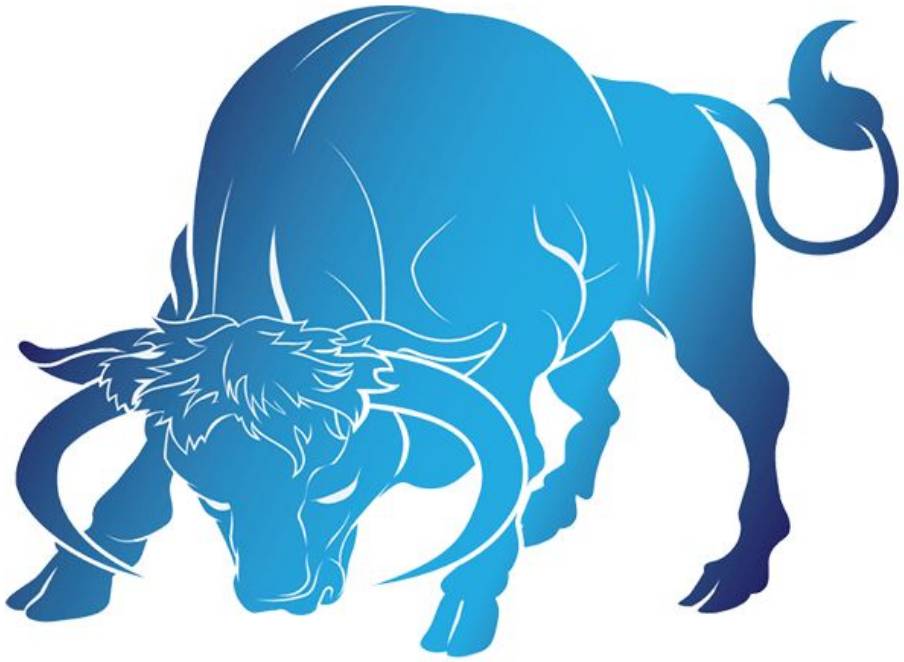
TAURUS



Team 15341

Team 15341 (Taurus) is a first year team that started around late September from Roseburg High School consisting of grades 9-12. Our outreach is mostly volunteering and presentations, and we love showing little kids what robotics is all about. We have a simple pushbot with an intake system that can 1.) drop off the marker into the depot during autonomous and 2.) “spit out” minerals into the depot. We meet every Monday, Wednesday, and Friday, and the rest of the week is optional meeting. Some of our main sponsors are Dominoes Pizza Place, Performance Martial Arts, and Sherms. We hope to make it far into competition this year.

"Some students drink at the fountain of knowledge. Others just gargle," -E.C. McKenzie

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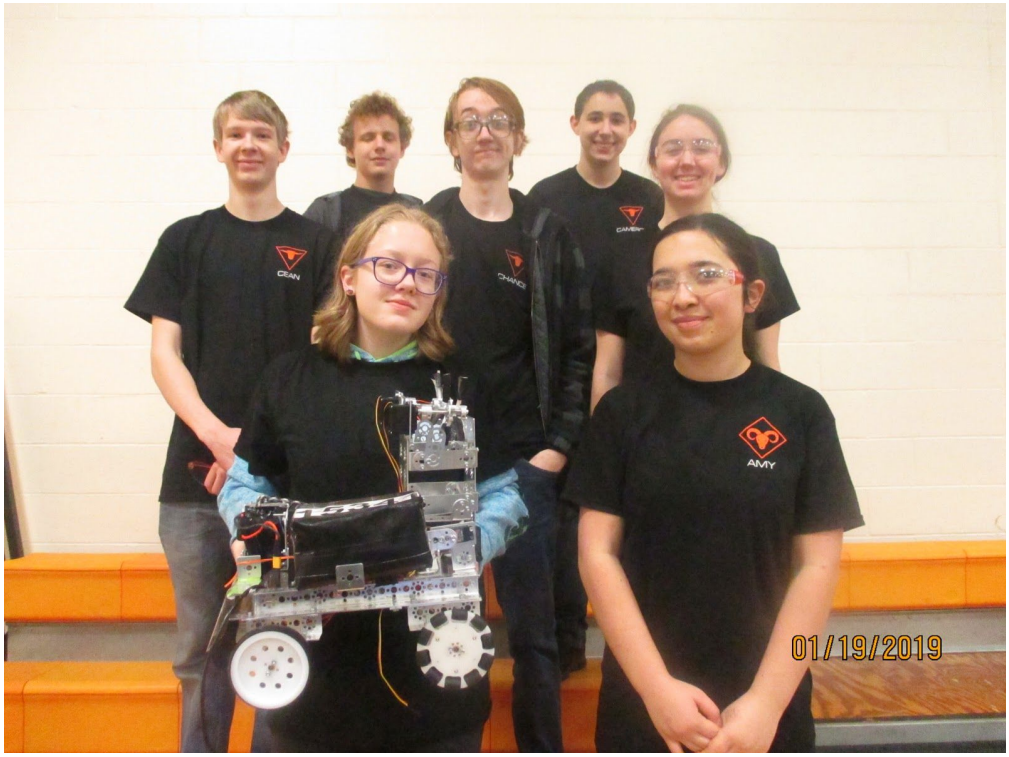
Taurus Non-Technical Section

Taurus Robotics
FTC Team 15341
Roseburg, Oregon

MEET OUR TEAM:

Taurus is a team of 10 ranging from grades 9-12 from Roseburg High School. Three of our members were members of VEX robotics before joining FTC, two were in FTC as eighth graders, and the rest of had little to no experience in the robotics field but everyone has improved at a fast pace. None of our members have been doing robotics for more than two years, so we are all still learning from other teams and gaining experience. We have been working together to develop a strategy and build a robot that will hopefully take us far into competition. When we aren't at meetings, a lot of us are doing other activities such as band, track, basketball, jobs, etc. We have a mentor team (Scorpio: team 13189 and Joe who was on Scorpio last year before he graduated) and greatly appreciate their help to get us to where we are right now.



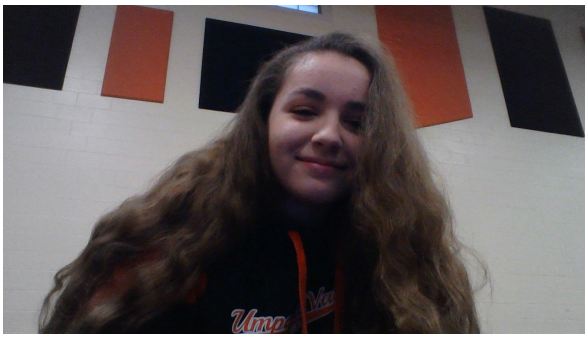
Team Bios

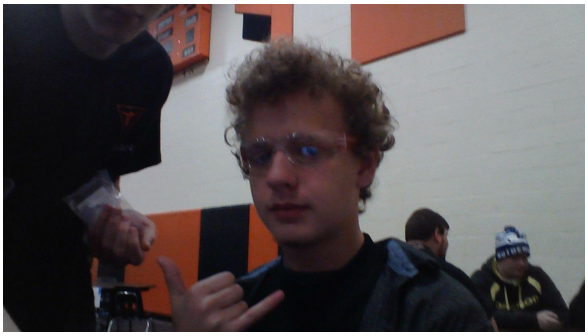
Madison Bosley: a poem

Team Captain, builder

Made it to the 11th grade at Roseburg high school
Am interested in surgical engineering in
Decorated stuff with glitter
Is one secretary of robotics team captain of Taurus
Sometimes volunteers in community with robotics fam
On the Roseburg high school softball team
Never been to the east coast

Born in Kansas City Missouri
On the Roseburg high school bowling team
Sometimes likes poetry
Likes autocad and drafting robotics parts
Every Saturday she vacuumed her car
Yellow is her second favorite color





Micah Nichols:

Main Programmer

Henlo. I am the programmer for our team, Taurus. I'm a junior attending RHS. Outside hobbies of mine consist entirely of music. I'm a percussionist, vibraphonist, and accordionist. My favorite subject is math. While I haven't been working with the robotics' software for long (this is my first year), I have had experience with the concept of programming for years, starting with simple games and now moving on to robots.

Emily Stetson:

Head Notebooker, Designer/Builder

I am 14 years old and in the 9th grade at RHS. I was on the JoLane FTC robotics team the "Deatheaters" with Amy Latham. I have one year of experience in robotics. This year I am the head notebook person, designer/artist of new robot ideas, and I am learning to code. My hobbies include playing clarinet in the marching band and bass clarinet in the A.M. Jazz and concert bands, playing violin in youth orchestra, reading, running, math, and listening to music.

Emily "M" Sells:

Designer, Programmer

My name is Emily Sells. I'm a freshman at Roseburg high school and I am 15. I have zero experience in robotics but I have always wanted to join. I'm super shy but trying to get out of my comfort zone and try something new. I have been playing the French Horn for 5 years now, I am semi fluent in ASL, and I am in Journalism which is one of my favorite things to do. My hobbies are listening to music and writing stories.

Amy Latham:

Programmer, Notebooker, Outreach

Hi, I'm Amy Latham, and I am a 15 year old freshman at Roseburg High. I was born in Japan and was in FTC for one year and was part of the "Death Eaters" last year with Emily Stetson. I am in journalism and play the flute. Right now, I am working on the notebook and learning how to program. My hobbies include reading my weekly subscription to TIME magazine, band, watching the news and, writing stories, listening to music and watching nerdy sitcoms.

Jadon Ringen:

When I heard I was on Taurus I was excited since my zodiac sign is coincidentally Taurus. I was also excited to find out that it was the RHS "B" team which is nice since I don't have much experience in robotics. I built small robots and rockets but haven't been able to get much into programming because I didn't have technology capable to do that at home. I first heard about robotics last year and decided to join this year, and I've loved every minute of it. Building the robot, making it faster and stronger is something I really enjoy.

Mackenzie Wayward:

Builder

My name is Mackenzie Wayman. I have many hobbies which include art, basketball, gardening, singing, and much more. This is my first year in robotics, and so far I've really enjoyed spending time building with everyone.

Cameron Thompson:

Main driver, programmer

I am programmer and builder, but I'm mainly the driver. I was on the RHS Vex team, "Gizmos" last year where I was mainly a driver and builder, however I also programmed very little. I spend my most of my free time playing video games and interesting scientific subjects.

Cean Quinn:

Fusion designer, Driver

I'm the teams fusion designer and a part of the drive team. I did FLL in 6th and 7th grade, I helped build and program. In my freetime I work with Fusion 360 and play video games.

Chanc Terrel:

Engineer

This is my first year in robotics, and I am an engineer and builder for the team, and I have some experience in programing and animation. In my free time I play video games and write.

Team Spirit

To us, Team Spirit is something really important because we believe that it brings us closer to one another. One of the bonding experiences we had in our club was our little Christmas party where we did a Secret Santa gift exchange, watched a movie, and played games. Everyone was enjoying themselves, and many are hoping that we do it again this year.

Another example of our Team Spirit is when a few of our members had to leave the club for personal reasons, and when three new members joined, it brought us closer to each other in a way because we started working more with each other and more people started staying more days after school. It was exciting to see the change in the behaviour of our team in such a short amount of time.

Outreach

Outreach is very important to us. We love helping other teams think through and solve problems whether it's in the team, something about their robot, something about their programming, or really just anything at all. It also gives us a chance for us to learn and grow from other teams. We love presenting our robot to others; their fascinated faces make us excited in hopes that FIRST will gain more and more members. More` recently, we have talked about doing a presentation at a residence home so they can see what we like to do with our technology, as well as it being an interesting story to tell their kid relatives.

August 11

Taurus volunteered at the Douglas County fair at a robotics booth. We brought two of our robots with us for kids passing by to drive. Many kids, we found, were in LEGO robotics so it was fun to meet them and answer their questions. It was a really great experience and we will probably make it a tradition to have a booth at the fair next year.

October 17

We went to Fremont to help the Middle school teams with their robot ideas, designs, and even successfully helped them get one of there robots driving.

December 1

We went to Fremont again to mentor and give more ideas to the middle school teams. One significant thing we did is we helped them balance their robot by making one side of there chassis shorter. They seemed to enjoy it as much as we did, and it gave us experience for when we mentor teams again and gives us a chance to see what we should do and shouldn't.

December 15

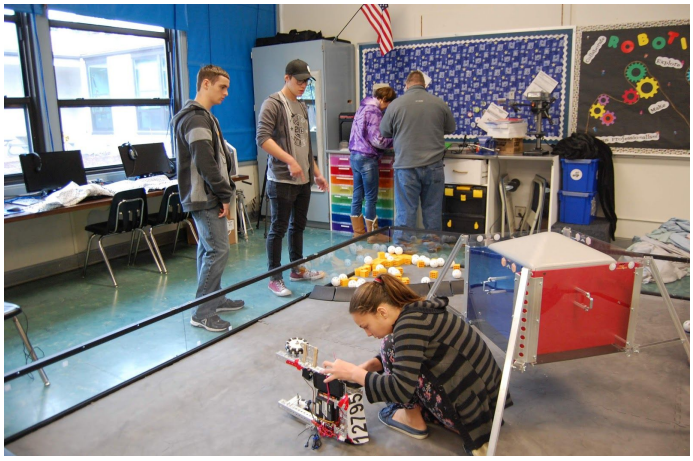
One of our members helped at a presentation at South Umpqua High School at an FLL meet to talk about FTC and what it's like during the competition. Many of the FLL members were excited and loved the robots, and were excited to join FTC once they were

able to. At the end of the competition, the three FTC teams there (Mechanical Maniacs, Scorpio, and Aries) presented their robots and explained how they work and what goes into them. Our member that was there used to be a part of Aries so it was exciting for her to see how fascinated the younger kids looked about joining FTC in their later years.

More Outreach:

We have done other outreach as well so non-robotics parts of the community know about us, including:

- A website
- An RHS robotics club Facebook page
- Our team's own Facebook Page
- An RHS robotics club instagram page
- A Journalist student at our school writing a feature article about our club (shown in the next few pages)
- Several posters posted around our school about our club


ROBOTS
12795


12795

Roseburg High School Robotics Team Work Together in Hopes of Becoming the Next World Champions

Not interested in athletics but want to be in something competitive anyway? Well, then robotics would be right for you! Join this diverse, fun club to see how people work as a team everyday after school to build and program a robot, and compete to possibly become the next world champions.

“One thing I want you guys to know is that it’s going to take most of your time,” Jesse Wright, a freshman member on Team Aries, one of four teams at Roseburg High School noted. “It’s time consuming, it can get stressful, and also it can get in the way of your personal life...it could go later at night and then you don’t have time to do things at home,” he added.

As stressful it can seem, robotics is a good way to make new friends and create many fascinating things, according to Rien Loftin, one of the engineers on his team. “It’s fun and creative and I really like making stuff,” he said. “Competition is mostly frustrating but it’s ok,” he added. “They’re pretty fun. They’re a good way to test your knowledge and ability. But sometimes it can be stressful,” Preston Smith, another member of the Aries team said.

This smart and resourceful community is often inspired by many things, varying from family members to successful robots in history, and even themselves and their teammates. “Besides myself, I guess I could say a famous figure that I am inspired by is Nikola Tesla because he was an inventor that was a very interesting guy…he came up with a lot of different ides that people didn’t necessarily really like…and they were actually very good ideas. He’s not very famous compared to Thomas Edison but I think he is a lot more important,” declared Brian Powell, the team’s main programmer. For him, the feeling of his success and the team’s success is the greatest motivating factor. “I guess I’m kind of self motivated because nobody in my family likes robotics for the most part and yeah, I enjoy doing that. Just the feeling of it, the success, the trouble shooting, and all i do to get to the point I’m trying to get to” he added.

And the great thing is, you don’t need any experience to be a part of the program. At least half the students in the club haven’t had any experience in engineering or programming before, and are now some of the best engineers and programmers the club has ever seen . “I have been in robotics for 0 years. This is my first year,” Wright mentioned, now a designer and engineer in his team. “I like what I do. It’s because I’m able to express who I am on that computer. Drafting and making things,” he added. And the best part is, it’s not too late to join; the robotics club is always looking for new recruits.

Taurus Technical Section

Meetings

Started with many people on the team (members)	still with the team	
Maddy- only skilled in VEX: one year	yes	
Gretchen- only skilled in VEX: one year		no
Jadon- never done robotics: no skill	yes	
Cean- never done robotics: some Fusion 360 Skill	yes	
Cameron- Only skilled in VEX : less than a year	yes	
Micah- never done robotics: some programming skills	yes	
Makenzie- never done robotics: no skills	yes	
Chanc- never done robotics: no skill	yes	
Sarah- never done robotics: no skill		no
Owen- never done robotics: no skill		no
Ethan- never done robotics: no skill		no
Alejandro- no robotics: some skilL		no
Connor- never done robotics- some programming skills		no

- NEW MEMBERS ADDED 1/9/19 Amy Latham, Emily Sells, Emily Stetson
- First meeting was on September 20th 2018 for this new year.
- Outreach: Jacqueline participated in the promotion of Robotics on the freshmen first day. Maddy participated in an outreach at a middle school in our town, John C. Fremont Middle School
- Fundraising: Collecting bottles and cans and turning them in at our local bottle drop. (This is where most of our money comes from for our entire club. We turn it into a competition between classes to raise the maximum amount of fundraising available. The entire school participates.)

September 25, 2018 Group entry
We spent some time talking over possible design ideas for our robot and began thinking of some of the chassis dimensions and attachments. Our mentors say that if there is more than 50% of the team at meeting then we have to have a unanimous vote to build anything and no ideas are discounted EVER.

November 3, 2018 Mackenzie's entry
A team meeting was held to discuss thought and ideas for the robot and the direction of the team as a whole.

November 11, 2018

Considering the fact that no one on the team has been in FTC before we really were not sure how to even get started. The returning members of the robotics club (Maddy, Jacqueline, Gretchen, Cameron) did not know what materials would be a part of the competition and were not sure how to delegate jobs, especially when the people being delegated too didn't know what they were doing at all. We also ran into another problem of the team just not showing up. We decided to meet two days a week on mondays and wednesdays because that was the agreed upon dates. Every week for probably about three weeks there was a total of 3-5 people in attendance. There needed to be some changes in the way that our team was being ran. The overall attendance of our team seriously improved the once we got our parts.

We got our kits around 2 weeks before competition 0. Most of us had seen that all the other teams in surrounding towns had already started posting videos of their finished robots. They had all received their kits before us. Once we got our parts our attendance increased drastically. When our team members actually had tangible things to do everyone was given a little more purpose.

11-15-18 Maddy's entry

The robot was disassembled in order to make the chassis more sturdy and stable. The parts were reassembled so that the chassis was tighter and less likely to break apart.

11-19-18 Cameron's entry

Different members of the team practiced driving and operating the robot. Small repairs were made where the robot experienced some wear and tear.

11-21-18 Maddy's entry

In order to make the chassis smaller the robot was disassembled into eight pieces and then rearranged in order to reduce the size of the chassis.

11-28-18

A team meeting was held to go over the direction the team was wanting to take with the robot and how we could increase productivity even more.

11-29-18 Jadon's entry

A new chain was created which was attached to the gears of the motor and the wheel.

11-30-18 Maddy's entry
Members from the team went to Fremont Middle School for outreach and assisted the team there with their robot.

12-03-18 Jadon's entry
The battery mount was created and mounted underneath the robot in a box that prohibited the battery from moving and allowed for easy access to the battery. Medium c panels were also added to re-establish the sides of the robot.

12-07-18 Maddy's entry
We didn't have enough motor mounts for the design we wanted to make so we took the measurements of one of the motor mounts we did have and drew up the dimensions on autocad. Then we used our schools 3d printer to print out two motor mounts which we then put on our robot. They took about an hour and a half to print.

12-18-18 Kenzie's entry
The first setup which was tested included a wheel mount which had the wheels outside of the chassis while the chain was setup inside of the chassis. The way the setup worked was that there was a small c panel that was underneath the chassis which was screwed perpendicular to the chassis. There was an axle through the cpanel on which there were gears that the chain moves which then causes the wheels to move when the chains move. The chains are connected to a motor which is mounted on top of the chassis. The current setup is similar to the original setup, but the wheels are now inside of the chassis which in turn reduces the size of the robot.

1-2-19 Jadon's Entry
We worked on making an intake system that only allows 2 minerals into the system. It also pulls the minerals in using servos that rotate with zip ties on the ends. So far, it is really effective.

1-6-19 Group entry
We decided to start making mandatory meeting days so that people wouldn't just randomly show up and have nobody else there. We decided Mondays, Wednesdays, and Fridays would be mandatory meeting days unless cleared by Maddy before hand.

1/9/19 Group meeting 1:57
We introduced three new members to our group

1. Emily Sells
2. Emily Stetson
3. Amy Latham

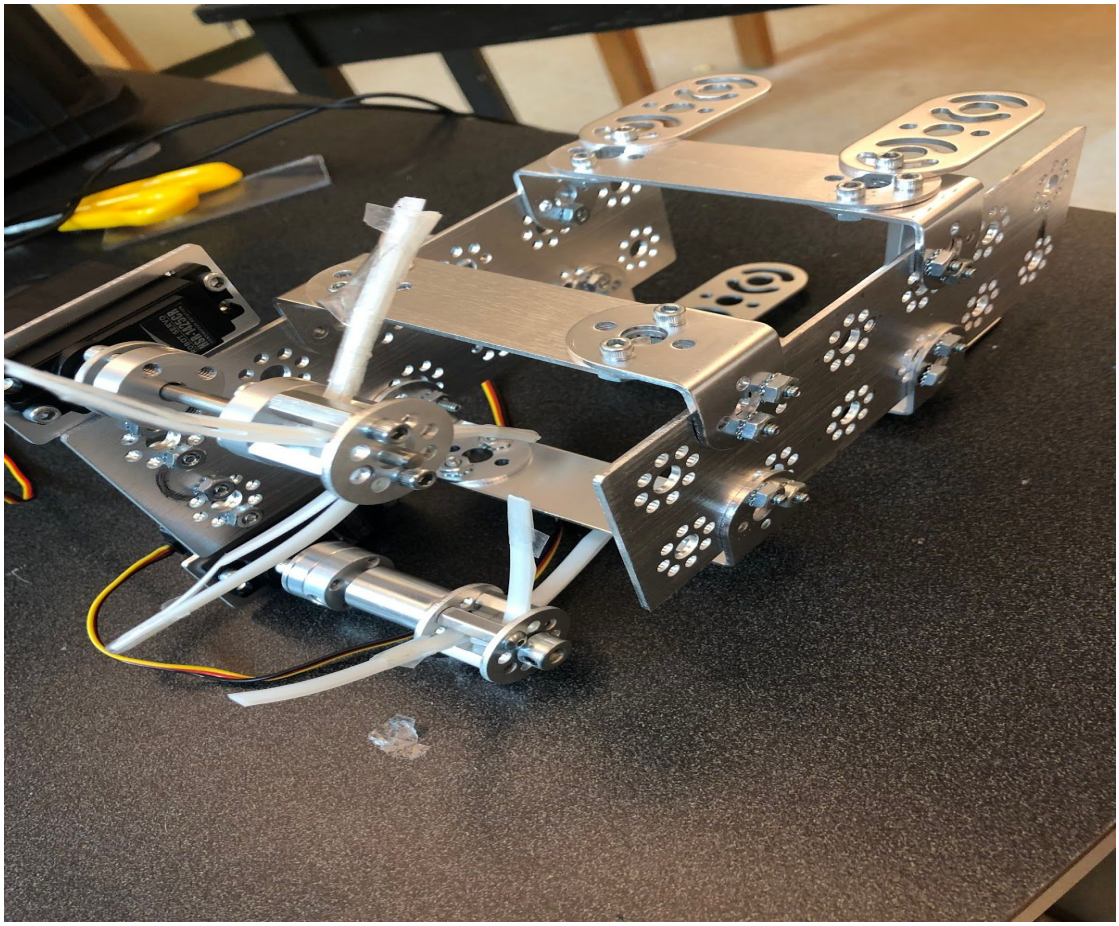
They were introduced to four members of the team (Madison, Jadon, Chanc, MacKenzie).
We talked about our parts that didn't come because of winter break (we ordered them before but they won't arrive in time to build before competition.
We discussed the wheels and where to put the expansion hub.
Madison said that they were originally wanting to change the robot back to where it was because the parts won't arrive in time but we are running into some problems such as parts not fitting together (intake, expansion hub, possible lift)
We are wanting to raise the chassi.
We are trying to get an arm and lift and we are all deciding how we should make it. We decided on a "sucking" idea for the intake system and a plastic rack track where the motor will move the gear which will move two racks up and down...elevator system
We are thinking of adding omni wheels to the robot
Ford Zeus will be immortal!

1/9/19-1/16/19 Emily's Entry
This is Amy, M, and I's first week on Team Taurus; M and I weren't able to join at the beginning of the year because of how busy we were. Amy was originally on Team Aries. The past week we've mostly been working on the engineering notebook, design ideas, and creating a website. I've been struggling to get people's bio's, but that is going fairly smoothly now. I've also helped some people with drawing out the design ideas before just building them.

Engineering Section

INTAKE SYSTEM:

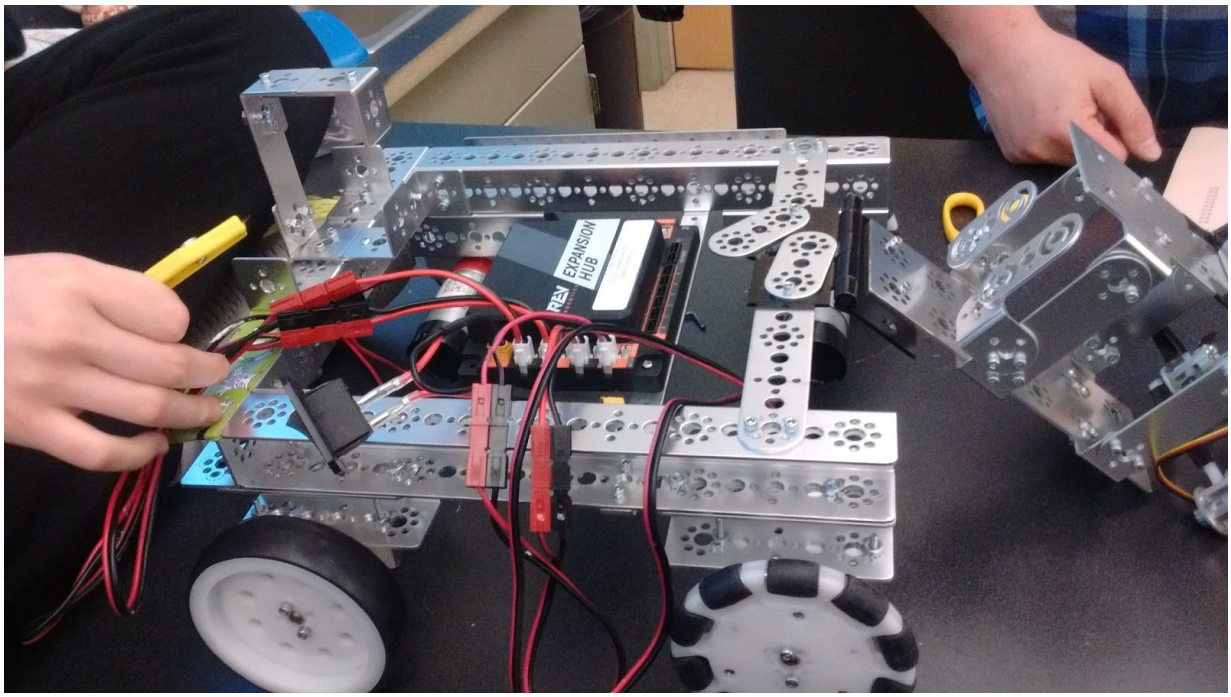
Our intake system is a rectangular tube with two intake servos on the side that spin, with two columns on the side that are just spaced perfectly so that the minerals can't slide out. These columns also attach the bottom and top plates to each other. On the inside there are stoppers that will only allow two minerals to enter the intake system. Once the robot is vertically up the minerals will be able to slide past the stoppers and land in the lander.



The Chassis:

We started with a pretty high off the ground chassi because we figured it would get over the crater easier. This worked pretty well for a while but after the 3rd tournament we realized that the reason our robot was flipping so easily during competition was because of the top heavy-ness. So, even though the weight was pretty evenly distributed on the main part the robot, it was unsteady when set on an angle. For example, we'd be driving during a competition and our driver would occasionally hit the wall as he was going into the crater, and that would sometimes cause the robot to get stuck on the crater wall and flip over. We thought this was a driving issue but really it was a weight distribution issue.

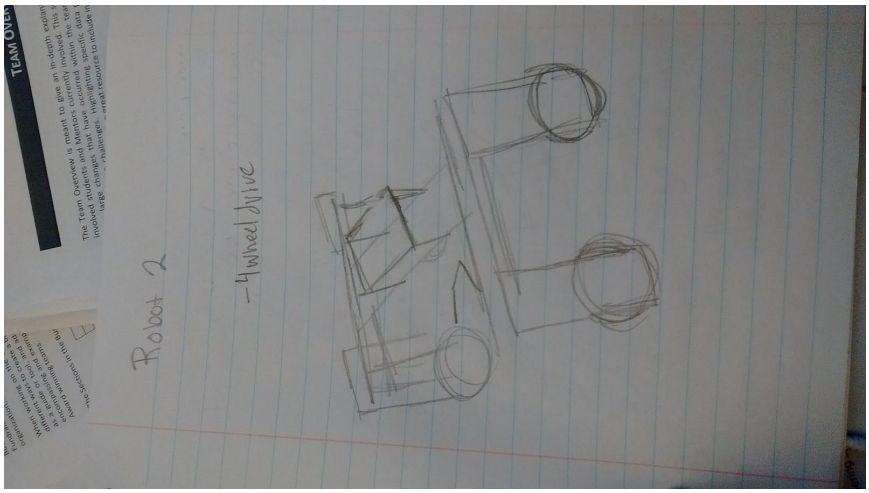
When we built our second chassis we made it shorter to fix the flipping problem or at least help it, and then we shortened it and made it all together smaller because one of the mechanical maniac members brought to our attention that our robot was really big without any reason for being really big. This ended up giving us more room to build on to the chassis also.



The Wheels:

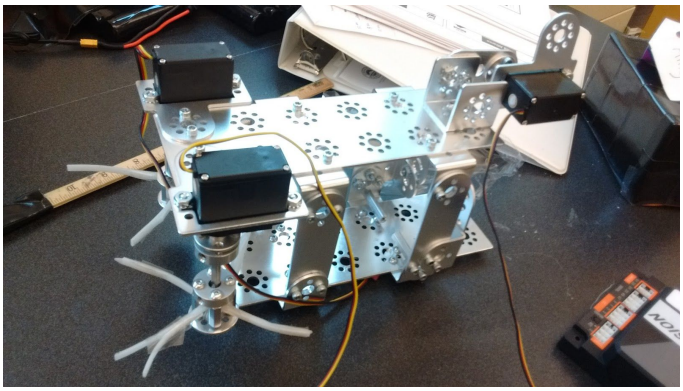
We put two omni wheels on the front for easy turning and mobility and two larger more regular wheels in the back so that we could get over the crater. We thought we would have to get over backwards with the bigger wheels that had more friction. We ended up being able to get over forwards and backwards, though there was the weight issue. We applied two wheel drive with the two back wheels having the motors and then chain connecting the front and back wheels. The chain braking process was new for pretty much everyone on our team but our fellow RHS robotics team Scorpio was extremely helpful and taught us how to do it. They helped us and took us under there wing a lot during the season and we really appreciated their help.

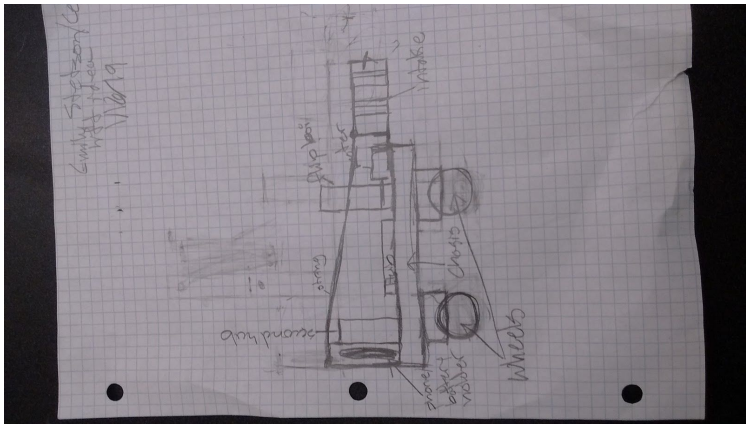
We eventually went to four wheel drive when we changed the size of our chassi , this was good since it gave our robot more power and a lot of the wheel issues were eliminated when we went to four wheel drive. An example would be our wheels came really loose every time we drove and we had to vigorously tighten and we believe it was not only poor wheel design but also a chain issue that we still really aren't sure about but when we went to four wheel we also removed the chain. So far, we haven't had any problems with the four wheel drive .

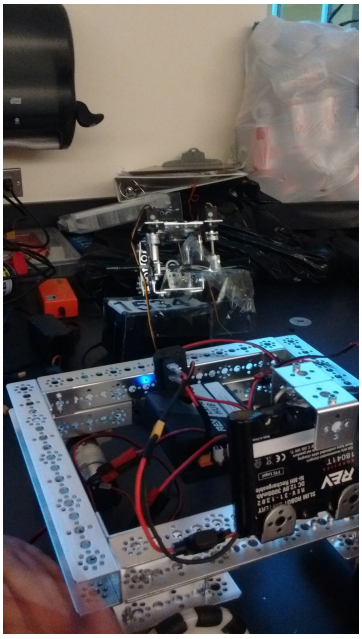


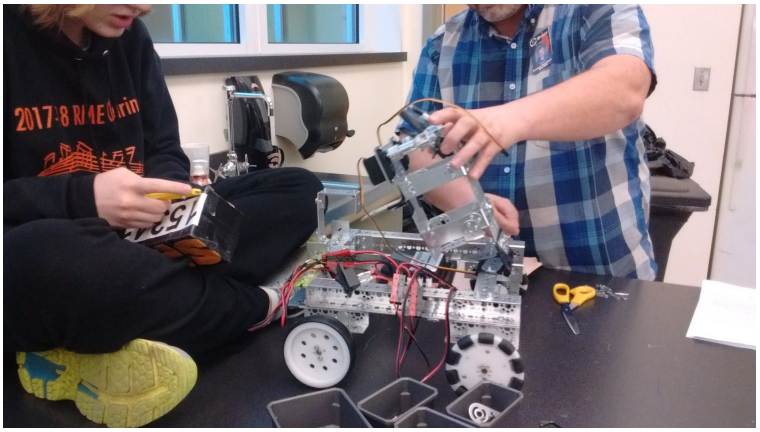
The Lift :

We didn't get the parts for our lift system that we wanted in time, so we had to adapt. What we had wanted was a rack and pinion type lift, but again, the parts didn't get here. SOOOO...to overcome that challenge, we had to decide to try a different type of lift. The lift that we are planning on using is kind of like an arm. The chassi is almost like the bicep, and the lift is like the forearm. The arm is powered by a 60 motor, and rests at a diagonal so that we can fit into the 18x18x18 cube. We hand the lift while it is at that angle, and during the autonomous, the chassi is lowered down to the ground.









Programing Section

Autonomous:

We started out meet zero without an autonomous, but had one for the first meet where our robot moved forward and drove up to the edge of the depot and then a bar, connected to a servo, swung forward to knock our claim icon into the depot. This worked almost all the time of the time and we had no color sensor.

Our second autonomous accomplished a bit more and was much more effective Instead of a bar swinging out that sometimes only grazed the top of our robot, we built a catapult-like hull and used a servo to swing our claim icon into the depot. This shot the item much further.

Our current autonomous is very similar but with a different chassis and wheel base.it was written from scratch and used to accomplish the same feat but our future ideas are very interesting.

Driver Controlled Period:

This portion of the code allows the driver to control every movement of the robot. We control the robot using a video game controller.

```
package org.firstinspires.ftc.teamcode;

import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import com.qualcomm.robotcore.eventloop.opmode.TeleOp;
import com.qualcomm.robotcore.hardware.CRServo;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.DcMotorSimple;
import com.qualcomm.robotcore.hardware.Servo;

@TeleOp(name = "PartnercontrolRecommended3 (Blocks to Java)", group = "")
public class PartnercontrolRecommended3 extends LinearOpMode {
```

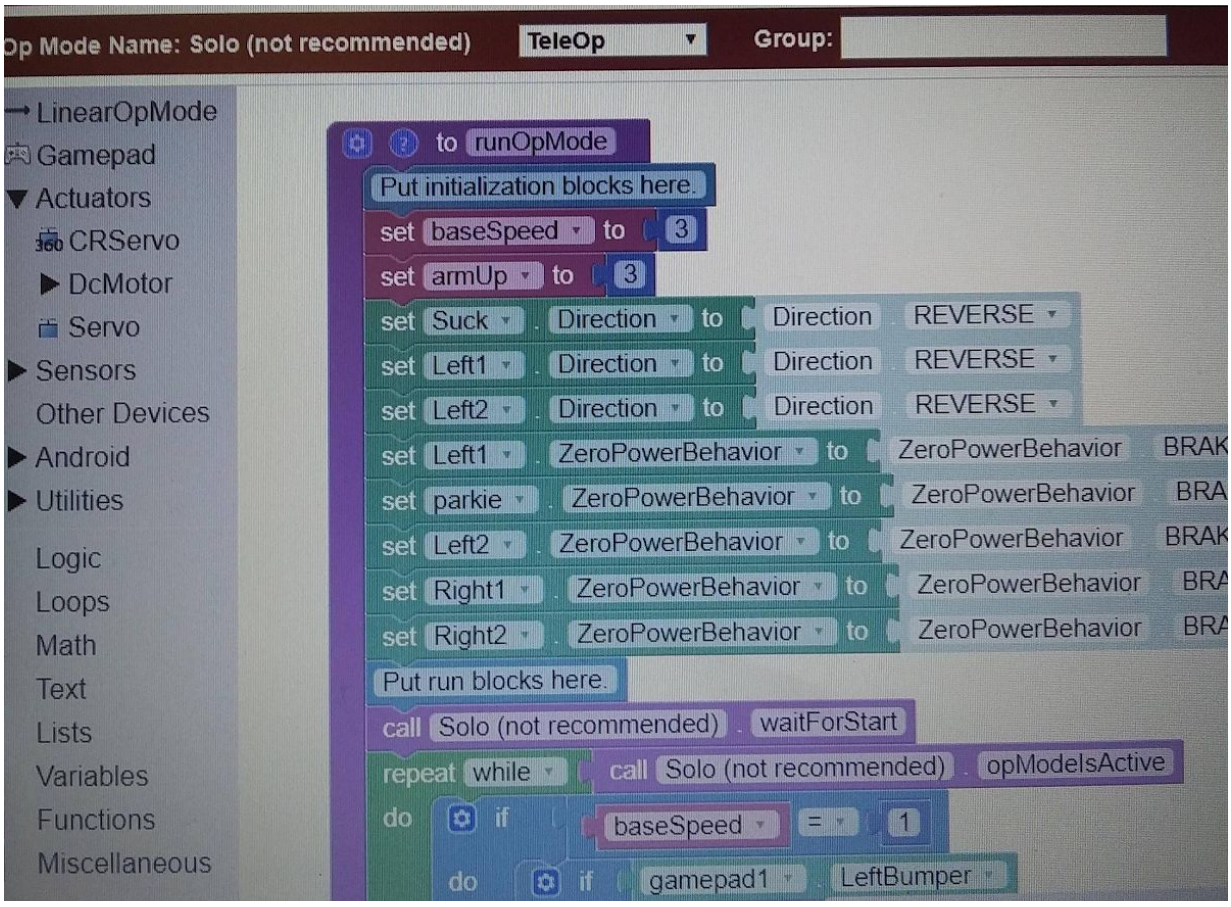
```
private DcMotor Left1;
private DcMotor Left2;
private CRServo Suck;
private DcMotor Rope;
private DcMotor Right1;
private DcMotor Right2;
private Servo Boxwacker;
private CRServo Food;

/**
 * This function is executed when this Op Mode is selected from the Driver Station.
 */
@Override
public void runOpMode() {
  double armUp;
  double baseSpeed;

  Left1 = hardwareMap.dcMotor.get("Left1");
  Left2 = hardwareMap.dcMotor.get("Left2");
  Suck = hardwareMap.crservo.get("Suck");
  Rope = hardwareMap.dcMotor.get("Rope");
  Right1 = hardwareMap.dcMotor.get("Right1");
  Right2 = hardwareMap.dcMotor.get("Right2");
  Boxwacker = hardwareMap.servo.get("Boxwacker");
  Food = hardwareMap.crservo.get("Food");

  // Put initialization blocks here.
  baseSpeed = 3;
  armUp = 3;
  Left1.setDirection(DcMotorSimple.Direction.REVERSE);
  Left2.setDirection(DcMotorSimple.Direction.REVERSE);
  Suck.setDirection(DcMotorSimple.Direction.REVERSE);
```

```
Rope.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
Left1.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
Left2.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
Right1.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
Right2.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
// Put run blocks here.
waitForStart();
while (opModeIsActive()) {
  if (baseSpeed == 1) {
    if (gamepad1.left_bumper) {
      baseSpeed += 0.25;
    }
  } else if (gamepad1.right_bumper) {
    baseSpeed += -0.25;
  } else if (gamepad1.left_bumper) {
    baseSpeed += 0.25;
  } else {
  }
  if (gamepad1.a) {
    Boxwacker.setPosition(1);
  }
  if (gamepad1.y) {
    Boxwacker.setPosition(0);
  }
  Food.setPower(gamepad2.right_trigger - gamepad2.left_trigger);
  Suck.setPower(gamepad2.right_trigger - gamepad2.left_trigger);
  Left1.setPower(gamepad1.left_stick_y / baseSpeed);
  Left2.setPower(gamepad1.left_stick_y / baseSpeed);
  Right1.setPower(gamepad1.right_stick_y / baseSpeed);
  Right2.setPower(gamepad1.right_stick_y / baseSpeed);
  Rope.setPower(gamepad2.left_stick_y / armUp);
  Rope.setPower(gamepad2.left_stick_y / armUp);
  if (gamepad1.dpad_down) {
```

```
        Left1.setPower(0.25);
        Left2.setPower(0.25);
        Right1.setPower(0.25);
        Right2.setPower(0.25);
      }
      if (gamepad1.dpad_up) {
        Left1.setPower(-0.25);
        Left2.setPower(-0.25);
        Right1.setPower(-0.25);
        Right2.setPower(-0.25);
      }
      if (gamepad1.dpad_left) {
        Left1.setPower(0.25);
        Left2.setPower(0.25);
        Right1.setPower(-0.25);
        Right2.setPower(-0.25);
      }
      if (gamepad1.dpad_right) {
        Left1.setPower(-0.25);
        Left2.setPower(-0.25);
        Right1.setPower(0.25);
        Right2.setPower(0.25);
      }
      telemetry.update();
    }
  }
}
```

Robot Controller Console:

Our method of programming was through a wireless connection through the FTC app onto one of our laptops. Through this process, we were able to use the robot controller console to effectively and efficiently use its drag-and-drop block coding system to create both our autonomous and our manual controls.

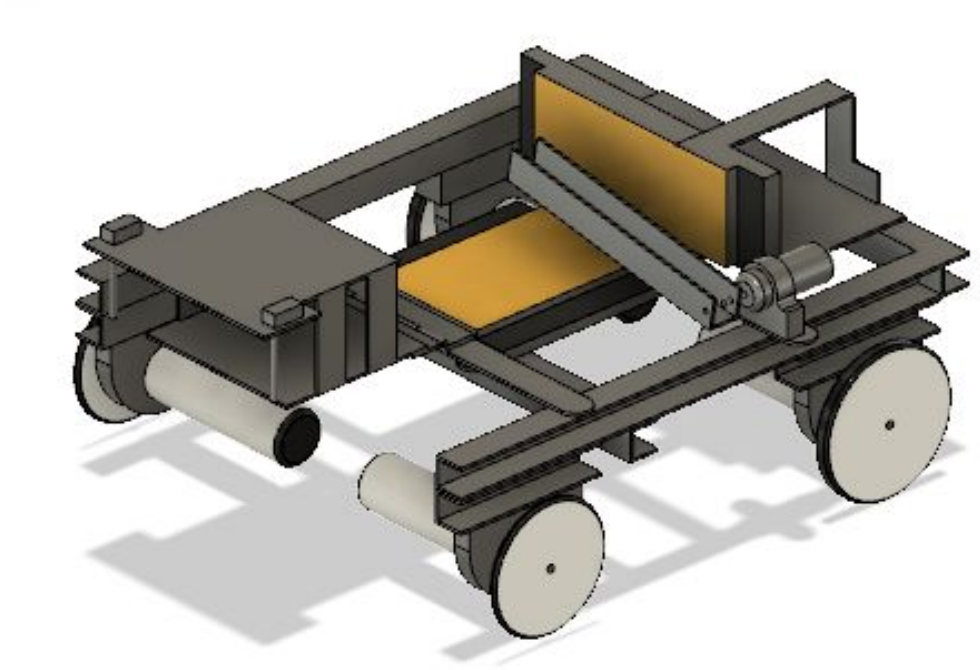


Design

Our various half-inspired- half-thought through design ideas for our robot.

Fusion 360:

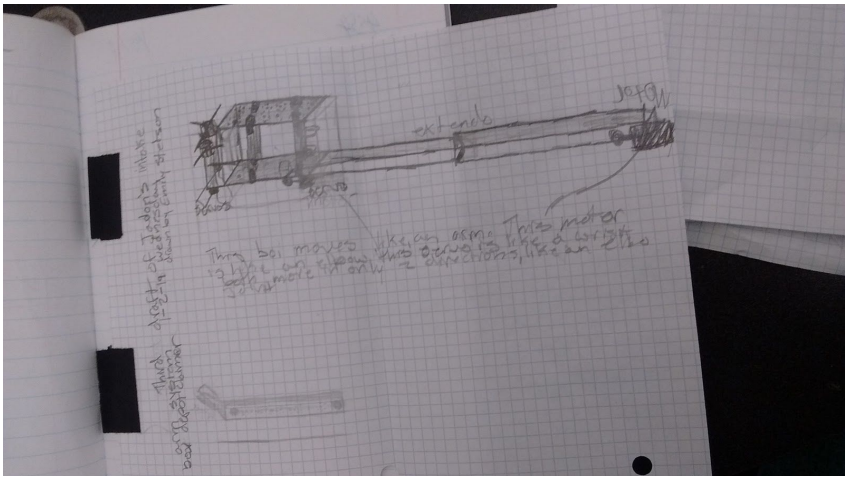
In fusion 360 we made a 3D model of our current robot configuration, this model helps us

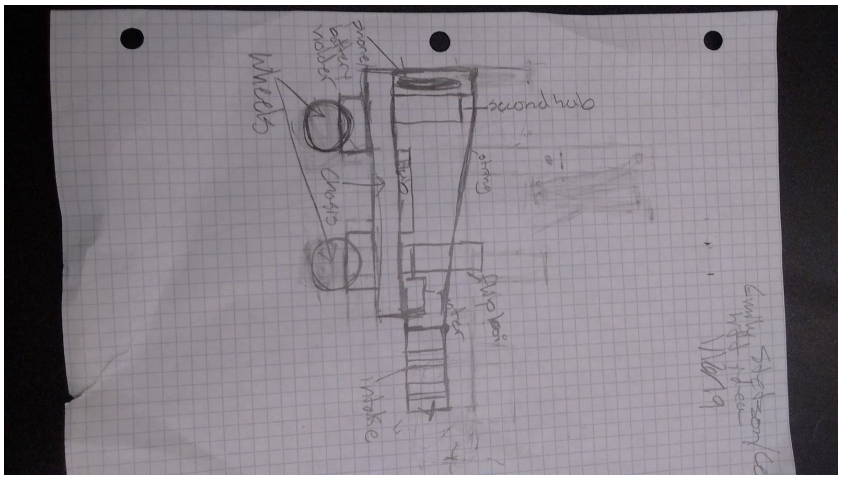


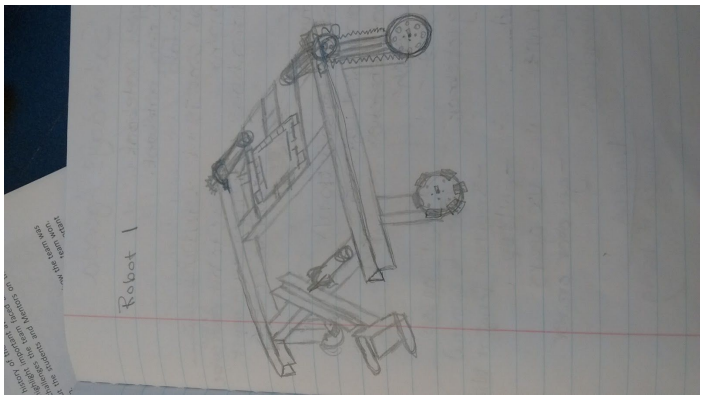
show and explain our robot even when we can’t have it with us. We created this in the program Fusion 360, which is created by Autodesk and the team is allowed to use it via Autodesk's student program. The program is very versatile and useful, it allows us to make models and design even if we can't have materials on hand. It's a tool that helps us visualize what were working with and it's a very helpful tool.

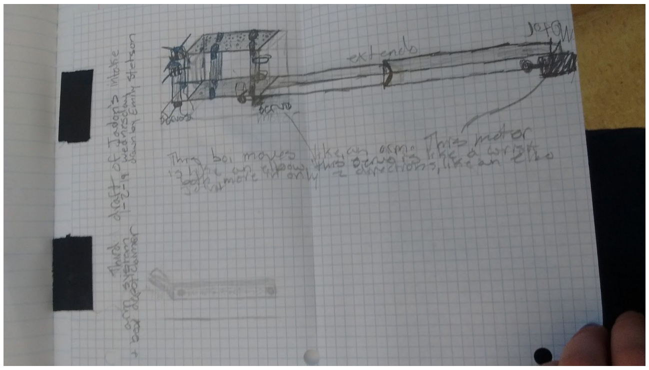
Drawings:

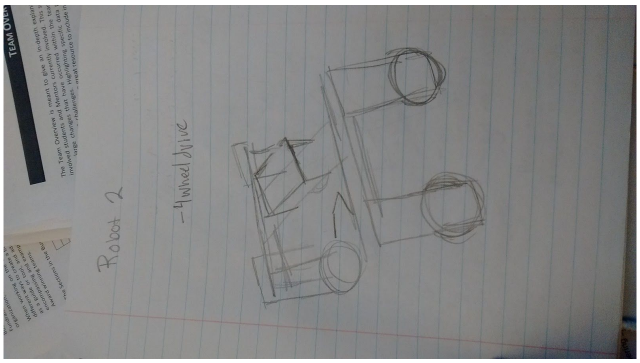
Another form of designing our designers do is draw sketches into our team notebook. Often times it's just a quick sketch, but when we really start to talk it out as a team, that's when you get the more detailed drawings. A lot of them are just parts of the robot, such as the wheels or the intake system. These sketches are only used when our designers who do the drafting aren't here. Here are some of our examples:

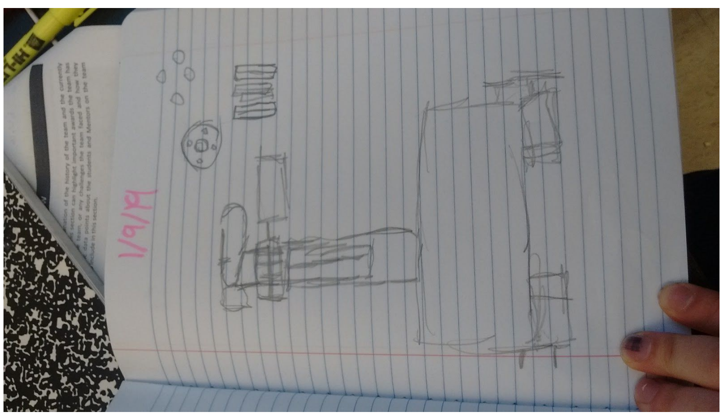


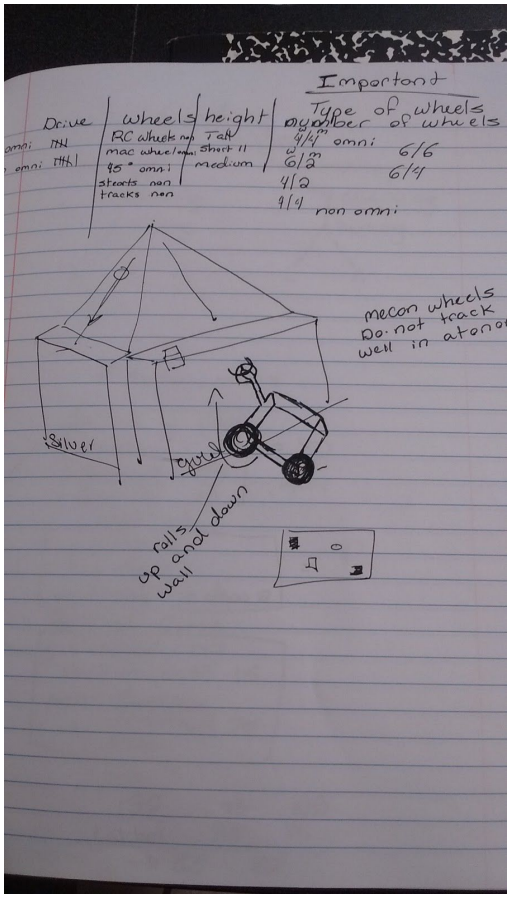


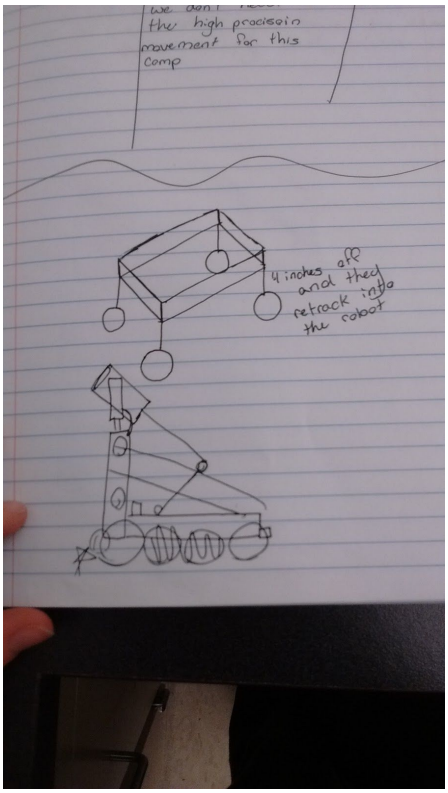


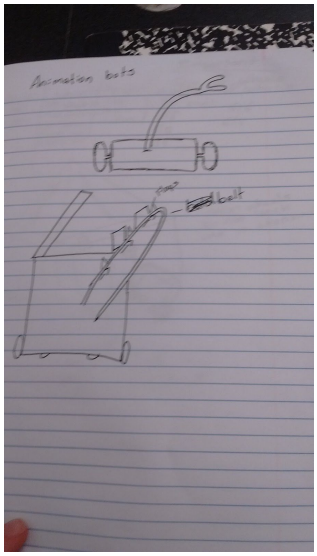



Robot 2
-4 wheel drive


1/9/19

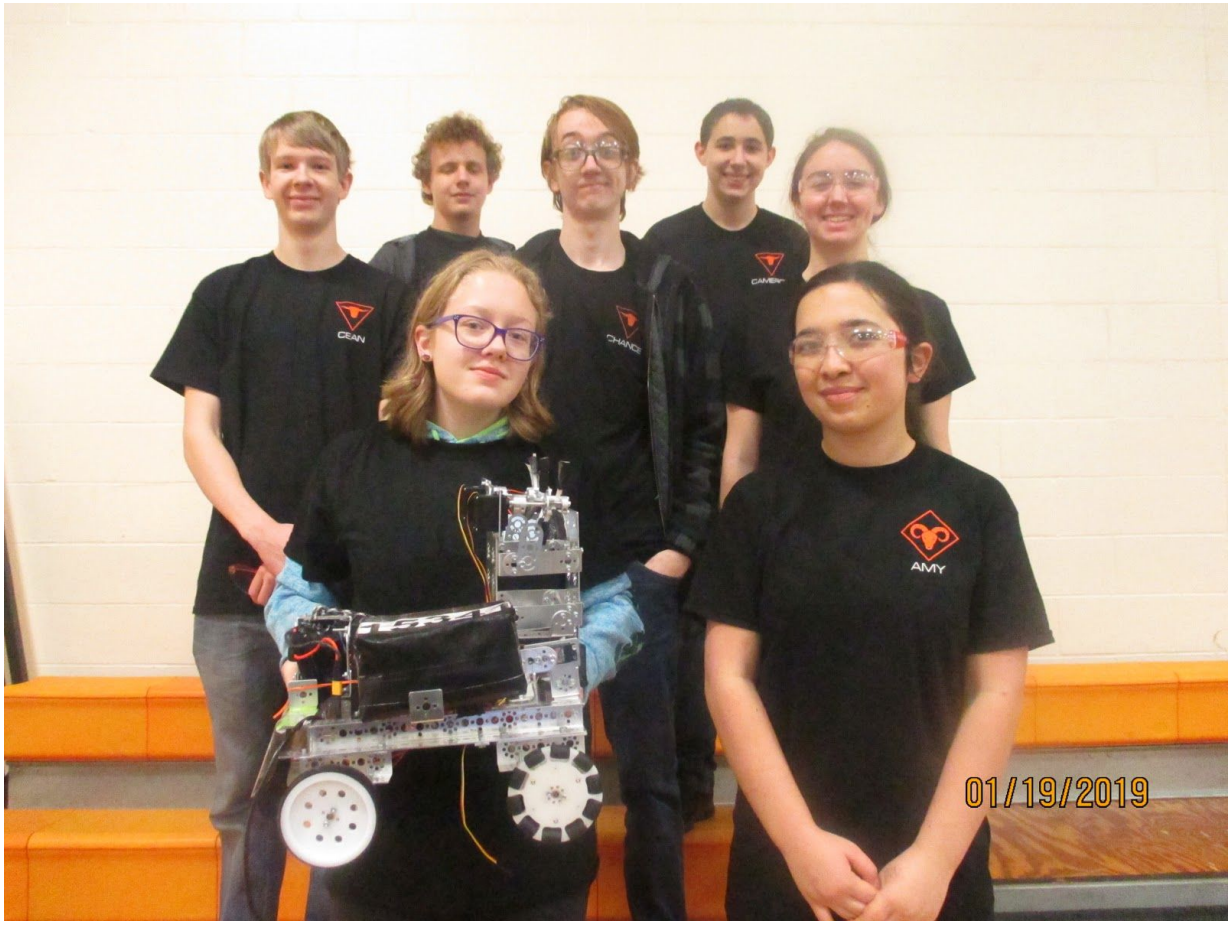

Important
Drive
Wheels
height
Type of wheels
number of wheels
RC wheels non
mac wheels omni
95° omni
streets non
tracks non
Tall
short II
medium
4/4 omni 6/6
6/2 6/4
4/2
4/4 non omni
mecon wheels
Do not track
well in atono
silver
rolls up and down wall


the high precision
movement for this
comp
4 inches off
and they
retrack into
the robot


Animation bots
belt

Taurus Business Plan

FIRST FTC 4562 Team 15341, Roseburg High School



Introduction:

Taurus, Team 15342, FTC, is a FIRST Tech Challenge team. We design, build, program, modify, and test robots for challenges that FTC gives us every year. We are a first-year team from Roseburg High School consisting of 9 team members (5 girls, 4 boys), ranging from grades 9-12. Our motto is, "We strive to do the very best work that we can and to work together as a team in order to fulfill our goals,". We hope to make it far into competition, and hopefully motivate other future rookie teams that it is possible to be one of the best teams in our state or even our country.

We take things very seriously in our school. Everyday, we show up and get right to work. Some days, we hold meetings and discuss ideas for the robot, and won't build and idea until everyone is happy with the outcome. If they aren't, we adjust so that nobody feels left out. We also take gracious professionalism seriously. When we scout other teams before competition to talk about our alliance, we make sure to never say anything negative about their team or robot, and try to help them in anyway that we can, because we want to help any team that runs into trouble.

Mission Statement:

Taurus Robotics is is proud to inspire young kids to become interested in STEM and hopefully even make a career out of it. We plan to do this by:

- Holding more presentations for younger kids
    - Schools
    - FLL tournaments
    - Booths at fairs
- Spreading the word out through the community so parents know about us through:
    - Social media
    - Websites (blog)
    -

Team & Program Summary:

For the 2017-18 school year, there was only two teams at Roseburg High. Team 13188, Leo (known as Scallywags last year) and team 13189, Scorpio. This year, there are four teams at RHS: Aries (15342), Leo (13188). Scorpio (13189) and Taurus, (15341). This

is Taurus' and Aries' rookie year, and Leo's and Scorpio's second. The club started running this year around late September/early October, and teams started running around mid October.

The teams were started when more people started getting interested in robotics at our school, and two teams just simply were not enough. While most teams' members stayed, we got into a rough spot when some of our members quit, and some members' schedules got busy so they could only come a certain amount of days a month. But after winter break, three members joined our team which helped balance us out a little bit compared to the other teams (we were a team of 6 right before they joined).

To us, **F**or **I**nspiration and **R**ecognition of **S**cience and **T**echnology **(FIRST)** is a huge reason as to why more kids and young adults are getting more and more interested in STEM. FIRST is gracious professionalism, kindness, and hardwork.

Team Impact and Outreach:

As mentioned before, our outreach consists mostly of presentations and volunteering at Fremont Middle School. We feel that we have inspired many of the younger **FIRST** members to be a part of FTC and pursue a job in the STEM field. When we gave a presentation to kids and parents at a lego league tournament, many of the FLL members were asking things such as "What does this do?" or "Wow! That's so cool! What is FTC like?" and even "How do I join!?".

As current **FIRST** members, it is important that younger students become interested in robotics early so they can gain experience and end up more successful in robotics, building up their mental toughness as well as ability to participating in STEM classes.

Team History:

In late September, people were sorted into their teams. There was Scorpio, the top team, Taurus and Aries, the second-top team, and Leo, the third-top team. That was when Taurus and Aries were born. Originally, Roseburg High School had two FTC team, team 13188 (Team Leo, originally Team Scallywags) and team 13189 (Team Scorpio), but there were so many people signing up that two teams just weren't enough so Taurus and Aries were created. While Aries members stayed pretty consistent with only two members having to quit, Taurus struggled to keep members. After starting with about 13 people, they were down to 6. But after winter break, three members joined Taurus, which helped even it out a little bit. One transferred from Aries, one joined after finally being free of a busy schedule, while the last one was a recruit. Which takes us to the present, and with new roles on the team, we are getting things done with much more efficiency.

Team Mentors:

The RHS Robotics Club is thankful for the mentors that have helped us in the past. Three of our four mentors have just graduated high school in spring 2018 (Josiah Van Hatten [Mechanical Maniacs], Kohlton Kuczler [Mechanical Maniacs], and Joe [Scorpio]) and Will Goodwin who is a professional programmer and gave us some tips on programming. We also wish to give a huge thank you to our coaches, Mr. Weir and Ms. Knight, for all the help they've given us during the season.

Team Sponsors:

We would like to give a huge thank you to TNT for getting us a donation. We really appreciate the parts we could buy for our club's robots. We would also like to thank Dominos for their donation of Pizzas which we sold at concessions stands by the Robotics Parents Organization (a big thank you to them as well) to raise money for our club for new parts. Another thank you to Sherms, Performance martial arts, and Cow Creek Tribe for giving us money. Finally, a huge thank you to U-Haul for their donation of boxes for our bottles and cans fundraiser drive.

TNT
Robotics Parent Organization - Support and selling in the concession stand at FTC meets
U-Haul- boxes for robotics can drive
Dominos - pizza for FTC meets
Performance martial arts - monetary donation
Sherms - monetary donation
Grant with special contribution from Cow Creek Tribe

Team Management

Team Membership:

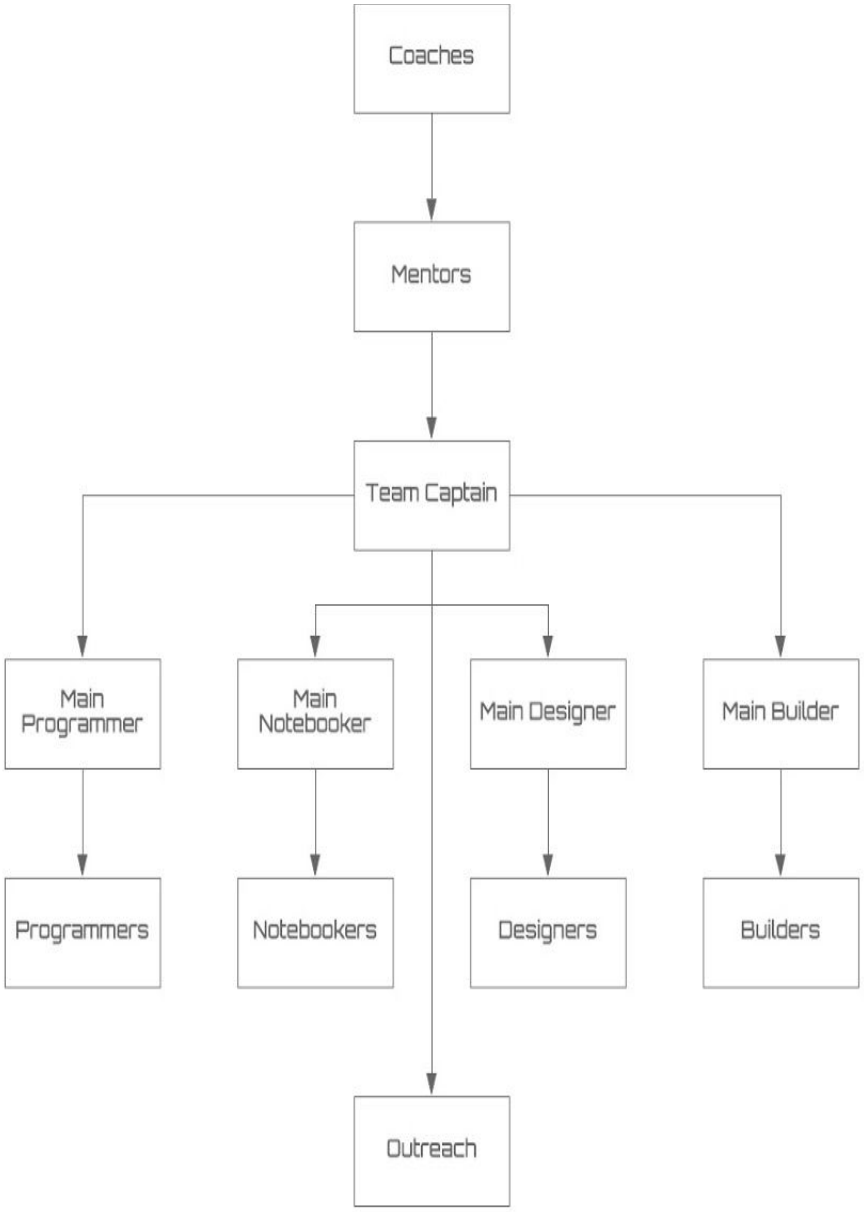
Being a part of Taurus means commitment. To us, we try to have as much of the team together at one as we can, when other extracurricular activities and family plans don't interfere, but at the same time, grades are also very important to us. A lot of our members may not show up to practice on some days so they can bring up their grade, study for finals, or get an important project done for a class.

Before being put on a team, the club officers divide everyone randomly into a few groups as a trial run to see how individuals work as a team. Each officer studies a certain amount of people which goes into deciding what team that person will be on. There are many things that go into consideration when one's being put on a team, such as experience, amount of days they are willing to show up to practice, how they participated in the "trial run", and their work ethic.

Our team has 8i high expectations. When a person shows up to practice, they are expected to be on task the full time they are there, and to behave and show gracious professionalism to the teams who are there. We also try to understand the circumstances when our teammates can't show up to practice, and we always appreciate it when we are warned at least at the beginning of the day if someone is going to miss practice so we know what needs to be done and who else can take over that person's job for that day.

Team Structure:

In our team, we have certain roles to make sure everything gets done in a timely manner. We have run into some problems with this however, for some of Taurus' members quit, and one of them was the notebooker. But, we had three members (one of them transferred from a different team) immediately after winter break, so we have been getting more done, especially in designing, outreach and notebooking. Our team is broken down like this:


Coaches
Mentors
Team Captain
Main Programmer
Main Notebooker
Main Designer
Main Builder
Programmers
Notebookers
Designers
Builders
Outreach

Strategic Planning Process/Swot Analysis

The SWOT analysis was used to evaluate the **Strengths**, **W**eaknesses, **O**pportunities, and **T**hreats to FIRST team 15341 Taurus. The strengths and weaknesses refer to the factors of our team, and the opportunities and threats refer to what may happen if something is changed.

Strengths: • **Two Coaches** • **Two team computers + people bring their own** • **Good sponsors** • **Hardworking students**	**Weaknesses:** • **First-year team** • **Some members have quit** • **Not many regular mentors** • **Sometimes procrastinate** • **Not everybody can be at meetings all the time**
Opportunities: • **Do well as a first-year team and show other teams it's possible** • **Find new mentors who are good at different parts in robotics** • **We can pick up on our act and work harder**	**Threats:** • **May lose sponsors if we don't do well** • **Some students may find boring if we don't make it past League Tournament and quit** • **We may not get things done as efficiently in the future or not do well in competitions**

Future Plans:

Team 15341 is a hardworking team who do our best to solve problems whenever they arise. In order for us to continue this progress, we have made some goals:

- Become active in the community to bring in possible donors which in turn will help us buy parts or do stuff for outreach
- Try to recruit 3 people per team member to robotics to get new members
- Promoting STEM in youth areas
- Become a recognized team in the FIRST community for our hard work and gracious professionalism

We plan to achieve these goals by forming a thoroughly working plan and try getting things done for stuff before it happens.

In addition to inspiring kids and teens in our community to get out there and make a difference, Team 15341 plans to spread the word out about **FIRST** in bigger and better ways, such as making Youtube videos, and fliers around our community,

Action/Implementation Plan:

Strategy	Actions	Group Responsible	Planned Completion
Talk to some people	**Talk to a news reporter at the news paper**	**Team 15341**	**September 2020**
Have members tell other people about robotics	**Post fun pictures on social media, tell fun stories about robotics**	**Individual team members of Team 15341**	**September 2019**
Hold more presentations	**Ask principals at elementary and middle school about holding presentations**	**Team 15341**	**June 2020**
Show people how our team works	**Youtube videos, Talk to other teams, Show more gracious professionalism**	**Team 15341**	**September 2020**

Team Budget

Our Income and Expenditures			
Item #	**Date**	**Explanation of Item/Fundraiser**	**Amount**
1	9/10/2018-11/5/2018	Bottles and Cans Drive TOTAL	$466.05
2	7/30/2018	RHS Foundation Grant Reimburse Robotic	$600.00
3	11/5/2018	Concession Stand @ Tournament 0	$545.00
4	11/17/2018	Concession Stand @ Tournament 1	$759.75
5	12/8/2018	Concession Stand @ Tournament 2/3	$800.00
6	N/A	N/A	N/A
7		**TOTAL FUNDRAISED:**	**$3170.80**
1	10/2/2018	REV FIRST Tech Challenge Competition Set*	$396.39
2	10/2/2018	FTC Team Registration*	$275.00
3	10/12/2018	Organizing Bins, Rolling Systems, Tool Box**	$353.64
4	10/13/2018	TETRIX MAX 4.7 mm Axle (Quantity: 4)	$63.80
5	10/13/2018	TETRIX MAX Sprocket and Chain Pack (Quantity: 6)	$419.70
6	10/13/2018	TETRIX MAX Continuous Rotation Servo (Quantity: 8)	$159.60
7	10/13/2018	TETRIX MAX Worm Gear Box (Quantity: 4)	$139.80
8	10/13/2018	TETRIX MAX Structure Pack (Quantity: 2)	$238.00
9	10/14/2018	0.770”-0.625” Pattern Adapter (Quantity Of Each: 32) Clamping D-Hubs (Tapped), 0.770” Pattern	$345.87
10	10/14/2018	Color Sensor V2 (Quantity: 6) Switch Cable and Bracket (Quantity: 8) JST PH 4-pin Sensor Cable - 4 pack (50 cm) (Quantity: 2)	$84.00 \ $48.00 - **$152.41** $10.00 /
11		**TOTAL COSTS:**	$

*= only one of item

**= There were 6 organizing bins, 3 rolling systems tool boxes, and 3 Tool Boxes

We have $626. 59 in reserves for our account>

Team Contact Information:

Website:
Team Email: taurotics@gmail.com
Facebook: Roseburg High School Robotics
Instagram: rhs_robotics

Main Contacts:
Mentor Names: Joe
Title: Former team member of Scorpio

Team Meeting Information:
Location: Roseburg High School Robotics Room
Dates: Every Monday, Wednesday, and Friday
Times: 3-5 P.M. on Mondays and Fridays and 2-5 P.M.

Sponsorship information:
Checks should be payable made to: Taurus, Team 15341
Donations