front.setMode(DcMotor.RunMode.RUN USING ENCODER);
     robot.right\_front.setMode(DcMotor.RunMode.STOP\_AND\_RESET\_ENCODER);
     robot.right front.setMode(DcMotor.RunMode.RUN USING ENCODER);
     robot.left_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER);
     robot.left back.setMode(DcMotor.RunMode.RUN USING ENCODER);
     robot.right back.setMode(DcMotor.RunMode.STOP AND RESET ENCODER);
     robot.right back.setMode(DcMotor.RunMode.RUN USING ENCODER);
     waitForTick (20);
     pwr = (float)speed; //this can be tweaked for exponential power increase
        // Determine new target position, and pass to motor controller
     if (sright_sleft != 0) {
        if (sright_sleft == 1){
         // going left
          newLeftTarget = robot.left front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1);
          newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1);
          newRightTarget = robot.right front.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1);
          newright backTarget = robot.right_back.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1);
          robot.left_front.setTargetPosition(newLeftTarget);
          robot.right front.setTargetPosition(newRightTarget);
          robot.left_back.setTargetPosition(newleft_backTarget);
```

Signature :	Renee	January 23, 2022 Date:
JIKITALUTE .	•	Date.

ToRoto Nicono ToRolotoso

Engineering Activity "Continued"

Engineering Neutron Continued

```
Date: January 23, 2022
Process:
          robot.right back.setTargetPosition(newright backTarget);
          // set the direction of the robot based on the input
          pwr = pwr * sright_sleft;
          robot.right_frontpwr =(Range.clip((pwr * -sright_sleft), -1, 1)); // frontright
          robot.right_backpwr =(Range.clip((pwr * sright_sleft), -1, 1)); // backright
          robot.left_frontpwr =(Range.clip((pwr * sright_sleft), -1, 1)); // frontleft
          robot.left_backpwr =(Range.clip((pwr * -sright_sleft), -1, 1)); // backleft
        } else if (sright_sleft == -1) {
          // going right
          newLeftTarget = robot.left_front.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * -1);
          newleft backTarget = robot.left back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * 1);
          newRightTarget = robot.right_front.getCurrentPosition() + ((int) (Inches * robot.COUNTS_PER_INCH) * 1);
          newright backTarget = robot.right back.getCurrentPosition() + ((int) (Inches * robot.COUNTS PER INCH) * -1);
          // set the direction of the robot based on the input
          pwr = pwr * sright sleft;
          robot.left_front.setTargetPosition(newLeftTarget);
          robot.right front.setTargetPosition(newRightTarget);
          robot.left_back.setTargetPosition(newleft_backTarget);
          robot.right back.setTargetPosition(newright backTarget);
          robot.right_frontpwr =(Range.clip((pwr * sright_sleft), -1, 1)); // frontright
          robot.right_backpwr =(Range.clip((pwr * -sright_sleft), -1, 1)); // backright
          robot.left frontpwr =(Range.clip((pwr * -sright sleft), -1, 1)); // frontleft
          robot.left backpwr =(Range.clip((pwr * sright sleft), -1, 1)); // backleft
         // robot.right_frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontright
         // robot.right_backpwr =(Range.clip(pwr * 1, -1, 1)); // backright
         // robot.left frontpwr =(Range.clip(pwr * -1, -1, 1)); // frontleft
         // robot.left_backpwr =(Range.clip(pwr * 1, -1, 1)); // backleft
```

Signature :	Renee	Date: _	January 23, 2022

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Engineering Noorvier Continues

```
Date: January 23, 2022
Process:
        newRightTarget = robot.right front.getCurrentPosition() + (int)(Inches * -front back * robot.COUNTS PER INCH);
        robot.left_front.setTargetPosition(newLeftTarget);
        robot.right front.setTargetPosition(newRightTarget);
        newleft backTarget = robot.left back.getCurrentPosition() + (int)(Inches * -front back * robot.COUNTS PER INCH);
        newright_backTarget = robot.right_back.getCurrentPosition() + (int)(Inches * -front_back * ro-
 bot.COUNTS PER INCH);
        robot.left back.setTargetPosition(newleft backTarget);
        robot.right_back.setTargetPosition(newright_backTarget);
        robot.right_frontpwr =(Range.clip(pwr * -front_back, -1, 1)); // frontright
        robot.right backpwr =(Range.clip(pwr * -front back, -1, 1)); // backright
        robot.left_frontpwr =(Range.clip(pwr * -front_back, -1, 1)); // frontleft
        robot.left backpwr =(Range.clip(pwr * -front back, -1, 1)); // backleft
      }
      // Turn On RUN_TO_POSITION
        robot.left front.setMode(DcMotor.RunMode.RUN TO POSITION);
        robot.right front.setMode(DcMotor.RunMode.RUN TO POSITION);
        robot.left back.setMode(DcMotor.RunMode.RUN TO POSITION);
        robot.right_back.setMode(DcMotor.RunMode.RUN_TO_POSITION);
        // reset the timeout time and start motion.
        runtime.reset();
      // if (sright_sleft != 0) {
            robot.left_front.setPower((float) robot.left_frontpwr);
           robot.left_back.setPower((float) robot.left_backpwr);
            robot.right front.setPower((float) robot.right frontpwr);
            robot.right back.setPower((float) robot.right backpwr);
       // } else {
          robot.left_front.setPower((float) robot.left_frontpwr);
          robot.right front.setPower((float) robot.right frontpwr);
          robot.left_back.setPower((float) robot.left_backpwr);
          robot.right back.setPower((float) robot.right backpwr);
     // }
```

Signature :	Renee	Date: _	January 23, 2022

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022

```
Process:
       //telemetry.addData("Path1", "Running to %7d :%7d", newLeftTarget, newRightTarget);
       // keep looping while we are still active, and there is time left, and both motors are running.
     // keep looping while we are still active, and there is time left, and both motors are running.
     while ((runtime.seconds() < timeoutS) &&
          (robot.left front.isBusy() && robot.right front.isBusy() &&
           robot.left back.isBusy() && robot.right back.isBusy())) {
      // myOpMode.telemetry.addData("3", "new left %d", newLeftTarget);
      // myOpMode.telemetry.addData("3", "new right %d", newRightTarget);
      // myOpMode.telemetry.addData("3", "new left %d", newleft backTarget);
      // myOpMode.telemetry.addData("3", "new right %d", newright_backTarget);
      // myOpMode.telemetry.addData("3", "curr back left %d", robot.left back.getCurrentPosition());
      // myOpMode.telemetry.addData("3", "curr back right %d", robot.right_back.getCurrentPosition());
      // myOpMode.telemetry.addData("3", "curr front left %d", robot.left front.getCurrentPosition());
      // myOpMode.telemetry.addData("3", "curr front right %d", robot.right_front.getCurrentPosition());
      // myOpMode.telemetry.update();
        waitForTick (5);
     // Stop all motion;
     robot.left back.setPower(robot.STOP SPEED);
     robot.right back.setPower(robot.STOP SPEED);
     robot.left front.setPower(robot.STOP SPEED);
     robot.right_front.setPower(robot.STOP_SPEED);
     // Turn off RUN TO POSITION
     robot.left back.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER);
     robot.right back.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER);
     robot.left_front.setMode(DcMotor.RunMode.RUN_WITHOUT_ENCODER);
     robot.right front.setMode(DcMotor.RunMode.RUN WITHOUT ENCODER);
   }
 }
```

Signature :	Renee	Date:	January 23, 2022
		_	

ToRotto NoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

	Date: January 23, 2022 Process:			
	Robot Hardware Definitions			
	package org.firstinspires.ftc.Team7341;			
	import android.content.Context;			
	import com.qualcomm.hardware.bosch.BNO055IMU;			
	import com.qualcomm.hardware.bosch.JustLoggingAccelerationIntegrator;			
	import com.qualcomm.hardware.rev.RevBlinkinLedDriver;			
	import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;			
	import com.qualcomm.robotcore.hardware.ColorSensor;			
	import com.qualcomm.robotcore.hardware.DcMotor;			
	import com.qualcomm.robotcore.hardware.DigitalChannel;			
	import com.qualcomm.robotcore.hardware.HardwareMap;			
	import com.qualcomm.robotcore.hardware.Servo;			
	import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;			
	import com.qualcomm.robotcore.util.ElapsedTime;			
	import org.firstinspires.ftc.robotcore.external.navigation.Acceleration;			
	import org.firstinspires.ftc.robotcore.external.navigation.Orientation;			
	import org.firstinspires.ftc.robotcore.external.tfod.TFObjectDetector;			
	import static com.qualcomm.robotcore.hardware.DcMotorSimple.Direction.REVERSE;			
	import static java.lang.Thread.currentThread;			
	import static java.lang.Thread.sleep;			
	/**			
	* This is NOT an opmode.			
	* This class can be used to define all the specific hardware for a single robot.			
	* In this case that robot is Princess Charleie			
	* This hardware class assumes the following device names have been configured on the robot:			
	* Note: All names are lower case and some have single spaces between words.			
	*/			
	public class DefineFrenzy {			
•				

Date: _____

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

```
Date: January 23, 2022
Process:
   // setup for calculation of the how far to move
   static final double P_TURN_COEFF
                                          = 0.1; // Larger is more responsive, but also less stable
   static final double HEADING THRESHOLD = 1; // As tight as we can make it with an integer gyro
                                 // Andymark 3.7 - 103.6
                                 // Andymark 40 - 1120
                                 // Andymaark 60 - 1680
                                 // Andymark 20 - 537.6
   static final double COUNTS PER MOTOR REV = 537.6; // eg: AndyMark Motor Encoder
                                                      // This is < 1.0 if geared UP
   static final double DRIVE GEAR REDUCTION = 1;
   static final double LIFT_GEAR_REDUCTION = 1;
                                                     // This is < 1.0 if geared UP
   static final double WHEEL DIAMETER INCHES = 4.0; // For figuring circumference
   static final double GEAR_DIAMETER_INCHES = 3; // For figuring circumference
   static final double P_DRIVE_COEFF
                                          = 0.15; // Larger is more responsive, but also less stable
   static final double ARM PER MOTOR REV = 1120;
                                            = (COUNTS PER MOTOR REV * DRIVE GEAR REDUCTION) /
   static final double COUNTS PER INCH
       (WHEEL_DIAMETER_INCHES * 3.1415);
   static final double LIFT_COUNTS_PER_INCH
                                                 = (ARM PER MOTOR REV * LIFT GEAR REDUCTION) /
       (GEAR_DIAMETER_INCHES * 3.1415);
   static final double DRIVE_SPEED1
                                         = 0.1:
   static final double DRIVE_SPEED2
                                         = 0.2;
   static final double DRIVE_SPEED3
                                         = 0.3;
   static final double DRIVE SPEED4
                                         = 0.4;
   static final double DRIVE SPEED5
                                         = 0.5;
   static final double DRIVE SPEED6
                                         = 0.6;
   static final double LIFT_SPEED
                                       = 0.7;
   static final double LIFT SPEED Down
                                           = 0.1;
   static final double TURN_SPEED
                                         = 0.1;
   static final double STOP_SPEED
                                        = 0;
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

Team 7341

ToRotto MoCoMo ToRolottoSo

<u> </u>		
Date: January 23, 2022		
Process:		
int position_option = 0;		
int position_function = 0;		
int position_side = 0;		
int count = 0;		
// Driver motors		
DcMotor right_front;		
DcMotor left_front;		
DcMotor right_back;		
DcMotor left_back;		
float left = 0;		
float right = 0;		
float left_backpwr = 0;		
float right_backpwr = 0;		
float right_frontpwr = 0;		
float left_frontpwr = 0;		
int status = 0;		
//motors to lift and lower arm		
DcMotor arm_drive;		
float arm_power = 0;		
// hand/block registration		
Servo hand;		
DcMotor carouselright;		
DcMotor carouselleft;		
float carousel_pwr = 0;		
RevBlinkinLedDriver blinkin;		
RevBlinkinLedDriver.BlinkinPattern pattern;		
RevBlinkinLedDriver.BlinkinPattern patterndisplay;		
// Side phone		

Signature :	Renee	Date: _	January 23, 2022

ToRotto MoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

<u> </u>
Date: January 23, 2022
Process:
Servo phone;
double phone_position = 0.2;
DigitalChannel lower_stop;
DigitalChannel upper_stop;
ColorSensor Alliance_color;
String Alliance_color_results;
ColorSensor Freight_color;
String Freight_color_results;
ColorSensor Position_color;
String Position_color_results;
// sometimes it helps to multiply the raw RGB values with a scale factor
// to amplify/attentuate the measured values.
final double SCALE_FACTOR = 255;
// hsvValues is an array that will hold the hue, saturation, and value information.
float hsvValues[] = {0F, 0F, 0F};
// values is a reference to the hsvValues array.
final float values[] = hsvValues;
// Our sensors, motors, and other devices go here, along with other long term state
BNO055IMU imu;
private Context context;
// Private Members
private LinearOpMode myOpMode;
Orientation angles;
Acceleration gravity;
/* local OpMode members. */
HardwareMap hardwareMap = null;

Date: _____

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

```
Date: January 23, 2022
Process:
   private ElapsedTime period = new ElapsedTime();
   // Leave argument list empty if you want to disable the camera monitor view.
   TFObjectDetector.Parameters tfodParameters = new TFObjectDetector.Parameters();
   // Private Members
   /* Constructor */
   public DefineFrenzy() {
   /* Initialize standard Hardware interfaces */
   public void init(HardwareMap ahwMap, int option, int status) {
     // Save reference to Hardware map
     hardwareMap = ahwMap;
         /*
                   * Use the hardwareMap to get the dc motors and servos by name.
                   * Note that the names of the devices must match the names used
                   * when you configured your robot and created the configuration file.
         // if option is one define hardware... otherwise put it start position..
      if (option == 1) {
       // start of drive train definitions
       right front = hardwareMap.dcMotor.get("right_front");
       left front = hardwareMap.dcMotor.get("left front");
       left front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       right front.setDirection(REVERSE);
       right front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       right_back = hardwareMap.dcMotor.get("right_back");
       left back = hardwareMap.dcMotor.get("left back");
       left_back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
```

Signature :	Renee	Date:	January 23, 2022
		_	

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

zigiteering teatring continued

```
Date: January 23, 2022
Process:
       right back.setDirection(REVERSE);
        right_back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       arm drive = hardwareMap.dcMotor.get("arm drive");
       arm_drive.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       arm drive.setDirection(REVERSE);
       carouselright = hardwareMap.dcMotor.get("carouselright");
       carouselright.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       carouselleft = hardwareMap.dcMotor.get("carouselleft");
       carouselleft.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       carouselleft.setDirection(REVERSE);
       // stop the lifter when down flat
       lower_stop = hardwareMap.get(DigitalChannel.class, "lower_stop");
       upper stop = hardwareMap.get(DigitalChannel.class, "upper stop");
       // set the digital channel to input.
       lower_stop.setMode(DigitalChannel.Mode.INPUT);
       upper_stop.setMode(DigitalChannel.Mode.INPUT);
       Freight_color = hardwareMap.get(ColorSensor.class, "freight_color");
       Position_color = hardwareMap.get(ColorSensor.class, "position_color");
       Alliance_color = hardwareMap.get(ColorSensor.class, "floor_color");
       Freight_color.enableLed(true);
       Position color.enableLed(true);
       // run through 4 times to insure color value
       do {
          if (Alliance_color.red() > 400) {
            Alliance color results = "RED";
         } else if (Alliance color.blue() > 200) {
            Alliance_color_results = "BLUE";
          }
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

zingineering (territor)

```
Date: January 23, 2022
Process:
          //orange alpha is > 800 red > 1300 blue > 340
          //purple alpha is > 400 red > 291 blue > 792
          if ((Freight_color.alpha() > 800 && Freight_color.red() > 130 && Freight_color.blue() > 340)) {
            Freight color results = "NoFreight";
          } else {
            Freight_color_results = "PlaceFreight";
          }
          //black Position 2 by the warehouse alpha is > 90 red > 30 blue > 30
          //white Position 1 by the carousel alpha is > 2500 red > 943 blue > 850
          if (Position color.alpha() > 4350 && Position color.red() > 3050 && Position color.blue() > 4707) {
            Position_color_results = "Carousel";
          } else {
            Position_color_results = "Warehouse";
          count ++;
        } while (count > 4);
        phone = hardwareMap.servo.get("phone");
        hand = hardwareMap.get(Servo.class, "hand");
        hand.setPosition(1);
        // set up the blinkin lights
        blinkin = hardwareMap.get(RevBlinkinLedDriver.class, "blinkin");
        blinkin.setPattern(pattern.GREEN);
        // Set up the parameters with which we will use our IMU. Note that integration
        // algorithm here just reports accelerations to the logcat log; it doesn't actually
        // provide positional information.
        BNO055IMU.Parameters parameters = new BNO055IMU.Parameters();
                                   = BNO055IMU.AngleUnit.DEGREES;
        parameters.angleUnit
```

Signature :	Renee	Date:	January 23, 2022
		_	

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

```
Date: January 23, 2022
Process:
                                  = BNO055IMU.AccelUnit.METERS PERSEC PERSEC;
       parameters.accelUnit
        parameters.calibrationDataFile = "BNO055IMUCalibration.json"; // see the calibration sample opmode
       parameters.loggingEnabled = true;
       parameters.loggingTag
                                   = "IMU":
       parameters.accelerationIntegrationAlgorithm = new JustLoggingAccelerationIntegrator();
       // Retrieve and initialize the IMU. We expect the IMU to be attached to an I2C port
       // on a Core Device Interface Module, configured to be a sensor of type "AdaFruit IMU",
       // and named "imu".
       imu = hardwareMap.get(BNO055IMU.class, "imu");
     } else if (option == 3) {
       // no current function
     } if (option == 4) {
       // start of drive train definitions
       right front = hardwareMap.dcMotor.get("right front");
       left_front = hardwareMap.dcMotor.get("left_front");
       left front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       right front.setDirection(REVERSE);
       right front.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       right_back = hardwareMap.dcMotor.get("right_back");
       left back = hardwareMap.dcMotor.get("left back");
       left back.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
       right back.setDirection(REVERSE);
       right\_back.set ZeroPowerBehavior (DcMotor.ZeroPowerBehavior.BRAKE);
     }else {
       // no current function
     }
   }
   public void waithalf(int count) {
     for (int i = 0; i < count; i++) {
       try {
          sleep(500);
```

Signature :	Renee	Date: _	January 23, 2022

if (remaining > 0) {

sleep(remaining);

} catch (InterruptedException e) {

try {

ToRoto Nocolo ToRoloto So

Engineering Activity "Continued"

Process:

} catch (InterruptedException e) {
 currentThread().interrupt();
 break;

```
}
  }
public void wait(int sec) {
  for (int i = 0; i < 2 * sec; i++) {
    try {
       sleep(500);
    } catch (InterruptedException e) {
       currentThread().interrupt();
       break;
    }
* waitForTick implements a periodic delay. However, this acts like a metronome with a regular
* periodic tick. This is used to compensate for varying processing times for each cycle.
* The function looks at the elapsed cycle time, and sleeps for the remaining time interval.
* @param periodMs Length of wait cycle in mSec.
*/
public void waitForTick(long periodMs) {
  long remaining = periodMs - (long) period.milliseconds();
  // sleep for the remaining portion of the regular cycle period.
```

Signature : _____ January 23, 2022
Date: _____

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"

```
Date: January 23, 2022
Process:
          currentThread().interrupt();
        }
     // Reset the cycle clock for the next pass.
      period.reset();
```

Signature : Renee January 23, 2022
Date:

ToRoto No. Co. No. ToRoloto So.

Engineering Activity "Continued"

Date: January 23, 2022
Process:
<u>Autonomous Function</u>
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run autonomously to put block in the shipping hub,
turn the carousel to put a duck in the field, and either park in the warehouse or storage unit
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.

NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */

Signature :	Renee	January 23, 2022
ngnature.	* ** ***	Date.

ToRotto NoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: January 23, 2022
Process:
package org.firstinspires.ftc.Team7341;
import com.qualcomm.ftccommon.SoundPlayer;
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;
import com.qualcomm.robotcore.eventloop.opmode.Autonomous;
import com.qualcomm.robotcore.eventloop.opmode.Disabled;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.util.ElapsedTime;
import org.firstinspires.ftc.robotcore.external.ClassFactory;
import org.firstinspires.ftc.robotcore.external.hardware.camera.WebcamName;
import org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer;
import java.text.SimpleDateFormat;
import java.util.Date;
@Autonomous(name = "FF: Autonomous1", group = "Auto")
//@Disabled
public class Autonomous1 extends LinearOpMode {
<pre>private ElapsedTime period = new ElapsedTime();</pre>
int location = 0;

Date: _____

ToRotto NoCollo ToRotottoSo

2.19.1001.119.1001
Date: January 23, 2022
Process:
DefineFrenzy robot = new DefineFrenzy(); // Use Princess's Charlie hardware definition
DriveDef2 drive = new DriveDef2();
DriveColorDef2 color = new DriveColorDef2();
CarouselDef2 carousel = new CarouselDef2();
LiftDef2 arm = new LiftDef2();
HandDef hand = new HandDef();
ObjectDef freight = new ObjectDef();
int statusx;
/**
* This is the webcam we are to use. As with other hardware devices such as motors and
* servos, this device is identified using the robot configuration tool in the FTC application.
*/
WebcamName webcamName;
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>
@Override public void runOpMode() throws InterruptedException {
// create a sound parameter that holds the desired player parameters.
SoundPlayer.PlaySoundParams params = new SoundPlayer.PlaySoundParams();
params.loopControl = 0;
params.waitForNonLoopingSoundsToFinish = true;
/*

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** * Initialize the drive syst;em variables. * The init() method of the hardware class does all the work here */ robot.init(hardwareMap, 1, statusx); drive.init(hardwareMap, this); arm.init(hardwareMap, this); hand.init(hardwareMap, this); color.init(hardwareMap, this); carousel.init(hardwareMap, this); freight.init(hardwareMap, this); // Send telemetry message to signify robot waiting; telemetry.addData("Status", "Autonomous Position"); String startDate; startDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date()); robot.left_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER); robot.left_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER); robot.right_front.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER); robot.right_front.setMode(DcMotor.RunMode.RUN_USING_ENCODER); robot.left_back.setMode(DcMotor.RunMode.STOP_AND_RESET_ENCODER); robot.left_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);

Signature :	Renee	January 23, 2022 Date:
ngilature .		Date.

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Engineering Noorvier Continues

```
Date: January 23, 2022
Process:
      robot.right back.setMode(DcMotor.RunMode.STOP AND RESET ENCODER);
      robot.right_back.setMode(DcMotor.RunMode.RUN_USING_ENCODER);
      * Retrieve the camera we are to use.
      */
      webcamName = hardwareMap.get(WebcamName.class, "Webcam 1");
      if (robot.Alliance color results == "BLUE") {
        telemetry.addData("1", "All setup at Blue Side");
        robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
      } else if (robot.Alliance_color_results == "RED") {
        telemetry.addData("1", "All setup at Red Side");
        robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED);
      }
     // telemetry.addData("4","pos %s Freight %s",robot.Position color results, robot.Freight color results );
      if (robot.Position_color_results == "Carousel" && robot.Freight_color_results == "NoFreight") {
        telemetry.addData("2", "Going to move the Carousel then go to the Storage Unit");
        robot.position function = 1;
      } else if (robot.Position_color_results == "Carousel" && robot.Freight_color_results == "PlaceFreight") {
        telemetry.addData("2", "Going to move the Carousel, place the Freight and go to Storage Unit");
        robot.position_function = 2;
```

Signature :	Renee	Date: _	January 23, 2022

ToRoto NoCono ToRoloto So

```
Date: January 23, 2022
Process:
      } else if (robot.Position_color_results == "Warehouse" && robot.Freight_color_results == "PlaceFreight") {
        telemetry.addData("2", "Going to place the Freight and go to the Warehouse");
        robot.position_function = 3;
      } else if (robot.Position_color_results == "Warehouse" && robot.Freight_color_results == "NoFreight") {
        telemetry.addData("2", "Going to the Warehouse");
        robot.position_function = 4;
      } else {
        telemetry.addData("2", "Error in the logic - check for the color sensors and markers");
      }
      telemetry.addData("5", "Waiting to start");
      // wait for the start button to be pressed.
      telemetry.update();
      robot.phone position = 0;
      robot.phone.setPosition(robot.phone position);
      waitForStart();
      while (opModelsActive()) {
        if (robot.position_function != 4 && robot.position_function != 1) {
          if (robot.position_function == 2 | | robot.position_function == 3) {
            // find the rings to determine the option of 1, 2, or 3
```

Signature :	Renee	Date: _	January 23, 2022
		-	

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

zigiteering teatring continued

```
Date: January 23, 2022
Process:
             telemetry.addData("6", " find the duck or our marker");
             telemetry.update();
             location = freight.FindBox();
             robot.position_option = location;
             if (location == 1) {
               if (robot.position side == 2) {
                 robot.blinkin.setPattern(robot.patterndisplay.LIGHT CHASE BLUE);
               } else if (robot.position_side == 1) {
                 robot.blinkin.setPattern(robot.patterndisplay.LIGHT CHASE RED);
               }
            } else if (location == 2) {
               if (robot.position_side == 2) {
                 robot.blinkin.setPattern(robot.patterndisplay.SHOT_BLUE);
               } else if (robot.position side == 1) {
                 robot.blinkin.setPattern(robot.patterndisplay.SHOT RED);
               }
            } else if (location == 3) {
               if (robot.position_side == 2) {
                 robot.blinkin.setPattern(robot.patterndisplay.STROBE_BLUE);
               } else if (robot.position_side == 1) {
                 robot.blinkin.setPattern(robot.patterndisplay.STROBE_RED);
```

Signature :	Renee	Date: _	January 23, 2022
		-	

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

```
Date: <u>January 23, 2022</u>
Process:
              }
            } else {
               robot.blinkin.setPattern(robot.patterndisplay.COLOR_WAVES_OCEAN_PALETTE);
            }
          }
        //close on the cargo block
        hand.Hand(1, 1);
        // lift arm up so block does not drag the ground
        arm.liftmove(2, 2, 1);
        if (robot.position_side == 1 && robot.position_function == 1) {
          caroursel_only (robot.position_side);
        } else if (robot.position_side == 1 && robot.position_function == 2) {
          caroursel_freight (robot.position_side);
        } else if (robot.position_side == 1 && robot.position_function == 3) {
          warehouse_freight(robot.position_side);
```

Signature :	Renee	Date:	January 23, 2022
		_	

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Engineering Noorvier Continues

```
Date: <u>January 23, 20</u>22
Process:
        } else if (robot.position side == 1 && robot.position function == 4) {
          warehouse_only(robot.position_side);
        } else if (robot.position_side == 2 && robot.position_function == 1) {
          caroursel_only (robot.position_side);
        } else if (robot.position side == 2 && robot.position function == 2) {
          caroursel_freight (robot.position_side);
        } else if (robot.position_side == 2 && robot.position_function == 3) {
          warehouse_freight(robot.position_side);
        } else if (robot.position side == 2 && robot.position function == 4) {
          warehouse_only(robot.position_side);
        } else {
          // invalid options
          telemetry.addData("2", "Option could not be decided going nowhere!!");
```

Signature :	Renee	Date: _	January 23, 2022
		-	

P.R.I.O.N.C.N. P.R.L.I.S.

```
Date: January 23, 2022
Process:
          telemetry.addData("2", "check the color sensor values");
          telemetry.update();
          robot.blink in.set Pattern (robot.pattern display. CP1\_SHOT);
        }
        robot.waithalf(20);
        telemetry.addData("Path", "Autonomous Complete");
        telemetry.update();
        idle(); // Always call idle()
        stop();
  // This function is to travel to the carousel and then park in the parking space
   private void caroursel_only (int position) {
      int direction = 1;
      // side blue - position 2 side red position 1
      if (position == 1) {
        telemetry.addData("2", "Red side - Going to the Carousel and then parking space");
        telemetry.update();
        direction = 1;
      } else if (position == 2) {
        telemetry.addData("2", "Blue side - Going to the Carousel and then parking space");
```

Signature :	Renee	Date: _	January 23, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

```
Date: January 23, 2022
Process:
        telemetry.update();
        direction = -1;
      // neg is going backwards pos is going forwards, then strafe to the carousel
      drive.encoder2Drive(.5,1,0,0,3,4);
      drive.encoder2Drive(.5, 0, 0, 1*direction, 22.8, 5);
      // Turn the carousel
      carousel.carousel(1, 3);
      // neg is going backwards pos is going forwards going to the depot
      drive.encoder2Drive(.7, 1, 0, 0, 2*12, 5);
      drive.encoder2Drive(.7,0,0,1*direction,6,8);
      // lift arm down so we do not loose the block
      arm.liftmove(1, 2, 1);
      if (position == 1) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK RED);
      } else if (position == 2) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
      }
   // This function is to go to the caroursel, place the freight and then park in the parking space
    private void caroursel_freight (int position) {
      int direction = 1;
```

Signature :	Renee	Date: _	January 23, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Engineering Noorvier Continues

```
Date: <u>January 23</u>, 2022
Process:
      // side blue - position 2 side red position 1
      if (position == 1) {
        telemetry.addData("2", "Red side - Carousel, Freight to Shipping Hub - position %d, and then Storage
 Unit",robot.position_option);
        telemetry.update();
        direction = 1;
      } else if (position == 2) {
        telemetry.addData("2", "Blue side - Carousel, Freight to Shipping Hub - position %d, and then Storage
 Unit",robot.position_option);
        telemetry.update();
        direction = -1;
      }
      // neg is going backwards pos is going forwards, then strafe to the carousel
      drive.encoder2Drive(.5,1,0,0,3,4);
      drive.encoder2Drive(.8, 0, 0, 1*direction, 23,5);
      // Turn the carousel
      carousel.carousel(1*direction, 3);
      // neg is going backwards pos is going forwards going to the depot
      drive.encoder2Drive(.8, 1, 0, 0, (3*12)+6, 5);
      // turn right toward the
      drive.encoder2Drive(.6,0, -1*direction, 0, 19, 4);
      // move toward the Shipping Hub
      drive.encoder2Drive(.8, 1, 0, 0, (2*12)-8, 5);
```

Signature :	Renee	Date: _	January 23, 2022

ToRotto NoCollo ToRototto So

Date: January 23, 2022
Process:
// place freight in Shipping Hub
arm.deliver_cargo(robot.position_option);
// Park in the Storage Unit
drive.encoder2Drive(.9, -1, 0, 0, 2*12, 5);
drive.encoder2Drive(.8,0,0,-1*direction,16,8);
drive.encoder2Drive(.9, -1, 0, 0, 3, 5);
if (position == 1) {
robot.blinkin.setPattern(robot.patterndisplay.DARK_RED);
} else if (position == 2) {
robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
}
}
// This function is to place the freight and then go to the warehouse
private void warehouse_freight (int position) {
int direction = 1;
// side blue - position 2 side red position 1
if (position == 1) {
telemetry.addData("2", "Red side - Freight to Shipping Hub - position %d and then Ware-house",robot.position_option);
telemetry.update();
direction = 1;
} else if (position == 2) {
telemetry.addData("2", "Blue side - Freight to Shipping Hub - position %d and then Warehouse", ro-

Signature :	Renee	Date: _	January 23, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

```
Date: <u>January 23, 2022</u>
Process:
 bot.position_option);
        telemetry.update();
        direction = -1;
      }
      // neg is going backwards pos is going forwards, then strafe to the carousel
      drive.encoder2Drive(.5,1,0,0,3,4);
      drive.encoder2Drive(.5, 0, 0, 1*direction, 25, 5);
      drive.encoder2Drive(.7, 1, 0, 0, (1*12)+2, 5);
      // place freight in Shipping Hub
      arm.deliver_cargo(robot.position_option);
      drive.encoder2Drive(.7, 1, 0, 0, 2, 5);
      // turn right toward the warehouse
      drive.encoder2Drive(.6,0, -1*direction, 0, 18, 4);
      // lift arm up so block does not drag the ground
      arm.liftmove(2, 2, 1);
      drive.encoder2Drive(.99,1,0,0,6*12,8);
      // all done
      if (position == 1) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK_RED);
      } else if (position == 2) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
      }
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRoToNoCoNo ToRoLEGO

Date: January 23, 2022
Process:
}
// This function is to go to the warehouse
private void warehouse_only (int position) {
int direction = 1;
// side blue - position 2 side red position 1
if (position == 1) {
telemetry.addData("2", "Red side - Going to the Warehouse");
telemetry.update();
direction = 1;
} else if (position == 2) {
telemetry.addData("2", "Blue side - Going to the Warehouse");
telemetry.update();
direction = -1;
}
// neg is going backwards pos is going forward
drive.encoder2Drive(.5,1,0,0,14,4);
// turn toward the Warehouse
drive.encoder2Drive(.6,0 , 1*direction, 0, 19, 4);
// neg is going backwards pos is going forwards going to the depot
//Go into the Warehouse
drive.encoder2Drive(.7, -1, 0, 0, 12, 5);
drive.encoder2Drive(.9, 1, 0, 0, 5*12, 5);

Signature :	Renee	Date: _	January 23, 2022

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"

```
Date: January 23, 2022
Process:
      // all done
      if (position == 1) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK_RED);
      } else if (position == 2) {
        robot.blinkin.setPattern(robot.patterndisplay.DARK_BLUE);
```

Signature : Renee January 23, 2022
Date:

ToRoto MoCoMo ToRolotoSo

Renee

Signature:

Engineering Activity "Continued"

Date: January 23, 2022
Process:
Teleop Function
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run teleop.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */
package org.firstinspires.ftc.Team7341;

Date: _____

ToRotto NoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

Date: January 23, 2022		
Process:		
import android.content.Context;		
import com.qualcomm.ftccommon.SoundPlayer;		
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;		
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;		
import com.qualcomm.robotcore.eventloop.opmode.TeleOp;		
import com.qualcomm.robotcore.hardware.Gamepad;		
import com.qualcomm.robotcore.util.ElapsedTime;		
import com.qualcomm.robotcore.util.Range;		
import org.firstinspires.ftc.robotcore.external.navigation.AngleUnit;		
import java.text.SimpleDateFormat;		
import java.util.Date;		
import java.util.Locale;		
import static java.lang.Boolean.TRUE;		
import static java.lang.String.format;		
<pre>@TeleOp(name = "FF: Freight Frenzy", group = "FF")</pre>		
//@Disabled		
<pre>public class FreightFrenzy extends LinearOpMode {</pre>		
/* Declare OpMode members. */		

Date: _____

ToRoto No. Como ToRoloto So

	Ligitice	ing Aco	••••	CONDINUC
Date: January 23, 2022				

```
Process:
    boolean secondHalf = false;
                                        // Use to prevent multiple half-time warning rumbles.
    Gamepad.RumbleEffect customRumbleEffect; // Use to build a custom rumble sequence.
    ElapsedTime runtime = new ElapsedTime(); // Use to determine when end game is starting.
   final double ONE_HALF = 88.0;
                                        // Wait this many seconds before rumble-alert for half-time.
    private ElapsedTime period = new ElapsedTime();
    DefineFrenzy robot = new DefineFrenzy();
   // Variables to be used for later
    public float x, y, z, w, pwr;
   // List of available sound resources
   //{"ss alarm" - 0, "ss bb8 down" - 1, "ss bb8 up" - 2, "ss darth vader" - 3, "ss fly by" - 4,
   // "ss_mf_fail" - 5, "ss_laser" - 6 "ss_laser_burst" - 7, "ss_light_saber" - 8,
   // "ss_light_saber_long" - 9, "ss_light_saber_short" - 10,
   // "ss_light_speed" - 11, "ss_mine" - 12, "ss_power_up" - 13, "ss_r2d2_up" - 14,
   // "ss_roger_roger" - 15, "ss_siren" - 16, "ss_wookie" - 17};
   String sounds[] = {"ss_alarm", "ss_bb8_down", "ss_bb8_up", "ss_darth_vader", "ss_fly_by",
        "ss_mf_fail", "ss_laser", "ss_laser_burst", "ss_light_saber", "ss_light_saber_long", "ss_light_saber_short",
```

Signature :	Renee	Date: _	January 23, 2022

ToRotto NoCollo ToRotottoSo

Signature :	Renee	Date: _	January 23, 2022

ToRotto MoCoMo ToRolottoSo

	<u> </u>
Date: Jai	nuary 23, 2022
Process:	
int	phonecyclecount;
pho	one_locked = false;
pho	onecyclecount = 0;
int	statusx = 0;
floa	at carsouseldir = 0;
Str	ring handstate="OPEN";
/*	
*	Initialize the drive system variables.
* 7	The init() method of the hardware class does all the work here
*/	
rok	bot.init(hardwareMap, 1, statusx);
Str	ring startDate;
sta	artDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date());
// 6	end of the front-end of the robots definitions
tel	emetry.addData("Text", "Waiting to start Freight Frenzy");
rob	bot.blinkin.setPattern(robot.patterndisplay.LAWN_GREEN);
tele	emetry.update();
wa	nitForStart();

Signature :	Renee	Date: _	January 23, 2022

ToRotto NoCollo ToRolottoSo

Date: January 23, 2022	•
Process:	•
// put servos in start position	
robot.init(hardwareMap, 2, statusx);	
// Note we use opModelsActive() as our loop condition because it is an interruptible method.	
runtime.reset();	
while (opModelsActive()) {	
/ *	
* Gamepad 1 controls the motors via the left/right stick	
*/	
// this is for the motor control function for driving	
// forward is negative power value	
// backwards is positive power value	
int drive_mode = 2;	
if (gamepad1.right_stick_y != 0 gamepad1.left_stick_y != 0	
<pre>gamepad1.right_stick_x != 0 gamepad1.left_stick_x != 0) {</pre>	
// left/right y goes forward and backward	
// right x strafes right and left	
// left x turns right and left	

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRoto No. Como ToRoloto So

Engineering Activity "Continued"

```
Date: <u>January 23</u>, 2022
Process:
          getJoyVals();
           //updates joystick values set power value based on the vertical values
           pwr = (y+w); //this can be tweaked for exponential power increase
          // This is the setup for strafing
          // if z is neg go right... if z is pos go left
          // going left right front is forwards and right back is backwards
           // going left left front is backwards and left back is forwards
           // going right right front is backwards and right back is forwards
           // going right left front is forwards and left back is backwards
           robot.right_frontpwr =(Range.clip((pwr + (x) +z), -1, 1)); // frontright
           robot.right_backpwr =(Range.clip((pwr + (x) -z), -1, 1)); // backright
           robot.left_frontpwr =(Range.clip((pwr -(x) -z), -1, 1)); // frontleft
           robot.left_backpwr =(Range.clip((pwr -(x) +z), -1, 1)); // backleft
           robot.status = 0;
           setDrivePower( robot.left_frontpwr, robot.right_frontpwr, robot.left_backpwr, robot.right_backpwr, drive_mode);
        } else {
           robot.right = 0;
           robot.left = 0;
```

Signature :	Date:	January 23, 2022
-------------	-------	------------------

P.R.I.O.N.C.N. P.R.L.I.S.

```
Date: January 23, 2022
Process:
          // stop the robot driving
          // scale the joystick value to make it easier to control
          // the robot more precisely at slower speeds.
          robot.right_frontpwr = (float) scaleInput(robot.right);
          robot.left_frontpwr = (float) scaleInput(robot.left);
          robot.right_backpwr = (float) scaleInput(robot.right);
          robot.left_backpwr = (float) scaleInput(robot.left);
          // write the values to the motors
          setDrivePower( robot.left frontpwr, robot.right frontpwr, robot.left backpwr, robot.right backpwr, drive mode);
        }
        // change colors for fun
        if (gamepad1.b) {
          robot.blinkin.setPattern(robot.patterndisplay.COLOR_WAVES_RAINBOW_PALETTE);
       }
        if (gamepad1.a) {
          robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT WHITE);
        }
        if (gamepad1.y) {
          robot.blinkin.setPattern(robot.patterndisplay.COLOR WAVES PARTY PALETTE);
        }
        // right bumper move out the phone
        // left bumper move in the phone
```

Signature :	Renee	Date: _	January 23, 2022

Date: January 23, 2022

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

```
Process:
        if (gamepad1.right bumper && robot.phone.getPosition() >= 0 && !phone locked) {
          //move phone (bottom is 1)
          robot.phone_position += .02;
          robot.phone.setPosition(robot.phone_position);
          phone_locked = true;
       } else if (gamepad1.left_bumper && robot.phone.getPosition() <= 1 && !phone_locked) {
          // phone (top position is 0)
          robot.phone_position -= .02;
          robot.phone.setPosition(robot.phone_position);
          phone_locked = true;
        if (phone_locked) {
          phonecyclecount ++;
          if (phonecyclecount == 100){
            phone locked = false;
            phonecyclecount = 0;
          }
        // Gamepad 2
        // raise the arm up/down
        // up is negative power value
```

Signature :	Renee	Date:	January 23, 2022
		_	

P.R.I.O.N.C.N. P.R.L.I.S.

```
Date: January 23, 2022
Process:
        // down is positive power value
        if ((gamepad2.right_stick_y < 0 && robot.upper_stop.getState() == TRUE) ||
            (gamepad2.right_stick_y > 0 && robot.lower_stop.getState() == TRUE)){
          // speed to a constant value
          if (gamepad2.right_stick_y < 0 ) {
            // arm Up
            // value is positive (motor is reverse)
            arm_power = (float) gamepad2.right_stick_y;
            robot.blinkin.setPattern(robot.patterndisplay.SKY_BLUE);
            // set the arm movement based on the y up or down
            robot.arm_drive.setPower(arm_power/2);
          } else if (gamepad2.right_stick_y > 0 ) {
            // arm down
            arm_power = (float) gamepad2.right_stick_y;
            // set the arm movement based on the y up or down
            robot.arm_drive.setPower(arm_power/2);
            robot.blinkin.setPattern(robot.patterndisplay.YELLOW);
          }
       } else {
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

Date: January 23, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

zigiteering teatring continued

```
Process:
          // stop the arm motor
          robot.arm_power = 0;
          robot.arm_power = (float) scaleInput(robot.arm_power);
          robot.arm_drive.setPower(robot.arm_power);
        }
        // controlling the carsousel motors
        if (gamepad2.left_trigger > 0) {
          robot.carouselright.setPower(-.22);
          robot.carouselleft.setPower(-.22);
          robot.blinkin.setPattern(robot.patterndisplay.GREEN);
        } else if (gamepad2.right_trigger > 0) {
          robot.carouselright.setPower(.22);
          robot.carouselleft.setPower(.22);
          robot.blinkin.setPattern(robot.patterndisplay.DARK GREEN);
        } else if ((gamepad2.left_trigger <= 0 || gamepad2.left_trigger == -0) &&
              (gamepad2.right_trigger <= 0 || gamepad2.right_trigger == -0)) {
          carsouseldir = 0;
          robot.carouselright.setPower(carsouseldir);
          robot.carouselleft.setPower(carsouseldir);
        }
```

Signature:	Date:	January 23, 2022
------------	-------	------------------

ToRotto MoCoMo ToRolottoSo

<u> </u>
Date: January 23, 2022
Process:
// clamp the block with hand
if (gamepad2.y) {
// closed - yellow button or triangle
robot.hand.setPosition(0);
robot.blinkin.setPattern(robot.patterndisplay.GREEN);
gamepad2.rumble(.5, .5, Gamepad.RUMBLE_DURATION_CONTINUOUS);
handstate = "closed";
secondHalf =true;
} else if (gamepad2.a) {
// open - green button
robot.blinkin.setPattern(robot.patterndisplay.LIME);
robot.hand.setPosition(1);
handstate = "open";
gamepad2.stopRumble();
}
// open controller functions
if (gamepad2.b) {
}

Signature :	Renee	Date: _	January 23, 2022
		-	

Date: January 23, 2022

P.R.I.O.N.C.N. P.R.L.I.S.

```
Process:
        if (gamepad2.x) {
        // If nothing is going on turn the lights to match side
          if (!gamepad2.b && !gamepad2.a && !gamepad2.y &&
            (gamepad2.left_trigger == 0 && gamepad2.right_trigger == 0) &&
            (gamepad2.right_stick_y == 0)) {
            if (robot.Alliance_color_results == "RED") {
              if (runtime.seconds() > ONE HALF) {
                 robot.blinkin.setPattern(robot.patterndisplay.SHOT_RED);
              } else {
                robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED);
              }
            } else if (robot.Alliance color results == "BLUE") {
              if (runtime.seconds() > ONE HALF) {
                 robot.blinkin.setPattern(robot.patterndisplay.SHOT_BLUE);
              } else {
                robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
              }
        }
```

Signature :	Renee	Date: _	January 23, 2022

ToRotto MoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

Date: January 23, 2022
Process:
telemetry.addData("FF Freight Frenzy", " %2.5f S Elapsed", runtime.seconds());
telemetry.addData("Gamepad1", format("Strafe: %.2f Turn: %.2f Drive(R): %.2f Drive(L): %.2f", gamepad1.right_stick_x,
<pre>gamepad1.left_stick_x, gamepad1.right_stick_y, gamepad1.left_stick_y));</pre>
//telemetry.addData("Wheel Power","w: %.2f y: %.2f x: %.2f z: %.2f",w, y, x, z);
$telemetry. add Data ("carousels", "speed left: \%.2f right: \%.2f ",-gamepad2.left_trigger, gamepad2.right_trigger);$
telemetry.addData("Hand position"," %s phone position %.2f",handstate, robot.phone_position);
telemetry.addData("Arm", format("POS %d - %s PWR %.2f Touch L %s U %s", robot.arm_drive.getCurrentPosition(),
robot.arm_drive.getZeroPowerBehavior(), gamepad2.right_stick_y,
robot.lower_stop.getState(), robot.upper_stop.getState()));
telemetry.addData("Alliance Colors", "red %d blue %d Result %s",
$robot. Alliance_color.red (), robot. Alliance_color. blue (), robot. Alliance_color_results);$
telemetry.update();
idle(); // Always call idle() at the bottom of your while(opModelsActive()) loop
}
}
/*
* This method scales the joystick input so for low joystick values, the
* scaled value is less than linear. This is to make it easier to drive
* the robot more precisely at slower speeds.
*/

Date: _____

Date: January 23, 2022

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"

```
Process:
      double scaleInput(double dVal) {
         double[] scaleArray = {0.0, 0.05, 0.09, 0.10, 0.12, 0.15, 0.18, 0.24,
             0.30, 0.36, 0.43, 0.50, 0.60, 0.72, 0.85, 1.00, 1.00};
 // get the corresponding index for the scaleInput array.
        int index = (int) (dVal * 16.0);
        if (index < 0) {
           index = -index;
        } else if (index > 16) {
           index = 16;
        }
        double dScale = 0.0;
        if (dVal < 0) {
           dScale = -scaleArray[index];
        } else {
           dScale = scaleArray[index];
        }
        return dScale;
      }
    public void getJoyVals()
      y = gamepad1.left_stick_y; // forward - backwards
```

Signature :	Renee	Date:	January 23, 2022
9			

T.R.I.O.N.C.N. T.R.L.I.S.

Engineering Activity "Continued"

Engineering Activity Continued

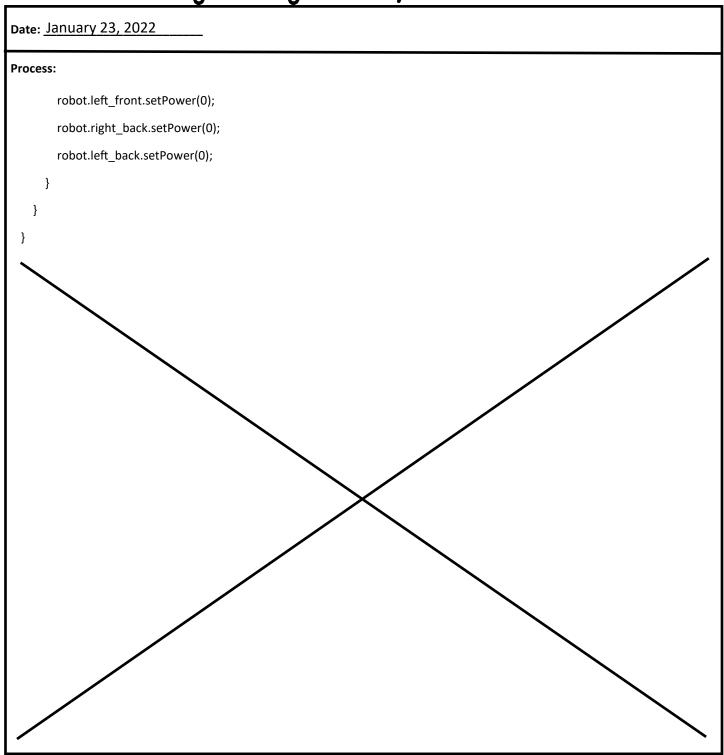
```
Date: January 23, 2022
Process:
      w = gamepad1.right_stick_y; // forward - backwards
      z = gamepad1.right_stick_x; // strafing right is positive and left is negative
      x = gamepad1.left_stick_x; // left-right turn
   }
    public void setDrivePower(float leftPower, float rightPower, float leftPower2, float rightPower2, int power_mode) {
      // telemetry.addData("2", format("PM - %d", power_mode));
      // telemetry.update();
      if (power_mode == 2) {
        // set front and back motors full power
        robot.right_front.setPower(rightPower);
        robot.right_back.setPower(rightPower2);
        robot.left_front.setPower(leftPower);
        robot.left_back.setPower(leftPower2);
      } else if (power_mode == 1) {
        // set front motors
        robot.right front.setPower(0);
        robot.left_back.setPower(0);
        robot.right_back.setPower(0);
        robot.left_back.setPower(0);
      } else {
        // set front motors
        robot.right_front.setPower(0);
```

Signature : Date:	uary 23, 2022	_
-------------------	---------------	---

TEAM TSAI

ToRoto MoCoMo ToRoloto So

Engineering Activity "Continued"



Signature : _____ January 23, 2022 Date: _____

ToRoto MoCoMo ToRolotoSo

Renee

Signature:

Engineering Activity "Continued"

Date: <u>January 23, 2022</u>
Process:
Color Test Function
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run teleop.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */
package org.firstinspires.ftc.Team7341;

Team 7391

ToRotto NoCollo ToRolottoSo

Engineering Activity "Continued"

Engineering Activity Continued
Date: January 23, 2022
Process:
import android.content.Context;
import com.qualcomm.ftccommon.SoundPlayer;
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;
import com.qualcomm.robotcore.eventloop.opmode.Disabled;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.eventloop.opmode.TeleOp;
import com.qualcomm.robotcore.util.ElapsedTime;
import java.text.SimpleDateFormat;
import java.util.Date;
import static java.lang.String.format;
<pre>@TeleOp(name = "FF: ColorTest", group = "FF")</pre>
//@Disabled
public class ColorTest extends LinearOpMode {
/* Declare OpMode members. */
<pre>private ElapsedTime runtime = new ElapsedTime();</pre>
<pre>private ElapsedTime period = new ElapsedTime();</pre>
// get a reference to the RelativeLayout so we can change the background
// color of the Robot Controller app to match the hue detected by the RGB sensor.
DefineFrenzy robot = new DefineFrenzy();
public static double deadzone = 0.2;

Renee Date:	January 23, 2022
Renee Date:	Jan

Team 7391

ToRotto NoCollo ToRotottoSo

Engineering Activity "Continued"

Date: January 23, 2022		
Process:		
@Override		
<pre>public void runOpMode() throws InterruptedException {</pre>		
// Variables for choosing from the available sounds		
boolean notfirsttime = false;		
int phonecyclecount;		
int light_num = 1;		
int statusx = 0;		
/*		
* Use the hardwareMap to get the dc motors and servos by name.		
* Note that the names of the devices must match the names used		
* when you configured your robot and created the configuration file.		
* Initialize the drive system variables.		
* The init() method of the hardware class does all the work here		
*/		
robot.init(hardwareMap, 1, statusx);		
String startDate;		
startDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date());		
telemetry.addData("Text", "Waiting to start Color Test");		
robot.blinkin.setPattern(robot.patterndisplay.CONFETTI);		
telemetry.update();		

Signature :	Renee	Date: _	January 23, 2022
		-	

Tram 7341

ToRotto NoCoMo ToRolottoSo

Engineering Activity "Continued"

zigiteering teatring continued

	dry 25, 2022
rocess:	
// Sen	d telemetry message to indicate successful Encoder reset
if (rob	ot.Alliance_color_results == "RED") {
tele	metry.addData("1", "All setup at Red Side");
rob	ot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED);
} else	if (robot.Alliance_color_results == "BLUE") {
tele	metry.addData("1", "All setup at Blue Side");
rob	ot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
}	
telem	etry.addData("Alliance Colors","Alpha %d Red %d Blue %d", robot.Alliance_color.alpha(),
ro	obot.Alliance_color.red(), robot.Alliance_color.blue());
telem	etry.addData("Freight Colors","Alpha %d Red %d Blue %d", robot.Freight_color.alpha(),
ro	obot.Freight_color.red(), robot.Freight_color.blue());
telem	etry.addData("Position Colors","Alpha %d Red %d Blue %d", robot.Position_color.alpha(),
ro	obot.Position_color.red(), robot.Position_color.blue());
telem	etry.addData("4","pos %s Freight %s",robot.Position_color_results, robot.Freight_color_results);
if (rob	ot.Position_color_results == "Carousel" && robot.Freight_color_results == "NoFreight") {
tele	metry.addData("2", "Going to move the Carousel then go to the Storage Unit");
rob	ot.position_function = 1;
} else	if (robot.Position_color_results == "Carousel" && robot.Freight_color_results == "PlaceFreight") {
tele	metry.addData("2", "Going to move the Carousel, place the Freight and go to Storage Unit");
rob	ot.position_function = 2;

Signature :	Renee	January 23, 2022 Date:
JIKI I ALUI C.	* ** ***	Date.

ToRotto NoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 23, 2022
Process:
} else if (robot.Position_color_results == "Warehouse" && robot.Freight_color_results == "PlaceFreight") {
telemetry.addData("2", "Going to place the Freight and go to the Warehouse");
robot.position_function = 3;
} else if (robot.Position_color_results == "Warehouse" && robot.Freight_color_results == "NoFreight") {
telemetry.addData("2", "Going to the Warehouse");
robot.position_function = 4;
} else {
telemetry.addData("2", "Error in the logic - check for the color sensors and markers");
}
telemetry.update();
waitForStart();
// setting up timer
runtime.reset();
// while the op mode is active, loop and read the RGB data
// Note we use opModeIsActive() as our loop condition because it is an interruptible method.
while (opModelsActive()) {
telemetry.addData("FF Color Test", " %2.5f S Elapsed", runtime.seconds());
telemetry.addData("Alliance Colors","Alpha %d Red %d Blue %d ", robot.Alliance_color.alpha(),
<pre>robot.Alliance_color.red(), robot.Alliance_color.blue());</pre>
telemetry.addData("Freight Colors","Alpha %d Red %d Blue %d", robot.Freight_color.alpha(),
robot.Freight_color.red(), robot.Freight_color.blue());

Signature :	Renee	January 23, 2022 Date:
ngilatule .		Date.

P.R. I. N. C. M. T.R. L. I. S.

Renee

Signature:____

Engineering Activity "Continued"

Date: January 23, 2022 **Process:** telemetry.addData("Position Colors","Alpha %d Red %d Blue %d argb %d", robot.Position_color.alpha(), robot.Position_color.red(), robot.Position_color.blue(), robot.Position_color.argb()); telemetry.addData("8","Freight status %s", robot.Freight_color_results); telemetry.addData("8","Position status %s", robot.Position_color_results); telemetry.addData("8","Allience status %s", robot.Alliance_color_results); // telemetry.addData("10",format("pattern %.4f", robot.pattern)); telemetry.update(); idle(); // Always call idle() at the bottom of your while(opModelsActive()) loop

Date: ___

ToRoto MoCoMo ToRolotoSo

Renee

Signature : _____

Engineering Activity "Continued"

Engineering reprivate continued
Date: January 23, 2022
Process:
Color Test Function
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */
package org.firstinspires.ftc.Team7341;

ToRotto NoCoMo ToRolottoSo

Engineering Activity "Continued"

Date: January 23, 2022
Process:
/* Copyright (c) 2015 Qualcomm Technologies Inc
All rights reserved.
The function of this program is to run autonomously to put a ball into the vortex
push the big ball off the base and then and go on the base.
This will work on only the blue side.
Neither the name of Qualcomm Technologies Inc nor the names of its contributors
may be used to endorse or promote products derived from this software without
specific prior written permission.
NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS
LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE
ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE
FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR
SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. */

Signature : _____ January 23, 2022
Date: _____

ToRotto MoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: January 23, 2022
Process:
package org.firstinspires.ftc.Team7341;
import com.qualcomm.hardware.rev.RevBlinkinLedDriver;
import com.qualcomm.robotcore.eventloop.opmode.Autonomous;
import com.qualcomm.robotcore.eventloop.opmode.Disabled;
import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.util.ElapsedTime;
$import\ org. first in spires. ftc. robot core. external. hardware. camera. We becam Name;$
import org.firstinspires.ftc.robotcore.external.navigation.VuforiaLocalizer;
$import\ org. first in spires. ftc. robot core. external. navigation. Vu for ia Localizer. Camera Direction;$
import org.firstinspires.ftc.robotcore.external.tfod.TFObjectDetector;
import org.firstinspires.ftc.robotcore.external.tfod.Recognition;
import java.text.SimpleDateFormat;
import java.util.Date;
<pre>@Autonomous(name = "FF: FindObjects", group = "Test")</pre>
//@Disabled
public class FindObjects extends LinearOpMode {
private ElapsedTime period = new ElapsedTime();
/* Note: This sample uses the all-objects Tensor Flow model (FreightFrenzy_BCDM.tflite), which contains
* the following 4 detectable objects
* 0: FryBox,

P.R. I. N. C. M. T.R. L. I. S.

Engineering Activity "Continued"

Date: <u>January 23, 2022</u> **Process:** * 1: Duck, * 2: Marker (duck location tape marker) */ private static final String TFOD_MODEL_ASSET = "model_20220116_154511.tflite"; private static final String[] LABELS = { "Duck", "FryBox", "Marker" **}**; // private static final String LABEL_FryBox = "FryBox"; // private static final String LABEL_Duck = "Duck"; // private static final String LABEL_Marker = "Marker"; int location = 0; int count; * IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which * 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function. * A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer * web site at https://developer.vuforia.com/license-manager.

Signature : _____ January 23, 2022
Date: _____

ToRotto MoCoMo ToRolottoSo

Renee

Signature : _____

Engineering Activity "Continued"

Date: January 23, 2022
Process:
*
* Vuforia license keys are always 380 characters long, and look as if they contain mostly
* random data. As an example, here is a example of a fragment of a valid key:
* ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOI2dRzKS4T0hQ8kT
* Once you've obtained a license key, copy the string from the Vuforia web site
* and paste it in to your code on the next line, between the double quotes.
*/
private static final String VUFORIA_KEY =
"your key";
DefineFrenzy robot = new DefineFrenzy(); // Use a Princess's Charlie hardware
/**
* {@link #vuforia} is the variable we will use to store our instance of the Vuforia
* localization engine.
*/
private VuforiaLocalizer vuforia;
/**
* {@link #tfod} is the variable we will use to store our instance of the TensorFlow Object
* Detection engine.
*/
private TFObjectDetector tfod;
// Define your functions
DriveDef2 drive = new DriveDef2();

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

zigiteering teatring continued

```
Date: January 23, 2022
Process:
    DriveColorDef2 color = new DriveColorDef2();
    LiftDef2 arm = new LiftDef2();
    HandDef hand = new HandDef();
   ObjectDef freight = new ObjectDef();
    double $stopphone1 = .4;
   double $stopphone2 = .9;
    boolean phone locked;
    boolean phone in;
    boolean phone_out;
   int phonecyclecount;
    private int statusx;
   // List of available sound resources
   //{"ss_alarm" - 0, "ss_bb8_down" - 1, "ss_bb8_up" - 2, "ss_darth_vader" - 3, "ss_fly_by" - 4,
   // "ss_mf_fail" - 5, "ss_laser" - 6 "ss_laser_burst" - 7, "ss_light_saber" - 8,
   // "ss_light_saber_long" - 9, "ss_light_saber_short" - 10,
   // "ss light speed" - 11, "ss mine" - 12, "ss power up" - 13, "ss r2d2 up" - 14,
   // "ss_roger_roger" - 15, "ss_siren" - 16, "ss_wookie" - 17};
   String sounds[] = {"ss_alarm", "ss_bb8_down", "ss_bb8_up", "ss_darth_vader", "ss_fly_by",
        "ss_mf_fail", "ss_laser", "ss_laser_burst", "ss_light_saber", "ss_light_saber_long", "ss_light_saber_short",
        "ss_light_speed", "ss_mine", "ss_power_up", "ss_r2d2_up", "ss_roger_roger", "ss_siren", "ss_wookie"};
    boolean soundPlaying = false;
```

Signature :	Renee	Date: _	January 23, 2022

ToRotto NoCoMo ToRolottoSo

Renee

Signature:

Engineering Activity "Continued"

Date: January 23, 2022
Process:
/*
* IMPORTANT: You need to obtain your own license key to use Vuforia. The string below with which
* 'parameters.vuforiaLicenseKey' is initialized is for illustration only, and will not function.
* A Vuforia 'Development' license key, can be obtained free of charge from the Vuforia developer
* web site at https://developer.vuforia.com/license-manager.
*
* Vuforia license keys are always 380 characters long, and look as if they contain mostly
* random data. As an example, here is a example of a fragment of a valid key:
* ylglzTqZ4mWjk9wd3cZO9T1axEqzuhxoGlfOOI2dRzKS4T0hQ8kT
* Once you've obtained a license key, copy the string from the Vuforia web site
* and paste it in to your code onthe next line, between the double quotes.
*/
public static final String TAG = "Vuforia VuMark Sample";
/**
* This is the webcam we are to use. As with other hardware devices such as motors and
* servos, this device is identified using the robot configuration tool in the FTC application.
*/
WebcamName webcamName;
private ElapsedTime runtime = new ElapsedTime();

Team 7341

ToRoto MoCoMo ToRolotoSo

Engineering Activity "Continued"

Date: January 23, 2022
Process:
@Override
public void runOpMode() throws InterruptedException {
/*
* Initialize the drive syst;em variables.
* The init() method of the hardware class does all the work here
*/
robot.init(hardwareMap, 1, statusx);
// Send telemetry message to signify robot waiting;
telemetry.addData("Status", "Test Find Object Position");
telemetry.update();
String startDate;
startDate = new SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(new Date());
/*
* Retrieve the camera we are to use.
*/
<pre>webcamName = hardwareMap.get(WebcamName.class, "Webcam 1");</pre>
// find the Frybox
telemetry.addData("6", " find the FryBox");
telemetry.update();

Signature :	Renee	Date: _	January 23, 2022

Team 7341

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Date: January 23, 2022

Process:

```
waitForStart();
if (robot.position_side == 2) {
  telemetry.addData("1", "All setup at Blue Side");
  robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_BLUE);
} else if (robot.position_side == 1) {
  telemetry.addData("1", "All setup at Red Side");
  robot.blinkin.setPattern(robot.patterndisplay.HEARTBEAT_RED);
while (opModelsActive()) {
 // find the rings to determine the option of A, B, or C
  telemetry.addData("6", " find the duck or FryBox");
  telemetry.update();
  location = freight.FindBox();
  robot.position_option = location;
  telemetry.addData("4", " - Target %d", robot.position_option);
  telemetry.addData("7", "Location/Position is %d", location);
  telemetry.update();
  robot.position_option = location;
```

Signature :	Renee	Date:	January 23, 2022
		_	

P.R.I.O.N.C.N. P.R.L.I.S.

Engineering Activity "Continued"

Date: January 23, 2022

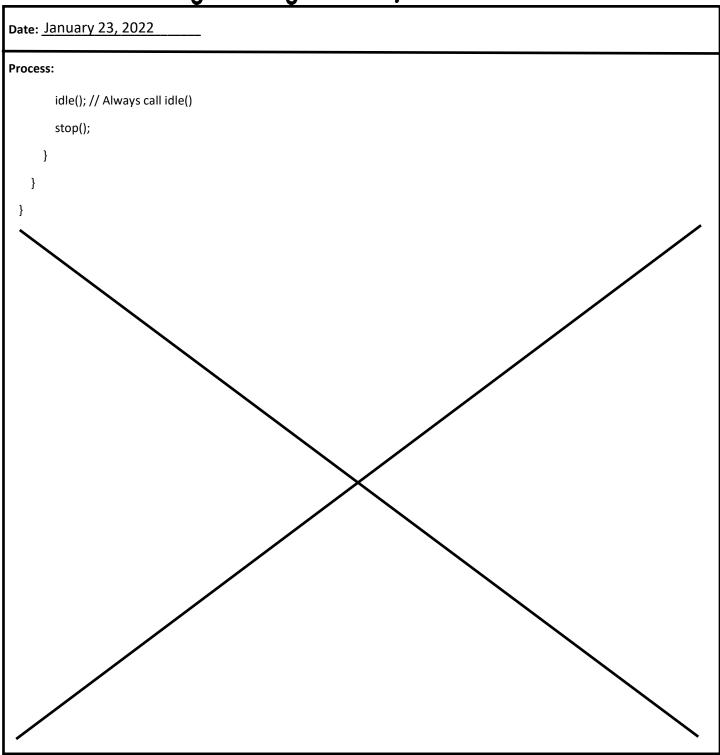
```
Process:
        if (location == 1) {
          if (robot.position_side == 2) {
             robot.blinkin.setPattern(robot.patterndisplay.LIGHT_CHASE_BLUE);
          } else if (robot.position_side == 1) {
             robot.blinkin.setPattern(robot.patterndisplay.LIGHT_CHASE_RED);
          }
        } else if (location == 2) {
          if (robot.position_side == 2) {
             robot.blinkin.setPattern(robot.patterndisplay.SHOT BLUE);
          } else if (robot.position_side == 1) {
             robot.blinkin.setPattern(robot.patterndisplay.SHOT_RED);
          }
        } else if (location == 3) {
          if (robot.position_side == 2) {
             robot.blinkin.setPattern(robot.patterndisplay.STROBE_BLUE);
          } else if (robot.position side == 1) {
             robot.blinkin.setPattern(robot.patterndisplay.STROBE RED);
          }
        robot.wait(30);
        telemetry.addData("Path", "Autonomous Complete");
        telemetry.update();
```

Signature :	Renee	Date: _	January 23, 2022

TEAM TSAI

ToRotto MoCoMo ToRolottoSo

Engineering Activity "Continued"



Signature : _____ January 23, 2022 Date: _____

Toroto Mocomo Torolotoso

Engineering Activity

Date:	January 30, 2022	Time:	2:30pm-	5:00pm
-------	------------------	-------	---------	--------

Purpose of the Activity:

- Practice driving
- Testing Autonomous

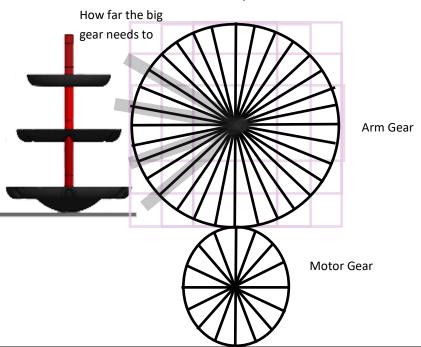
Members:

Elle, Harper, and Renee

Process:

Practice started out with things not working correctly. The robot did not detect the alliance was to be red and then we found we had some missing code after the programs were re-arranged to make the reading of a little easier. That was corrected and it could not detect the marker we found that the camera was looking to high. Then the next issue was the arm was not moving fast enough. After research we left some debug code used to help with the robot arm movement. That was removed, but the arm is not moving in a consistent manner. So more research is needed to found out why.

We completed some research and found that we might have an issue with the conversion plug between the AndyMark motor and the Rev hub. We will be changing out the electronic piece and continue with the testing



ignature :	Elle	January 31, 2022
Ellatule.	<u> </u>	Date.

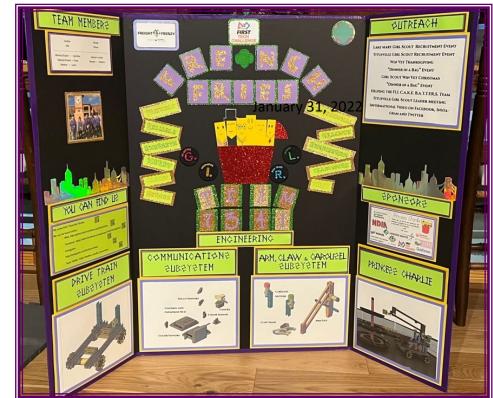
TEAM TSAI

ToRoto NoCono ToRoloto So

Engineering Activity "Continued"

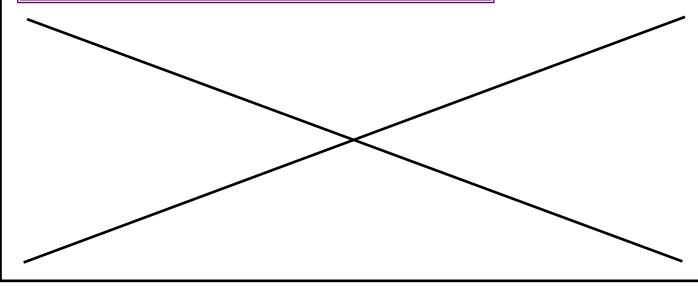
Date: January 30, 2022

Process:



Other items we covered today are:

- 1. What do we want to do for lunch....
- 2. Who will be talking about what....
- 3. Interview is at7:15pm, but let's get onat 7:00pm to do a shortreview
- 4. We will not have a practice on next Saturday.



Signature : Signature : January 31, 2022

ToRoto Nocono ToRoloto So

Engineering Activity "Continued"

Date: January 31, 2022

Process:



So, after a short discussion it was decided to have Popeye's since everyone likes chicken and there are some close by.

We talked that the following items need to be discussed during the interview:

- 1. Robot Hardware
- 2. Robot Design history—why and how we picked the different elements
- 3. Robot learning task to be performed during the autonomous period
- 4. Funding
- 5. Outreach
- 6. Game strategy

Championship is next Sunday and our interview is on Friday. Much must be completed before hand... Especially getting the arm to raise the height we need.

Signature :	Elle	Date:	January 31, 2022