
Scorpio
13189

Scorpio

13189

A Little Bit about Us...

LAUGHTER

EXPANDING OF KNOWLEDGE

HARD WORKERS

MUSIC AND DANCING

LOTS OF ROBOTIC STUFF ... EVERYWHERE!

Was that 7 seconds? Maybe a little longer? I read somewhere that first impressions are made within the first 7 seconds upon laying you eyes on something or someone. Of course, that time was started when you laid your sophisticated eyes upon this notebook, but besides the fact, the words stated above are what WE, SCORPIO ROBOTICS TEAM, are all about. You will find those words when you walk into our workplace, and not just there. We carry these with us wherever we go: other schools, businesses, colleges, competitions, etc! Our team began as a group of unfamiliar people joined with our love of making metal scraps. But now, we are so much more. I personally have found so many more friends. *I love robotics, but not just for the artificial intelligence. The real people are what make it most fun.*

Ok. So now to the Notebook itself. It was created my Madeline Patrick (me) with the words of everyone incorporated. The… beautiful photography… was a team effort. And the "Team Member Interviews" were individually done.

We would like you to read our notebook like an informational but fun robot chapter book. Each new chapter will have a picture, a title, and a tab. You can access the list of tabs associated with each chapter on the following page.

Table of Contents :

Members of our Team

Morgan Whitaker

Andrew Whightsil

ALEX CHURCH

Madeline Patrick

Kou Castle

LUIS CERVANTES

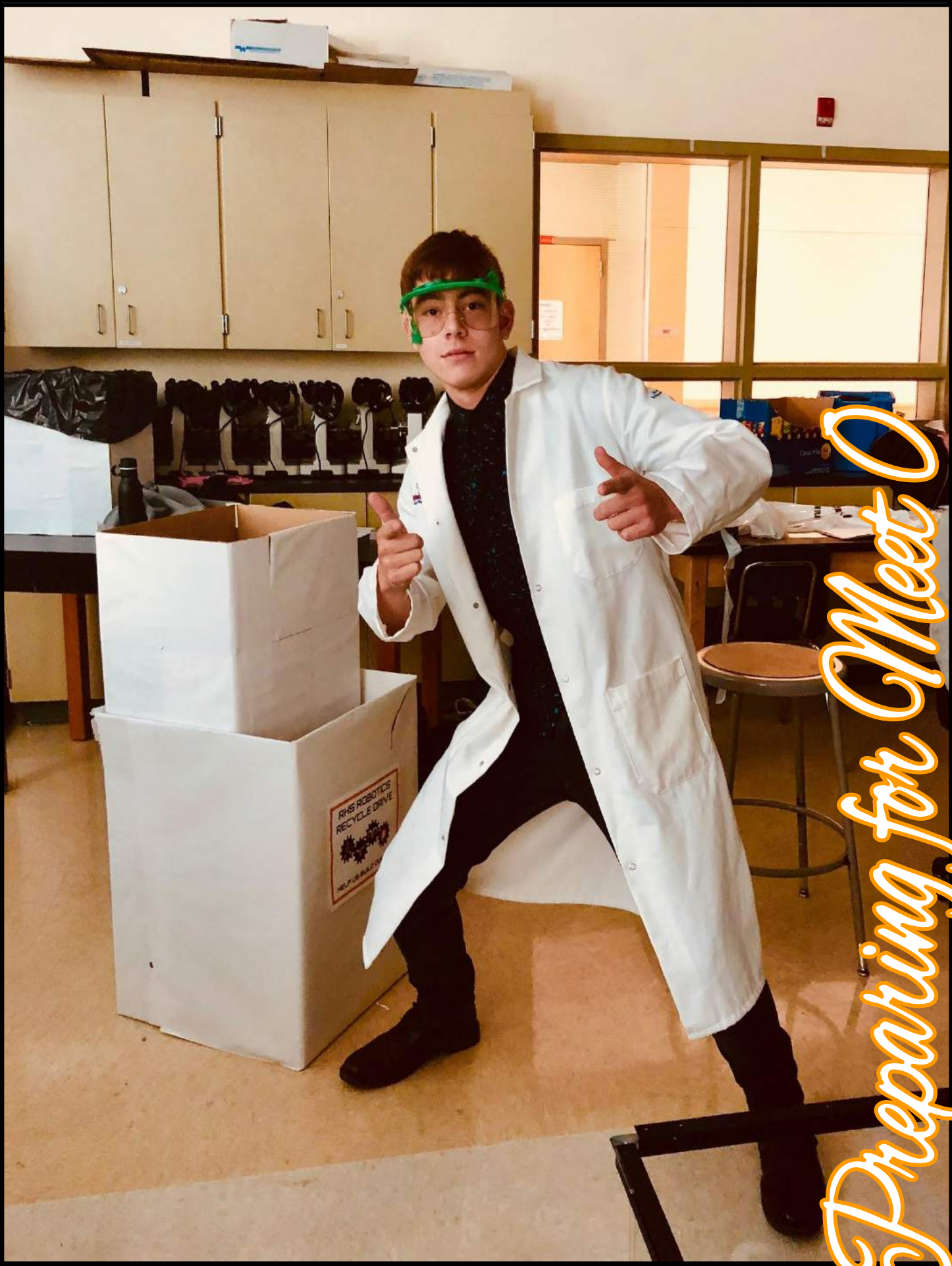
JACE PALMER

Ethan Eichman

Michael Kiepert

Sam Eggers

Chase Forsloff



Preparing for Meet 0

Engineering Notebook. Scorpio.

Team Meetings. Monday - Friday. 14:40 - 16/17.

First tournament: November 3

Wednesday, October 3 -30 days till competition-

- Finally designs for drive.
- Finished the build of the program testing robot.
- Read more of the game manuals.
- Worked on programming.
- Started lift design.

Thursday, October 4 -29 days till competition-

- Started the engineering notebook.
- Finished program for drive.
- Tested program for drive on program testing robot.
- Furthered our knowledge of programming.
- Worked through problems with robot.

Friday, October 5 -28 days till competition-

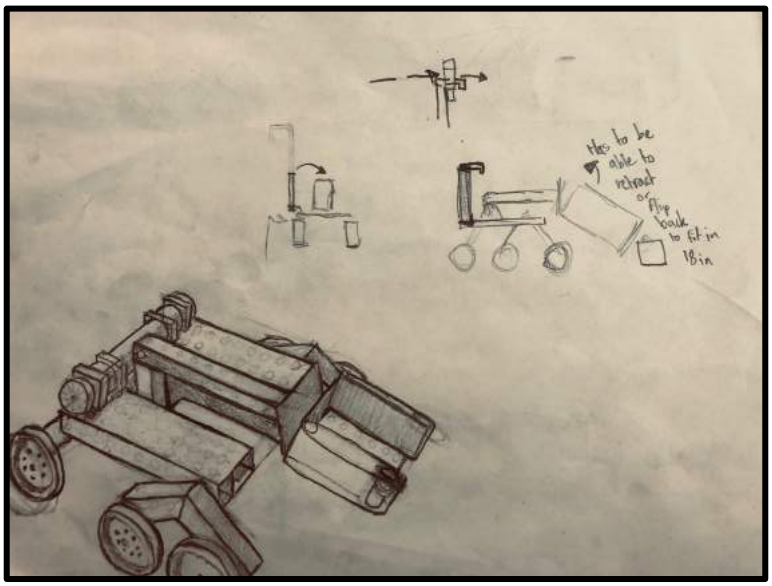
GOAL$:

- ➔ Bottle and can collection.
- ➔ Further progress on the code for test/learning bot.

WHAT WA$ ACCOMPLI$HED:

- Change of plans with the bottles and cans… the collection job went to team aries (another RHS robotics team).
- Editing program for tester robot.
- After the accomplishment of the editing of code, practicing of driving took place.
- Refining drive model for tournament robot.

In this process, the pair of wheels shown in the picture, were not originally powered. The team then realized that would create a problem when trying to leave the crater, due to the set of wheels being dead weight. To fix this problem, we have changed the design to power the middle wheels, along with the original powered front wheel.



- Research on debugging code.
- Practiced programming for those educated enough, and learned/taught coding for those who needed help.

Monday, October 8 -27 days till competition-

GOAL$:

- ➔ Lift design
- ➔ Collaborating on designs including chassis, drive, arm, etc.

WHAT WAS ACCOMPLI$HED:

- Discussion and edits to all designs.

Andrews quote: "STRIVE FOR THE IMPOSSIBLE"

- Designs on drive and lift discussed (not permanent).

Tuesday, October 9 -26 days till competition-

GOAL$:

➔ Establish chassis design so we can start building, and solve how we are going to attach the intake, arm, etc.

WHAT WAS ACCOMPLI$HED:

- Purchased Lexan.
- Made a final decision: THE ROBOT WILL HAVE THREE WHEELS ON EACH SIDE, INSTEAD OF FOUR.

Wednesday, October 10 -25 days till competition-

GOAL$:

➔ Decide the materials to construct the intake.

WHAT WAS ACCOMPLI$HED:

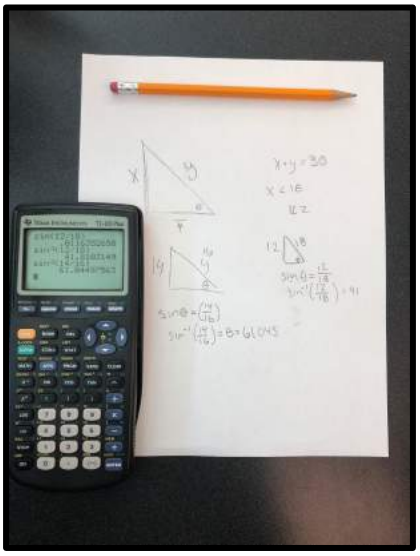
- Decided on materials that are going to be used for the robot.
- Finalized the intake and chassis design.

Thursday, October 11 -24 days till competition-

GOAL$:

➔ Create a lift and/or have the ability to hang from the lander.

WHAT WAS ACCOMPLI$HED:



- Calculations for the length of the dump system.
- Ideas for lift and hang.

No school friday

Monday, October 15 -20 days till competition-

Free day! No agenda. No planning. Team bonding time.

Tuesday, October 16 -19 days till competition-

GOAL$:

- ➔ Programmers are getting used to the new equipment.
- ➔ Homework catch-up! Gotta keep those grades up…

WHAT WAS ACCOMPLI$HED:

- Homework: FINISHED
- Programmers: WORKED ON AUTONOMOUS
- Computer designed the robot in detail.

Wednesday, October 17 -18 days till competition-

No notebook.

Thursday, October 18 -17 days till competition-

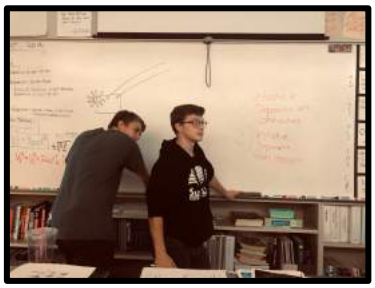
No notebook.

Friday, October 19 -16 days till competition-

GOAL$:

- ➔ Sampling and manufacturing.

WHAT WAS ACCOMPLI$HED:



- Overlooking final designs.

Monday, October 22 -13 days till competition-

GOAL$:

➔ UNBOX PARTS!!!!!!!!!!!!!!!!!!!!!

WHAT WAS ACCOMPLI$HED:

- Parts were distributed among teams.
- Morgan, Andrew and Sam laser etching.

Tuesday, October 23 -12 days till competition-

GOAL$:

➔ Prototype made up of wood built and ready for motor placements.

WHAT WAS ACCOMPLI$HED:

- Discussions on drive.
- Glue sets on prototype.

Wednesday, October 24 -11 days till competition-

GOAL$:

➔ Continue prototyping the carrot and chassis.

- ➔ Begin devising how to permanently/semipermanently mount electronics, motors/sensors, and structure pieces off of the chassis.
- ➔ Experiment with different types of motors.
- ➔ Learn how to start/stop autonomous programs.
- ➔ Learn how to program autonomous.

WHAT WAS ACCOMPLI$HED:

- Continuation of wooden chassis build .
  - Holes for axles and wheels created.
- Drawing of chassis for chassis.
- Android studios was downloaded onto team computers for programming.

Thursday, October 25 -10 days till competition-

No notebook.

Friday, October 26 -9 days till competition-

No notebook.

Monday, October 29 -6 days till competition-

TOURNAMENT WEEK!

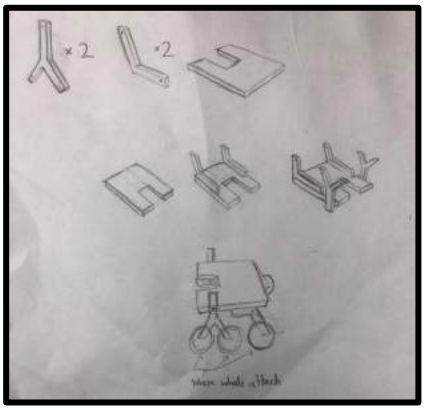
GOAL$:

- ➔ Sam, Andrew and Morgan create a new design for wheels so motors can be mounted.
- ➔ Jace and Ethan prepare for programming robot once complete.
- ➔ Maddie and John work on presentation.
- ➔ Chase and Maddie review rules.
- ➔ Maddie, engineering notebook.

WHAT WAS ACCOMPLI$HED:

- Wheel crisis resolved.
- Michael, Ethan and Jace reviewing and learning new FTC-specific Android Studios syntax.
- Engineering notebook, obviously, accomplished.

Tuesday, October 30 -5 days till competition-



WHAT WAS ACCOMPLI$HED:

- New chassis was cut from wood.

Wednesday, October 31 -4 days till competition-

GOAL$:

- ➔ Finish filing wood.
- ➔ Set more wood with glue on new.
- ➔ Programmers learn/review gyro and autonomous.

WHAT WAS ACCOMPLI$HED:

- Officer meeting over tournament agenda.
- Finished sitting the glue on the chassis.
- Programmers expanded their knowledge.

Thursday, November 1 -3 days till competition-

WHAT WAS ACCOMPLI$HED:

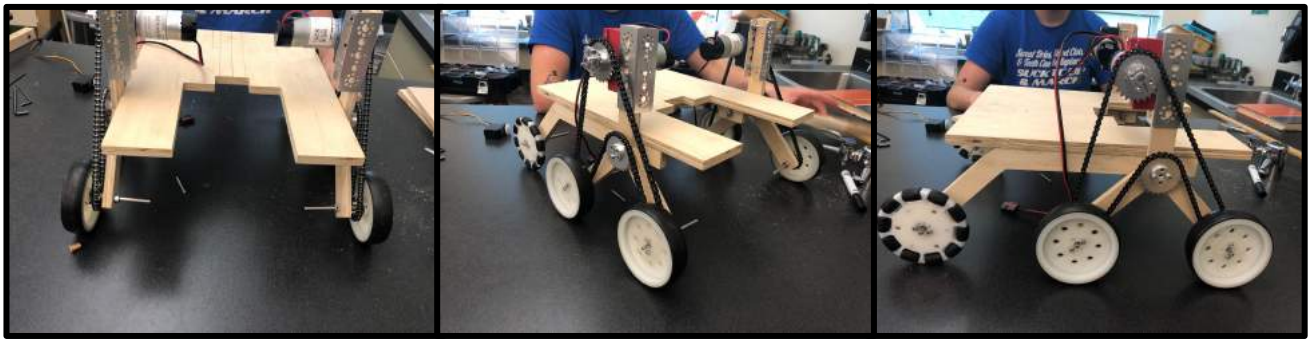
- Figured configuration of chain and sprocket.
- Mounted chain sprockets to wheels.
- Channels attached to motor support of Y-mount.
- All Teams Meeting over tournament agenda and roles.

Friday, November 2 -2 days till competition-

No school! Let's take advantage of it.
7:30 am. - 5 pm. 9.5 HOURS OF ROBOTICS

WHAT WAS ACCOMPLI$HED:

- Motor Mounts along with Motor attached.



- Program for robot created.
- Morgan was filing Lexan for intake.
- Andrew drilled holes in the Lexan for the intake.
- Chase made "ninja stars" for the intake.

Team Member Interviews. - Five people (well, as many as I can get…), once a week.

How do you think the team is doing at the moment?
What do you think we need to accomplish before the next tournament?
Any ideas?

CHASE FORSLOFF
SOPHOMORE
TUESDAY, OCTOBER 9

"We are having a lot of designing early which is good for later on. That way we can have a good design that is working. You know, getting at the kinks out.

We need to design our chassis, so it will be able to go over the crater.

We have a really good idea with a pivot point including three wheels that will allow us to go over the crater smoothly"

COACH WEIR
TUESDAY, OCTOBER 9

"We need a business plan. Mrs. Warnock will provide that. Biggest thing is making sure everyone is being productive. Being busy, being involved. Programmers need to make sure they are really working on research and ready for the robot when it is here. I am concerned about the amount of time we have to fabricate and build a robot.

Everyone just needs to make sure they have a role."

ANDREW WHIGHTSIL
SENIOR
TUESDAY, OCTOBER 9

“I think we are being very productive. We have prototyped chassis, intake, and lift all within a short week.

We actually have to have our robot build… and we need to build a stronger team comradery.

Organized team events, such as team events, getting to just know eachother better with build team comradery.”

MADELINE PATRICK
FRESHMAN
TUESDAY, OCTOBER 9

“I think the team is decent at staying on track and talking out plans. I am very happy that we are talking through designs multiple times instead of just picking the first one, and not thinking of all the possible errors and if there was something better.

If I were to change anything, I would wish that we would get our parts earlier. The competition is in 26 days, yet we do not have any robot parts. To be honest, I am quite nervous we will not be prepared for the first meet.

Even with the set back of getting our parts close to the tournament, since we are doing so much planning, we will be able to put together the robot a good amount faster due to not having to work out design problems. If everyone stays on task, I think we have a good shot at possessing a running robot on November 3.”

LUIS CERVANTES
SENIOR
TUESDAY, OCTOBER 9

"We are functioning very well, but we have a lot of different ideas relating to design floating around. They are good, but it causes confusion on what is actually going to be built.

Getting the chassis, intake, and arm design done before the tournament in probably the most important, along with getting to know each other a little better.

I feel like spending more time in pairs or groups programming or building will help us not only get to know each other better but to also get stuff done faster."

ETHAN EICHMAN
SOPHOMORE
TUESDAY, OCTOBER 23

"We are not getting anywhere, very fast due to stalling out for a week or so. I mean, we can't really do anything without parts, and you can only design and plan so much.

Before the tournament, I think we should working robot, regardless of whether it accomplishes the tasks we need it to.

I guess just working harder and focusing on building, along with programming will help us accomplish the goals we need before the first competition."

ALEX CHURCH
FRESHMAN
WEDNESDAY, OCTOBER 31

“Well I just got on the team about five minutes ago… but from the vibes I am receiving I can tell that we are a hard working team, with a good chance of having a working robot this weekend.

I would like our robot to be able to enter and exit the crater. We need to make sure the robot is completely built, with the glue set and strong, so we can climb the wall and not fall apart or tip over.”

KOU CASTLE
FRESHMAN
THURSDAY, NOVEMBER 2

“I believe the team is managing to move forward at a good pace. We are working together well and I’m enjoying the experience.

I believe we need to accomplish a majority of the autonomous stages and the complete build of our robot not including the small details to fix. We also should gain a routine that includes every person in our team to be the most effective we can. The approach to accomplish everything would be to use a divide and conquer with a checklist goal.”

LUIS CERVANTES
SENIOR
THURSDAY, NOVEMBER 2

“I think starting off, we were not functioning efficiently. But now we are dividing and conquering tasks, improving our efficiency exponentially.
Before tomorrow, we need to build intake, and attach ALL of our electronics.
We can separate and take on separate tasks as needed to get everything finished. I believe we can get everything accomplished today, we just need to keep our wits about us.”

Outreach

Outreach. Everything we have done to help the community and other teams.

Cow Creek Robotics Camp. 8-13 / 8-15

Members from our team (Maddie, Jace, Andrew, and Michael) volunteered at the robotics camp for kids 6th grade and younger. There, team members took lead a group, guiding the kids on programming and designing a robot to go through a FLL (First Lego League) playing field. The camp occurred for three days, 5-6 hours each day, not including the hour of clean-up afterwards.

Helping teams at Fremont Middle School. 10-17

Jace, Luis and Andrew went to Fremont Middle School after school on Wednesday to help guide teams on programming and building. Occurred once, for 1.5 hours.

Talking to businesses.

Looking for donations and sponsors, we called and visited local businesses such as: Little Jeans, Sherm's Thunderbird, Bluebird Pizza, Performance Martial Arts Academy, Harbor Freight, Aroy, Brixs Grill, Tolly's, Gathering Grounds Coffee House, North Forty Beer Company,Nickabobs, Old 99 Brewing Company, Old Soul Pizza, and B&D Meats. From these companies, two have already donated money. Performance Martial Arts Academy has donated a total of $50, and Sherm's Thunderbird has donated a total of $20.

Freshman Orientation. 9-4

6 people from Scorpio made their name known to the newest members of RHS. Videos were filmed and names were taken…

Occurred once, for 1 hour.

Outreach. (continued)

County Fair 8 / 7 - 8 / 11

Team members manned the booth, while people admired our beautiful robot from last season. Five days; amount of hours per day is blurry, but around five.

Pride Night 2018

Introducing parents and students to robotics! Team members ran the robot, showed videos and their notebook to possible future members. ~3 hours.

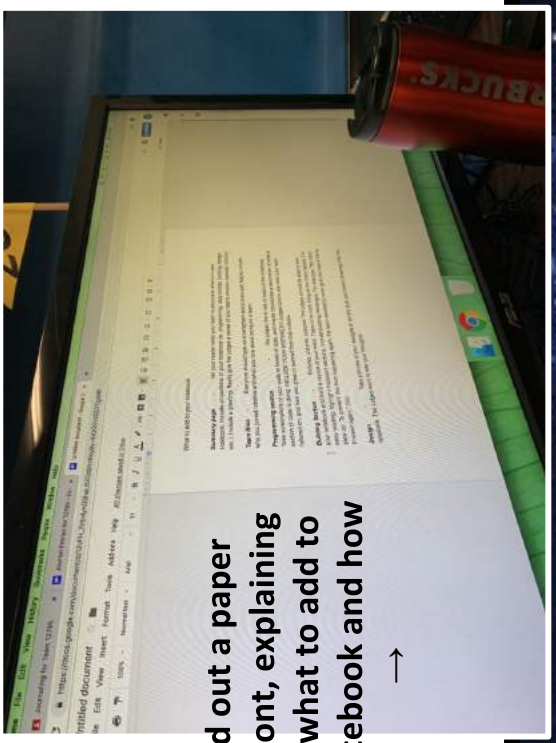
Helping Teams at Fremont 12 / 1 / 18

Assisting Fremont teams with their robot design, building, and notebook. Drill presses were used, and notes were made. I think we did a good job. 3 hours.

PCC Robotics Shop Training 8 / 6 - 8 / 10

Madeline attended the Portland Community College Robotics Shop Training summer camp. There, she learned to use all sorts of tools and heavy equipment. Each day entailed working in the Machine Shop and the Maker Lab. Further details on the following page.

Each of the five days was 6.5 hours.



We typed out a paper for Fremont, explaining to them what to add to their notebook and how to do it. →

PICTURES FROM CAMP

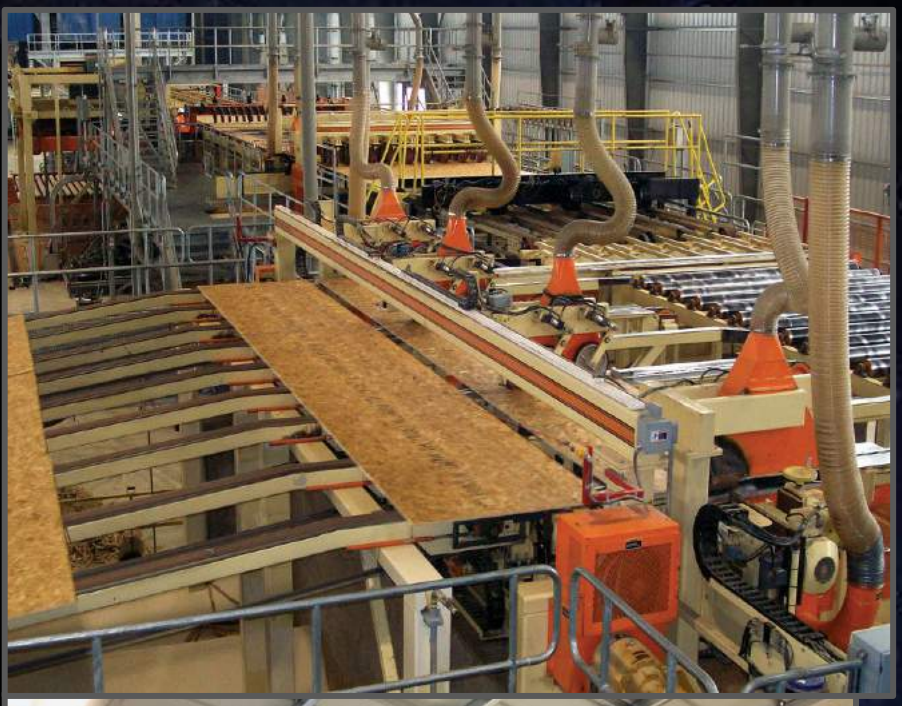
Portland Community College

MACHINE SHOP AT PCC

Con-Vey Keystone
December 20.

RHS Robotics was graciously invited to have a tour of the Con-Vey Keystone workplace. There, Scorpio learned a bit about manufacturing, design, programming, scheduling, and working as a team.

About an hour.



Con-Vey Keystone Permis...

Con-Vey Keystone Permission Slip for Thursday, December 20th, 2018

Roseburg High School Robotics is going to tour Con-Vey Keystone, a company that designs robot arms, on Thursday, December 20th. Con-Vey Keystone is located at 526 NE Chestnut Ave, Roseburg, OR 97470. The bus will leave Roseburg High School at 12:40, please arrive by 12:30 PM near the corner of the Arts Building. We will return to the Roseburg High School parkinglot around 2:20 PM. **Please complete this form and return it to Mr. Wier by Wednesday, December 19th.** If you have questions please contact Mr. Wier at iwier@roseburg.k12.or.us or (541) 954-8400.

Schedule for the Day

12:40 Depart RHS
12:50 Arrive at Con-Vey Keystone
1:00 Begin tour
2:00 End tour
2:10 Depart Con-Vey Keystone
2:20 Return to RHS

----------(Keep above information for your records)----------

Con-Vey Keystone Permission Slip for Thursday, December 20th, 2018

Student Name_____

Student Signature_____

Parent Name/Guardian Name_____

Outreach. (continued)

Bottles and Cans

Scorpio- not only spreading the word of robotics- but caring for the environment too! Team members decorated boxes for recyclable bottles and cans to place around the school, and when the Friday came to collect, they counted the gathered plastic. The funds made went to supporting robotics.

The Bottle and Can boxes were quite a task to decorate, but once we finished we decided to built an epic fort! Come on, we need to have fun!

IT HAD A FEW WINDOWS... AND A SKYLIGHT.

Total Outreach Hours:

86


MORE OUTREACH!
We didn't actually go to Hawaii...

THE not DAILY GAZETTE

TWO SCORPIO MEMBERS SUPPORT FLL

Article by Madeline Patrick

The day after the League Tournament, Luis and Michael went to the FIRST LEGO LEAGUE (FLL) STATE CHAMPIONSHIP as volunteers. The event was held at Liberty High School and lasted from 7 am. to 6 pm. Our Scorpio members that attended worked as Judge Runners- people who directed teams to their judging room that entailed robot, team work, and coopertition evaluations. The Scorpio robot also made an appearance at this event. The tournament not only gave Scorpio Outreach hours, but also gave us another opportunity to grow our knowledge in the world of FIRST, a moment to spread the word of Scorpio, and a time to get input on our own team characteristics.
22 hours of Outreach.

"SCARIES" UNITES

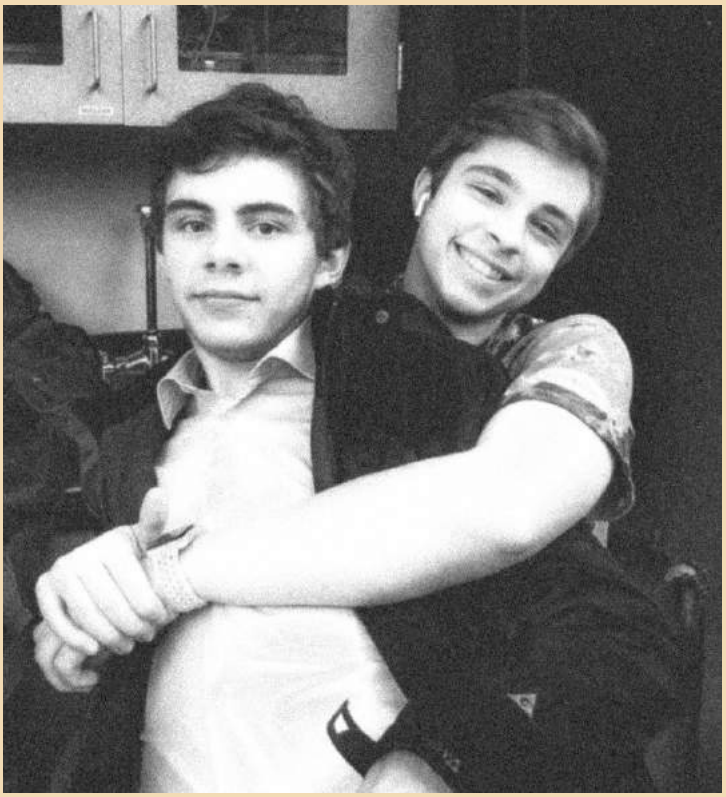
Article by Madeline Patrick

After the SOAR league meet the team captains and officers (from Scorpio and Aries, therefore making "Scaries") decided that in order to have better chances of advancing and more productive practices, we would combine our work for both teams. For example, builders would work together. It was hoped for that this idea would be advancing ideas for both robots on building teams. We tried to have a mix of team members and experience- that's how the practices went. This past Friday people really started to build up robots such as the lift and intake system. This Outreach is helps build more communication and more friendships.

THE not DAILY GAZETTE

TWO ROBOTICS MEMBERS DO A RADIO INTERVIEW!

Article by Madeline Patrick



Jace Palmer, a programer, builder and driver on Scorpio, and John Sajo, the team captain of Aries, went on the News Review KQEN MORNING CONVERSATION at 8:30 on the morning of Wednesday, February 6.
“This morning we spoke with two young men from Roseburg High School about the S.O.A.R. program, their individual robotics teams, how a robotics tournament works, and how you can cheer them on this Saturday at the First Tech Challenge Robotics Super Qualifying Tournament”, says the KQEN website.

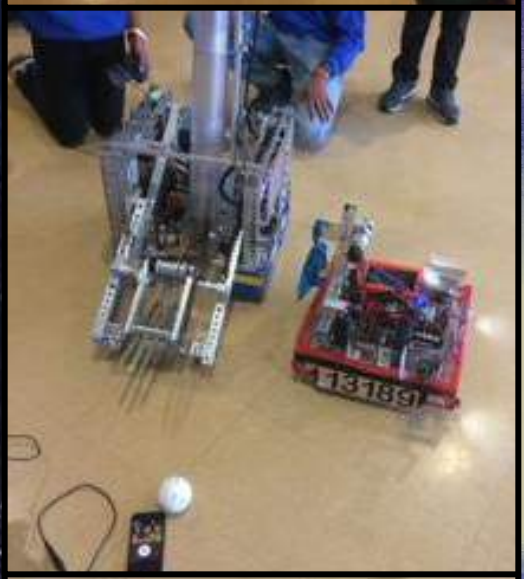
JOHN SAYS:

“We went to the News Review and we had an interview with KQEN radio station. This was after they had written the new article on FTC. we described fundraising, and that Scorpio is going to state. We mainly talked about FTC. I am glad we did this because I believed it reached a broader community than most of our outreach. It was based of the new the news review article.”

JACE SAYS:

Well I went to the radio station kqen with John Sajo and talked about FTC and our outreach efforts. Our interview was very good with the amount of time we had to prepare for it. We spoke from our robotic hearts.

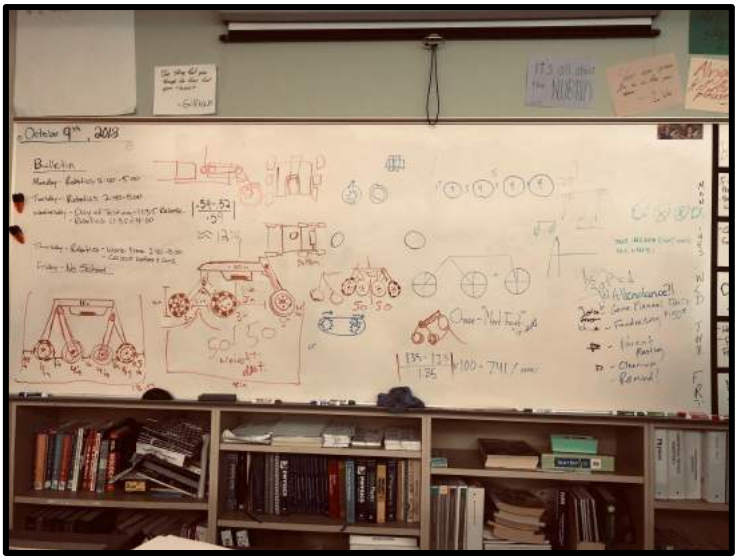
pictures from FLL STATE CHAMPIONSHIP



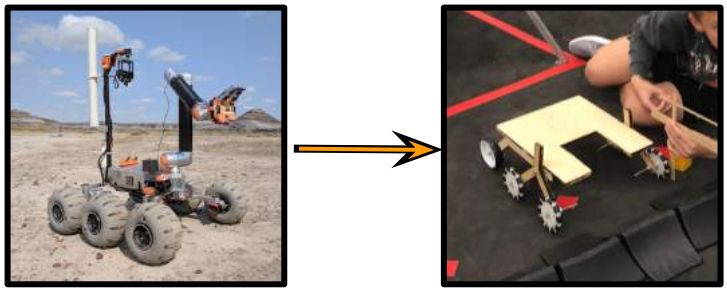
POWER THOUGHTS
LOOK AT THAT JEWEL!
SCORPIO

Design Evolution. All the steps we took, along with our falls.

We started out with a design that had 8 wheels powering our robot. While this design contained many benefits, it also contained many flaws, including a need for 4 of our motors, which we all agreed was an inefficient use of motors. It also was not very good at turning, and would sometimes slide off the crater causing us to straddle it and become stuck. We switched designs after creating an idea of a much more efficient use of motors. It would be a 6 wheeled design.

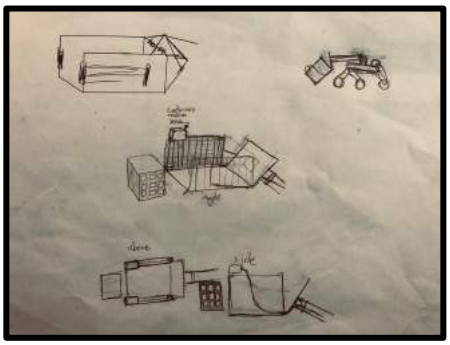


With this design, the center wheel was to keep us from getting high centered, but limited our turning capabilities. This design performed better on the crater, however, we knew we could still improve on the design. The center arm was very unstable when going up the crater rim and would bounce up and down, making it both hard to control the robot and harder to line it up, so we modified it with the suspension system that is shown below.

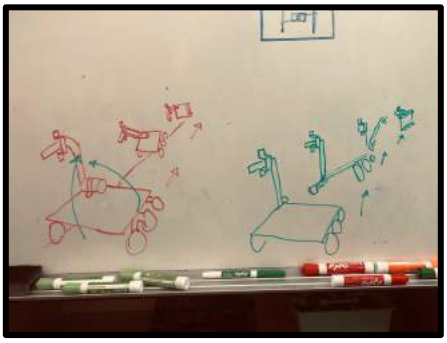


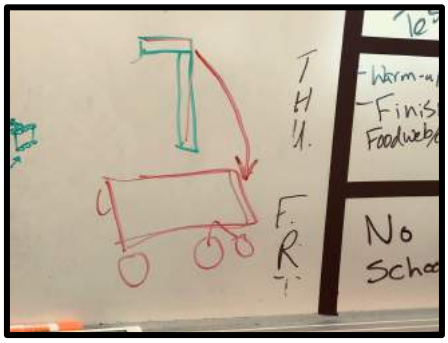
This suspension was based on the OSU mars rover design, and allowed the robot to ride smoothly over the crater without slipping. **The new design had all of the turn capabilities of the two previous designs, but contained none of the flaws** (which is really good!)**.**

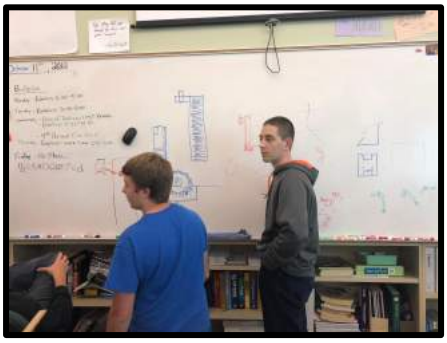
We now had a good chassis design, but we had no intake. One of our lead builders, commented on the height difference of the balls and cubes (cubes are a bit shorter than balls) and how if we limited the height of the intake tube, it would allow us to grab only cubes, or only balls. We ended up using this as our sorting system, as is pictured below.



The way we overcame the robot lifting mechanism was with a robot that rolled itself up, contrary to what would commonly be thought of, the rack and pinion lift. That allowed us to use the same intake arm we already had to give us a lift onto the lunar module. We created a servo locking hook that in resting position would hold the robot up without powering it. This would be pulled away with a button on the remotes that would power it too pull off.





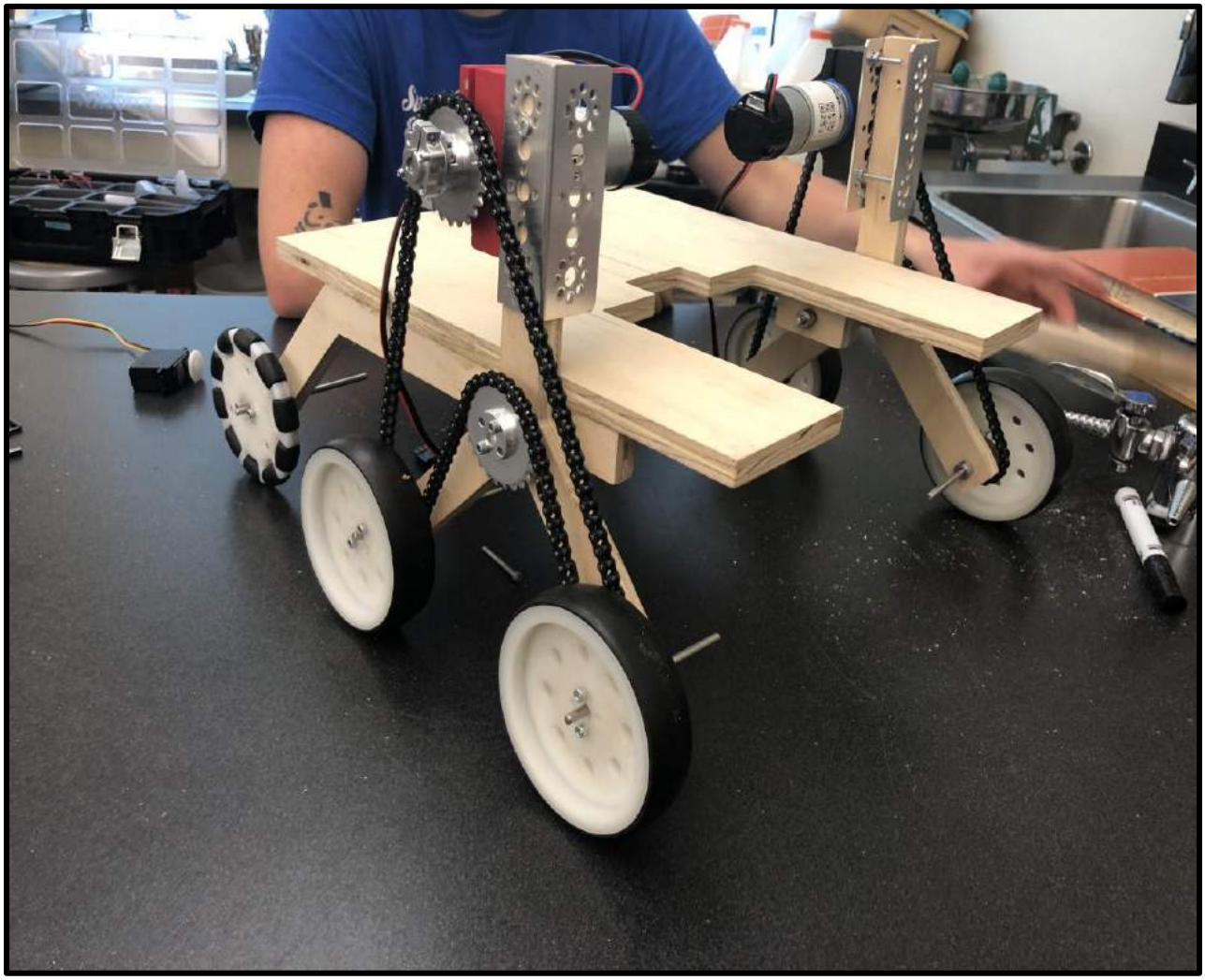


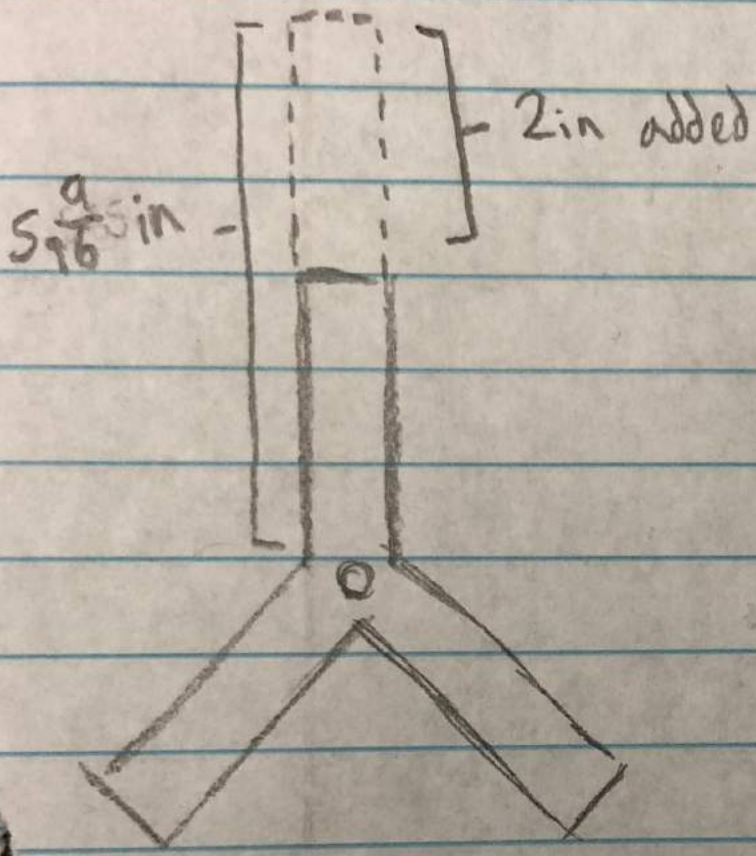
Plans for Future. What we are going to do, try to do, and hope to do.

The future plan for Scorpio is to become bigger and better, constantly improving and spreading the our knowledge to make a better tomorrow.

We plan on getting more/other sponsorships from companies in the area (see Outreach section) From the companies we have asked donations of, two have donated to the RHS Robotics teams. Performance Martial Arts Academy has donated a total of $50, and Sherm's Thunderbird has donated a total of $20.

Eventually we are going to improve the quality of out chassis with Lexan or metal, opposed to our current Chassis is made of wood.

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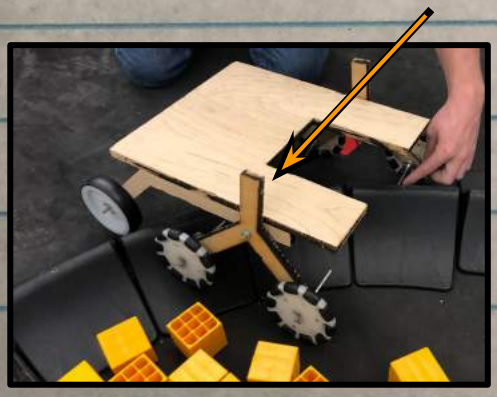
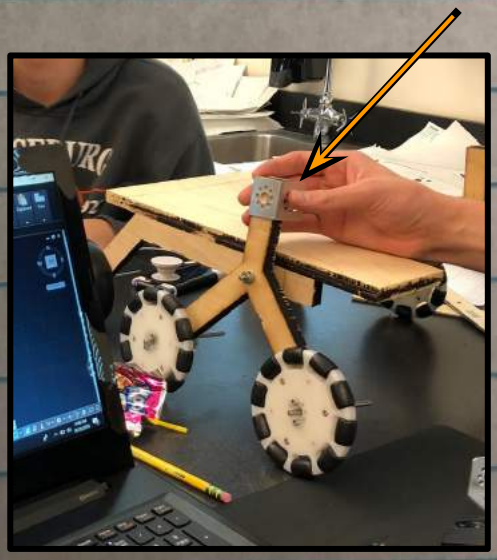
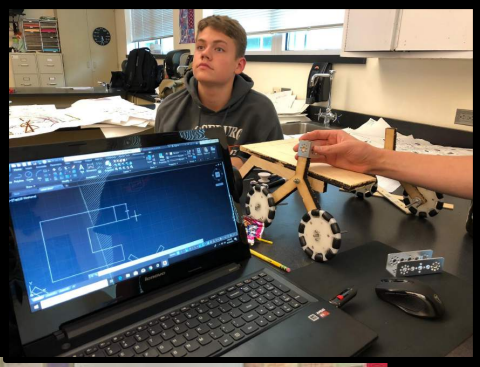
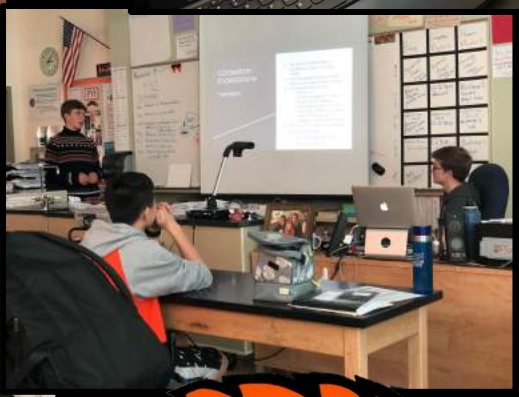
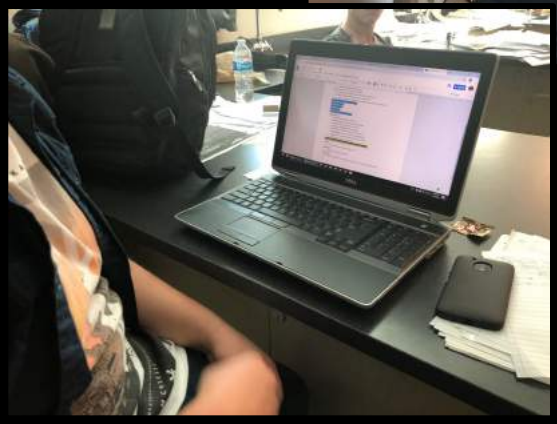
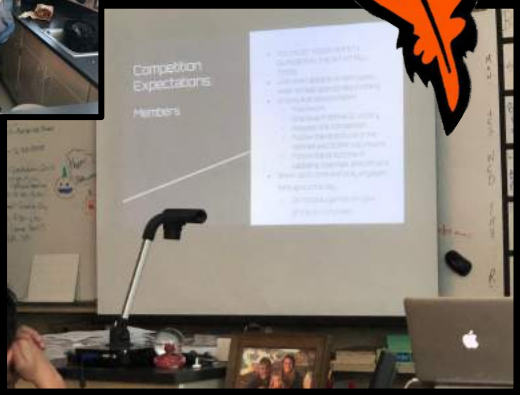












Scorpio 13189

Evaluating and Improving from Meet 0

How we did at Meet 0. Our performance, and what we can do to improve.

During meet 0 we went around to each team and introduced ourselves. We also asked a series of questions for example: What was your idea on the design of your chassis, what is your game plan or what do you plan on adding in the future to improve your design, what are your strengths and what can't you do? We also helped other teams with design flaws, programming and other tasks they need help with. We were proud to be either the first or one of the first teams to score in the lander with a mineral. Overall, the team was glas with its performance.

Driver 1
Andrew

Driver 2
Chase

Driver Coach
Maddie

Team Meetings. Monday - Friday. 14:40 - 16/17.

First tournament: November 17

Monday, November 5 -12 days till competition-

- Built new intake parts to replace the spinning “ninja stars”. Replaced with ninja star like shape built of Zip Ties and Electrical tape.

Tuesday, November 6 -11 days till competition-

Notebooker sick with pneumonia. No notebook.

Wednesday, November 7 -10 days till competition-

Notebooker sick with pneumonia. No notebook.

No school till Tuesday due to Conferences and Veterans day.

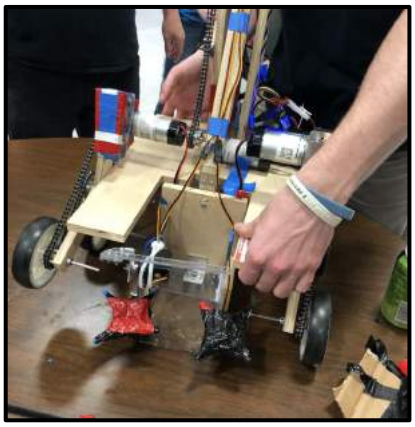
Tuesday, November 13 -4 days till competition-

Wednesday, November 14 -3 days till competition-

No notebook.

Thursday, November 15 -2 days till competition-

No notebook.



Friday, November 16 -1 day till competition-

- FBLA (Future Business Leaders of America) teacher, Ms. Warnock, gave presentation on the business aspect of FTC, along with one of her past students who went to worlds in FBLA competitions.

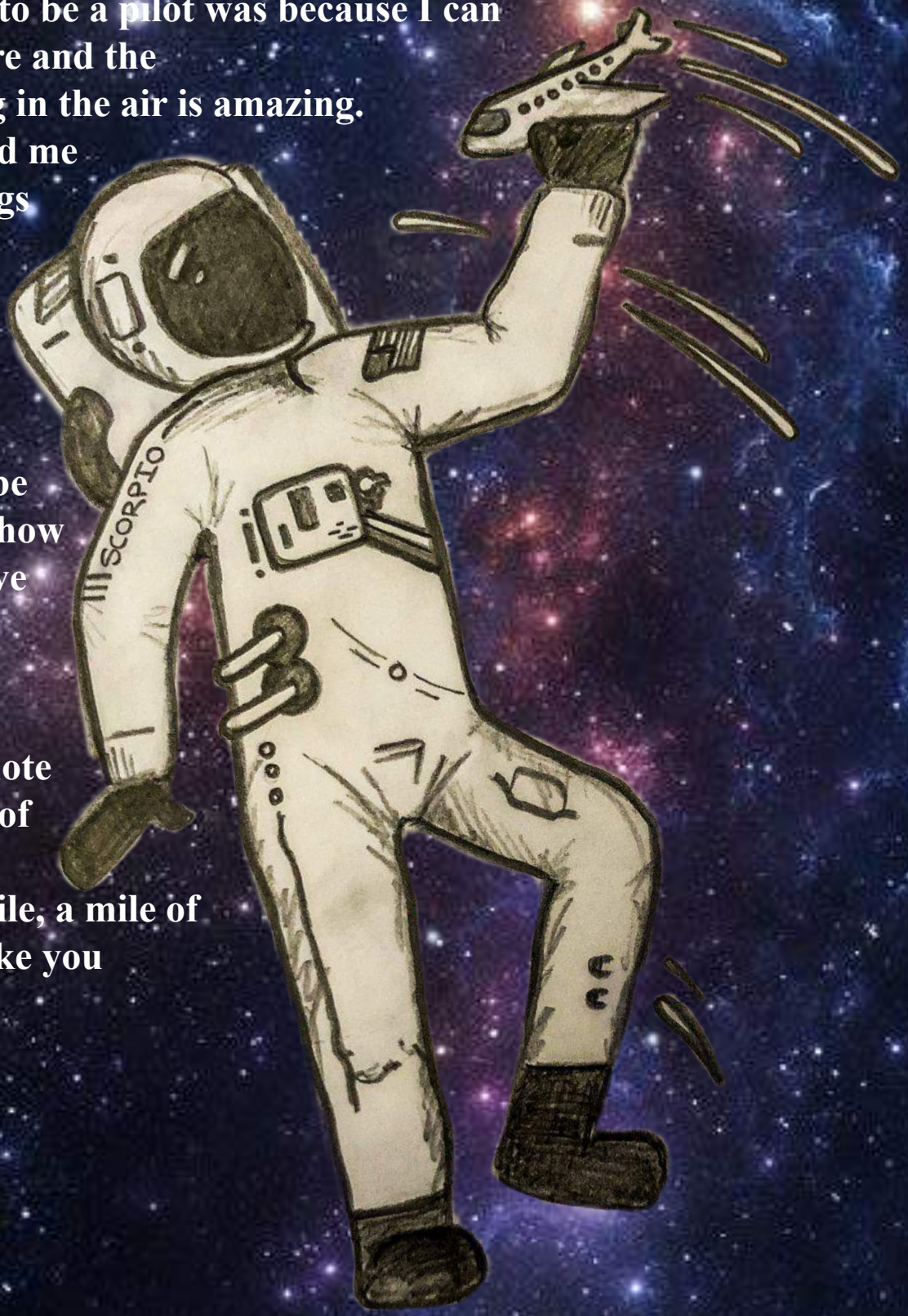
Hey there! I'm Jace, the head programmer for Scorpio. I'm currently in robotics because of three reasons: 1) I enjoy programming and math. 2) A lot of my friends from other classes are in robotics. And, 3) It's really fun to socialize with people who like what I like. In robotics, I am Treasurer of the club. I also do Marching Band, Star trek club, and AM Jazz.

Fav Quote: "It's clearly a budget. It's got a lot of numbers in it."

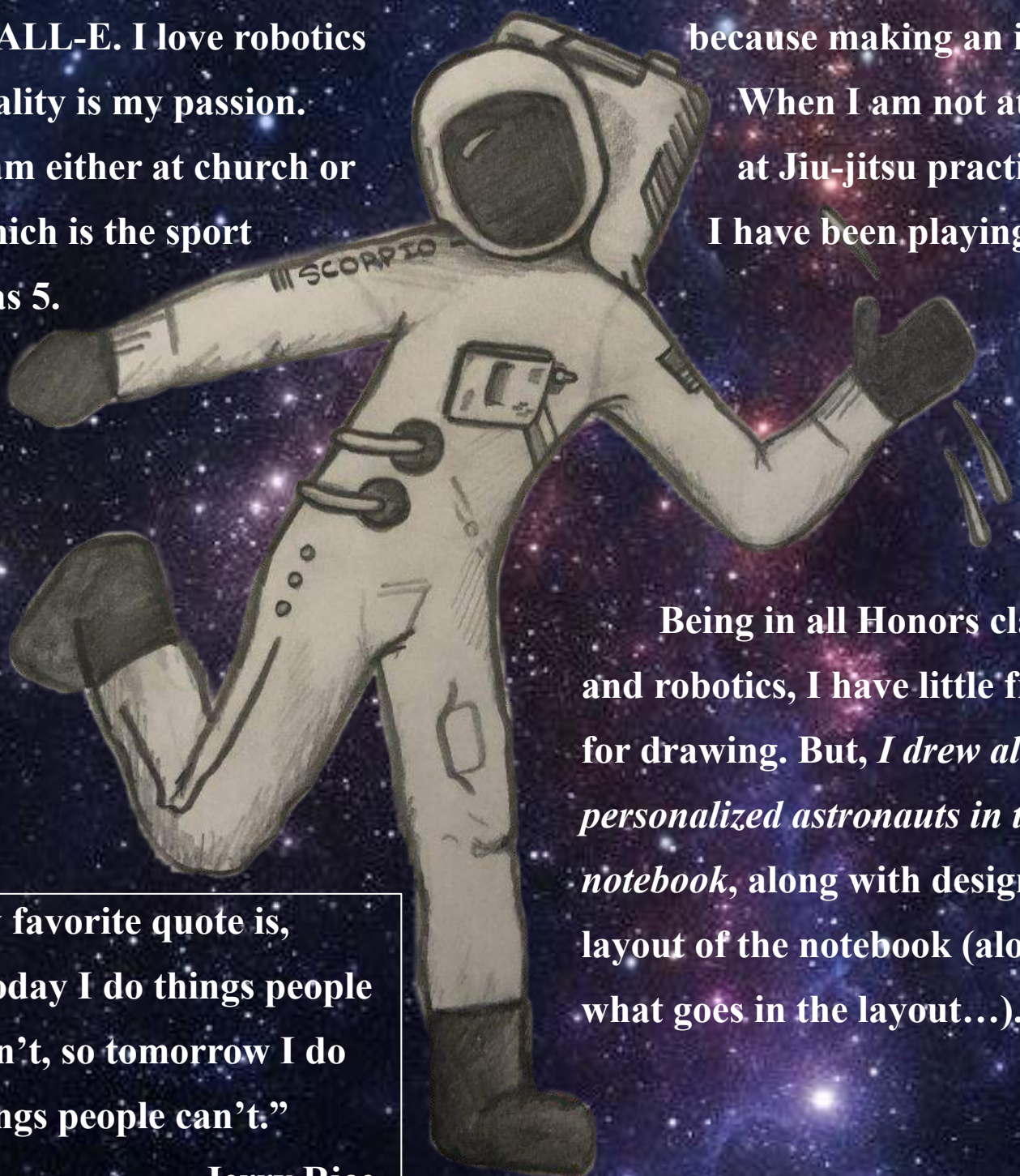
- George W. Bush

My name is Alex Church. I am a huge aviation nerd and love robots! I like to learn new things and build stuff. My favorite color is electric blue because it is bright, lively color. I am also going to train to become a pilot when I turn 15. I have already flown during a one hour flight demo. The reason I chose to be a pilot was because I can travel anywhere and the feeling of being in the air is amazing. Robotics helped me learn how things worked and why, what it takes to make it work, along with what materials will be necessary and how to problem solve through challenges.

My favorite quote is, "One mile of road will take you just one mile, a mile of runway will take you anywhere!"



Greetings fellow robotic enthusiasts. I am a Freshman named Madeline Patrick, but majority of people call me Maddie. The news of participating in robotics on a team was first heard in the 7th grade, but I have been building single DC motor robots and creating lightbulb sequences for as long as I can remember. I have been in robotics a total of 3 years; one year in FLL (on the team Nuclear Cardboard), along with participating in the previous season in FTC on the Jolane team called WALL-E. I love robotics because making an idea reality is my passion. When I am not at school, I am either at church or at Jiu-jitsu practice, which is the sport I have been playing since I was 5.



Being in all Honors classes and robotics, I have little free time for drawing. But, *I drew all the personalized astronauts in this notebook*, along with designing the layout of the notebook (along with what goes in the layout…).

My favorite quote is, "Today I do things people won't, so tomorrow I do things people can't."

- Jerry Rice

Hello, I am Ethan Eichman. I joined robotics because I have an interest in programming and I had friends on the team. I enjoy robotics because it's fun to come and walk into our loud gathering room everyday and socialize while building robots. On my free time, I play and program games.

My favorite quote is :

"What doesn't kill you makes you stronger"

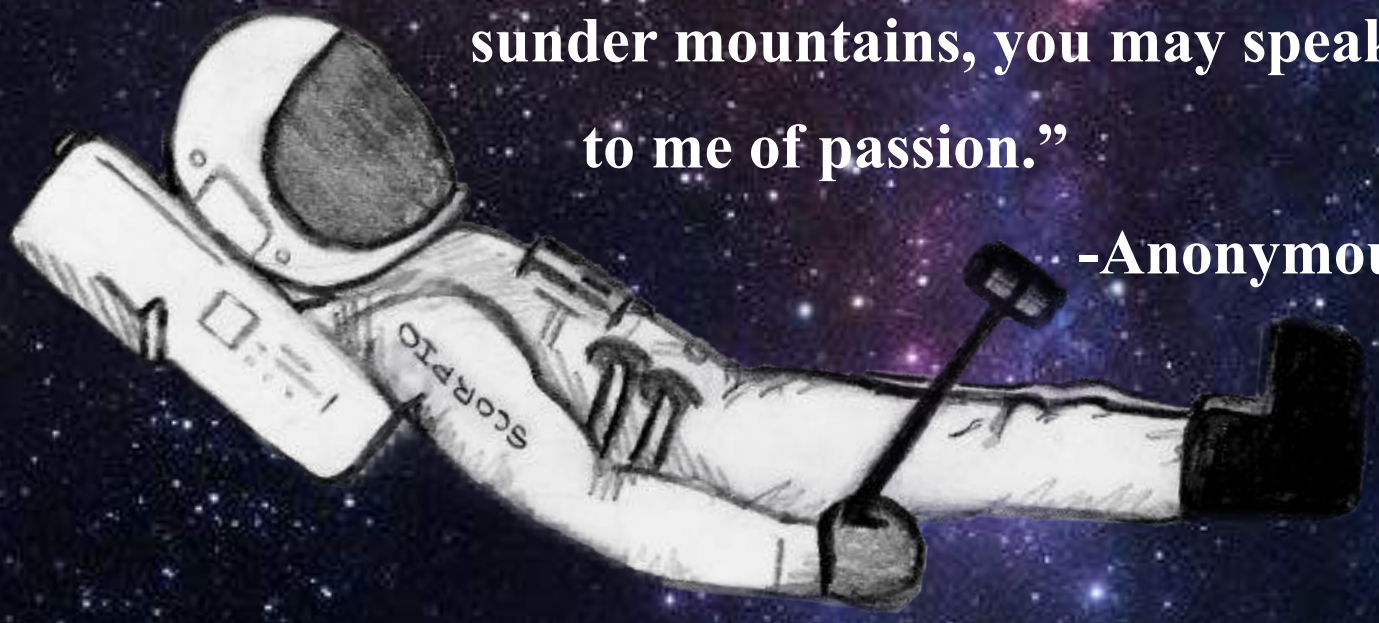
-Kelly Clarkson

I have been in robotics since The Beginning because of my fascination with both electronics and engineering. I enjoy robotics because there is a constant flow of problems to solve which allows me to gain experience for later projects in my life. Outside of robotics, I have several extracurricular activities that I participate in. The first of these being an upcoming Cribbage tournament, an independent study class for physical education, and I will soon be applying for multiple colleges in my sparse free time.

Morgan

"You know nothing of passion. When your rage can sunder mountains, you may speak to me of passion."

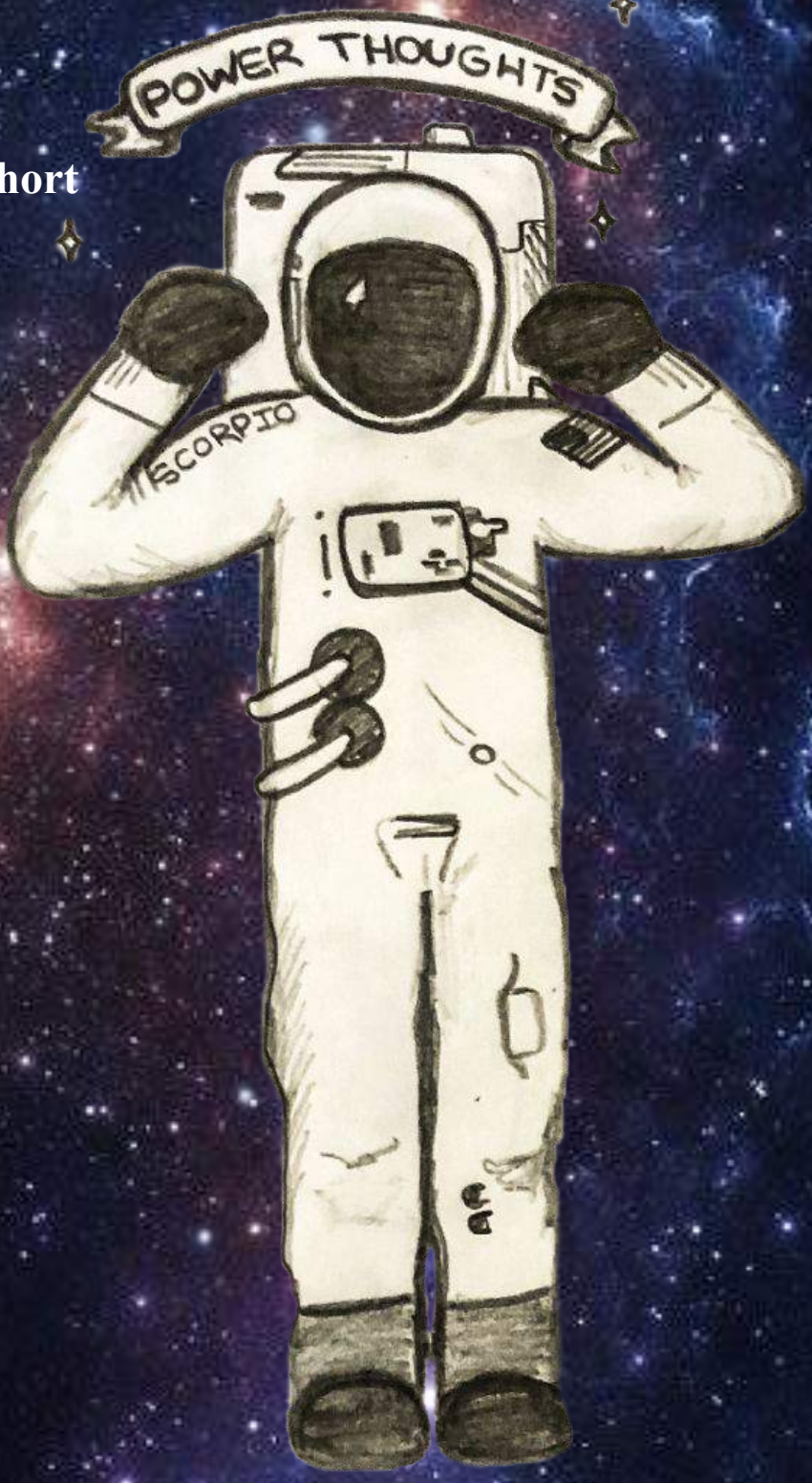
-Anonymous



My name is Sam Eggers. I joined robotics because I enjoy working with things hands on, and I saw it as an opportunity to improve my skills in this category. In robotics, I like the involvement with our schools CTE building and appreciate the opening to the engineering side of constructing a robot. In my spare time, I participate in marching band and play video games.

Quote: "I'm a little teapot short and stout"

- Short and Stout gang



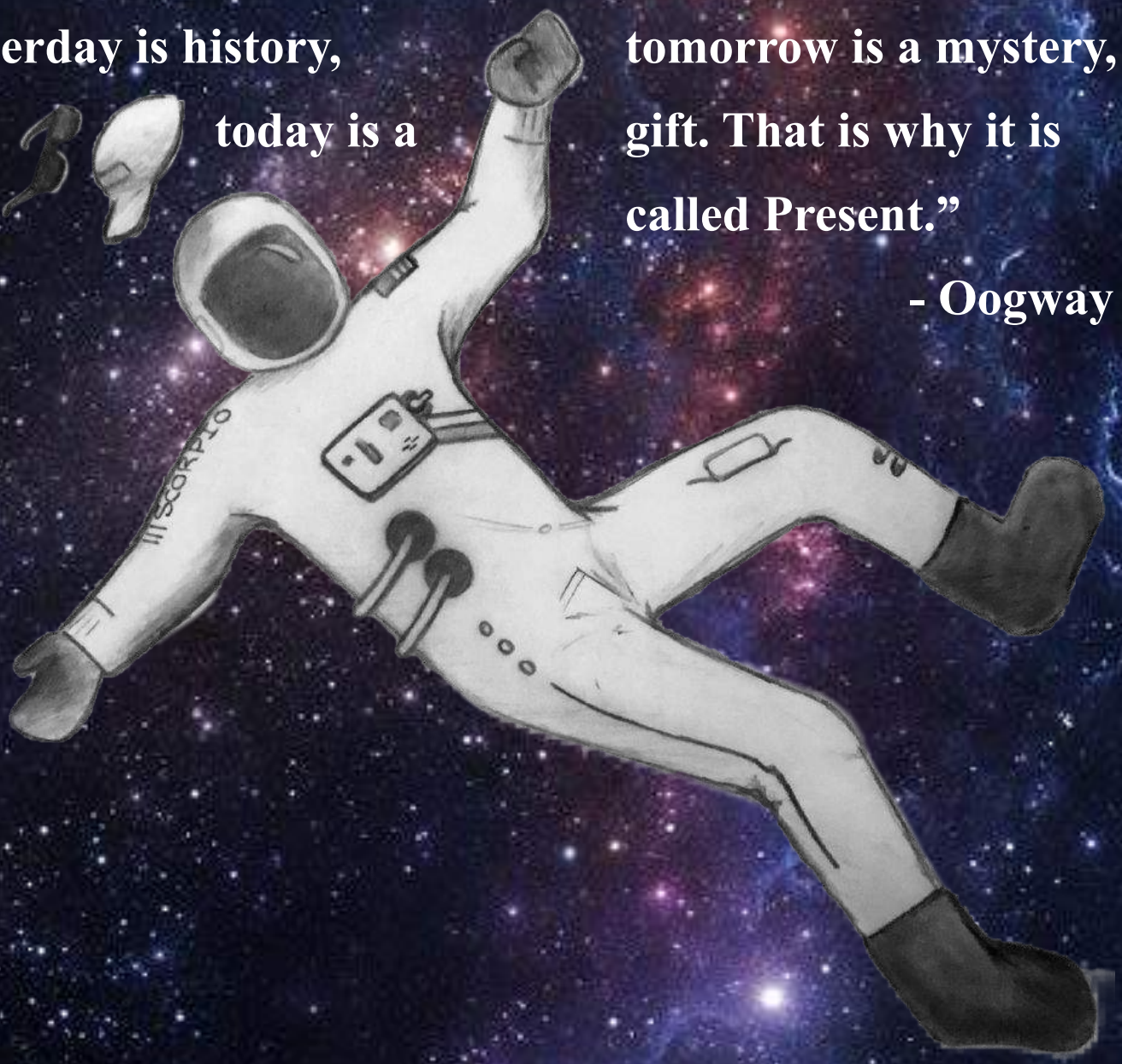
My name is Luis, and I am one of the builders on Scorpio. What I like about robotics is the engineering aspects of it. I have been building since I was a child. Legos were a big part of my childhood, and I think that was a big factor in getting me into the program. I am in guitar classes, so I play the guitar in my spare time, which I think is a very valuable skill. My favorite quote is, “Intelligence is the ability to adapt to change.”

- Stephen Hawking

Hello I am Michael Kiepert. I joined robotics because I have been doing it for 6 years and I want to continue doing robotics until I can't any more. The thing I enjoy about robotics is working as a team and working with other teams even though they are an opponent because of this my favorite core value is “Coopertition”. In my spare time I like to play games and talk about Robotics with friends.

“Yesterday is history, but today is a gift. That is why it is called Present.”

- Oogway



Hello, my name is Chase. I am the Head Designer for Scorpio. I joined robotics because I really enjoy meeting new people and I would like to be a Mechanical Engineer. The ideas other people have really are very interesting to me, and it is nice to have a team. As the old quote goes, “Many heads are better than one.”

I am an avid swimmer, artist and pianist.

Salutations, my name is Andrew Whightsil, I'm currently a senior at Roseburg High School and the current president of RHS Robotics club. This is my second year in robotics, and the third year we've had this program at RHS. I joined robotics to meet new people and work on my social skills, and I'm now the president so I'd say that's a "Jobs Done" in my book. Robotics has been an all around life changing experience and I'd have to say my favorite part is meeting new people and coming together to compete in something we all are passionate about.

In my free time(which is non-existent) I work at Dominoes, and work on improving my animation skills.

"People who have to wear glasses, are stuck watching the world through windows..."

-Andrew Whightsil

Growing from ONE 1

During Meet 1. Watching our matches, along with other teams' matches, to come to positive conclusions to improve our current state.

During matches 1-19, Alex and Madeline recorded scores of every match, along with individually recording matches in which Scorpio was a participant.

Below, tables including independent scorings of Scorpio are shown. What happened in autonomous, how many Silver and Gold minerals were collected in the Lander, what was collected into the depot, what occurred during End Game, and who our Alliance Team was.

Following the pages filled with tables of Scorpio scoring, and records of all matches in Mountain League. Within these pages, autonomous, total Silver and Gold minerals collected in Lander, and End Game is recorded.

Match 1

autonomous	N/A
silver minerals - lander	0
gold minerals - lander	1
depot contents	1 silver
end game	0
alliance team	15585
	TOTAL POINTS: 7

Match 2

autonomous	N/A
silver minerals - lander	1
gold minerals - lander	0
depot contents	0
end game	FULLY IN CRATER.
alliance team	12132
	TOTAL POINTS:26

Match 3

autonomous	Parked an claimed
silver minerals - lander	||
gold minerals - lander	0
depot contents	|||||
end game	FULLY IN CRATER.
alliance team	12076
	TOTAL POINTS: 60 + PARKED DURING AUTONOMOUS

Match 4

autonomous	Claimed and partially parked.
silver minerals - lander	|
gold minerals - lander	0
depot contents	||||||||
end game	Fully in Crater
alliance team	15341 (Taurus)
	TOTAL POINTS: 43 -20 (MINOR PENALTIES) (Taurus)

Match 5

autonomous	PARTIALLY IN
silver minerals - lander	0
gold minerals - lander	11
depot contents	0
end game	FULLY IN CRATER
alliance team	9851
	TOTAL POINTS: 35

Team Meetings. **Monday - Friday. 14:40 - 16/17.**

Monday, December 3 -4 days till competition-

GOAL$:

- ➔ Make plans for the week.
- ➔ Give maintenance to the robot.

WHAT WAS ACCOMPLI$ED:

- Weeks agenda planned out with team.
- Robot arm tightened and improved.
- “Y’s” of robot reattached.

OUR TRIED CHRISTMAS TREE MADE OF CONSTRUCTION PAPER..

Programming

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

import com.qualcomm.robotcore.eventloop.opmode.LinearOpMode;
import java.security.Guard;
import com.qualcomm.robotcore.eventloop.opmode.TeleOp;
import com.qualcomm.robotcore.hardware.CRServo;
import com.qualcomm.robotcore.hardware.Dc Motor;
import com.qualcomm.robotcore.hardware.DcMotorSimple;
import com.qualcomm.robotcore.hardware.Servo;

@TeleOp(name="Scorpio", group="Teleop")

public class Scorpio_TeleOp extends LinearOpMode {

  DcMotor RF;
  DcMotor LF;
  DcMotor Arm;
  CRServo Intake1;
  CRServo Intake2;
  Servo Guard;

  public void runOpMode() throws InterruptedException {
      //Drive
      RF = hardwareMap.dcMotor.get("RF");
      LF = hardwareMap.dcMotor.get("LF");

      //Arm
      Arm = hardwareMap.dcMotor.get("Arm");

      //Intake
      Intake1 = hardwareMap.crservo.get("Intake1");
      Intake2 = hardwareMap.crservo.get("Intake2");
      Guard = hardwareMap.servo.get("Guard");

      //Reverse Motor Direction
      LF.setDirection(DcMotor.Direction.REVERSE);

      //Reverses Servo
      Intake2.setDirection(CRServo.Direction.REVERSE);
```

```
        //Turns on Braking
        RF.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
        LF.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
        Arm.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);

        //Setting Encoders
        Arm.setMode(DcMotor.RunMode.RUN_USING_ENCODER);



        waitForStart();

        boolean armPos = false;
        int downPos = Arm.getCurrentPosition();
        char armLocation = 'x';

        while (opModeIsActive()){
            //Drive for tank
            RF.setPower(gamepad1.right_stick_y / 2);
            LF.setPower(gamepad1.left_stick_y / 2);

            //Drive for non-tank
            RF.setPower((gamepad1.left_stick_y + gamepad1.right_stick_x)/4);
            LF.setPower((gamepad1.left_stick_y - gamepad1.right_stick_x)/4);

            //Arm switch
            if ((gamepad2.right_trigger >= 0.3) || (gamepad1.right_trigger >=
0.3))
                armPos = true;
            else if ((gamepad2.left_trigger >= 0.3) || (gamepad1.left_trigger
>= 0.3))
                armPos = false;
```

```
            //Arm movement
            if (!armPos) {
                if (Arm.getCurrentPosition() < (downPos - 500)) {//if the arm
is too far up, g0 down
                    Arm.setPower(0.05); //go down
                    armLocation = 'a';
                } else if ((gamepad2.a || gamepad1.a) &&
(Arm.getCurrentPosition() < (downPos - 250))) {
                    Arm.setPower(-0.2); // slow lift
                    armLocation = 'b';
                } else {
                    Arm.setPower(0); //do no downage
                    armLocation = 'c';
                }
            } else {
                if (Arm.getCurrentPosition() < (downPos - 900)) { //if arm is
too far
                    Arm.setPower(((downPos - 900) - Arm.getCurrentPosition())
/ 1000); //to much passage going upage, uNdo
                    armLocation = 'd';
                } else if(Arm.getCurrentPosition() > (downPos - 100)) { //if
its below it
                    if (Arm.getCurrentPosition() > (downPos - 550)) { //hecca
fast to get to postition
                        Arm.setPower(-0.5); //zuuUUUUUMMMMMM!
                        armLocation = 'e';
                    } else if (Arm.getCurrentPosition() > (downPos - 800)) {
//close but no bread yet
                        Arm.setPower(-0.25); //small zoom
                        armLocation = 'f';
                    } else { //within range of position but too low
                        Arm.setPower(((downPos - 900) -
Arm.getCurrentPosition()) / 1000); //formula1
                        armLocation = 'g';
                    }
                }
            }
```

```
            telemetry.addData("arm encoder", Arm.getCurrentPosition());
            telemetry.addData("arm postion", armPos);
            telemetry.addData("down position ", downPos);
            telemetry.addData("arm position", armLocation);
            telemetry.update();

            //Arm movement when  no encoders
            //Arm.setPower(gamepad2.left_trigger + gamepad1.left_trigger -
(gamepad1.right_trigger + gamepad2.right_trigger));

            //Intake
            if (gamepad2.right_bumper) {
                Intake1.setPower(1);
                Intake2.setPower(1);
            }
            else if (gamepad2.left_bumper) {
                Intake1.setPower(-1);
                Intake2.setPower(-1);
            } else {
                Intake1.setPower(0);
                Intake2.setPower(0);
            }

            //Guard
            if (gamepad2.x)
                Guard.setPosition(0.5);
            else if (gamepad2.y)
                Guard.setPosition(0);

            //Timekeeper
            sleep(1);
            idle();
        }
    }
}
```

```java
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.ColorSensor;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.Servo;

@TeleOp(name="Scorpio2", group="Teleop")

public class Scorpio_TeleOp_2 extends LinearOpMode {

  public void runOpMode() throws InterruptedException {

      ColorSensor colorSensor = hardwareMap.colorSensor.get("ColorSensor");
      DcMotor arm = hardwareMap.dcMotor.get("Arm");
      CRServo intake1 = hardwareMap.crservo.get("Intake1");
      CRServo intake2 = hardwareMap.crservo.get("Intake2");
      Servo guard = hardwareMap.servo.get("Guard");

      intake1.setDirection(CRServo.Direction.REVERSE);
      arm.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);

      arm.setMode(DcMotor.RunMode.RUN_USING_ENCODER);

      arm.setPower(0.5);
      sleep(100);

      int armPos = 1;

      waitForStart();
```

```
      int downPos = arm.getCurrentPosition();

      while (opModeIsActive()){

          //arm control
          if          (armPos == 1) { //down
              if      (arm.getCurrentPosition() > downPos + 50)
arm.setPower(-0.2); //almost there
              else if (arm.getCurrentPosition() > downPos + 300)
arm.setPower(-0.4); //too high
              else if (arm.getCurrentPosition() > downPos + 1000)
arm.setPower(-1); //way too high
              else     arm.setPower(0);//basically perfect
          } else if   (armPos == 2) { //middle or hover
              if      (arm.getCurrentPosition() > downPos + 2500)
arm.setPower(-0.8); //too high
              else if (arm.getCurrentPosition() > downPos + 3000)
arm.setPower(-0.4); //way too high
              else if (arm.getCurrentPosition() < downPos + 1500)
arm.setPower(0.4); //too low
              else if (arm.getCurrentPosition() < downPos + 1000)
arm.setPower(0.8); //way too low
              else     arm.setPower(0); //perfect
          } else if   (armPos == 3) { //up or dump
              if      (arm.getCurrentPosition() > downPos + 4000)
arm.setPower(-0.4); //more too high
              else if (arm.getCurrentPosition() > downPos + 3800)
arm.setPower(-0.2); //too low
              else if (arm.getCurrentPosition() < downPos + 3400)
arm.setPower(0.4); //too low
              else if (arm.getCurrentPosition() < downPos + 2400)
arm.setPower(0.8); //way too low
              else     arm.setPower(0); //perfect
          } else       armPos = 1;

          //arm position changing
          if (gamepad2.left_trigger >= 0.3)        armPos = 1;
```

```
            else if (gamepad2.y)                        armPos = 2;
            else if (gamepad2.right_trigger >= 0.3)   armPos = 3;

            //color sensor testing
            telemetry.addData("red", colorSensor.red());
            telemetry.addData("green", colorSensor.green());
            telemetry.addData("blue", colorSensor.blue());
            telemetry.addData("color guess",
mineralColor(colorSensor.red(),colorSensor.green(),colorSensor.blue()));
            telemetry.update();

            //Timekeeper
            sleep(1);
            idle();
        }
    }

    public static boolean mineralColor (int red, int green, int blue) {
        return ((red + green) * 3 < blue) && ((red + green) * 5 > blue);
//true is yellow, false is white
    }
}
```

```
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.ColorSensor;
import com.qualcomm.robotcore.hardware.DcMotor;
import com.qualcomm.robotcore.hardware.DcMotorSimple;
import com.qualcomm.robotcore.hardware.Servo;

@TeleOp(name="Scorpio3", group="Teleop")

public class Scorpio_TeleOp_3 extends LinearOpMode {

  public void runOpMode() throws InterruptedException {

    ColorSensor colorSensor = hardwareMap.colorSensor.get("ColorSensor");
    DcMotor arm = hardwareMap.dcMotor.get("Arm");
    CRServo intake1 = hardwareMap.crservo.get("Intake1");
    CRServo intake2 = hardwareMap.crservo.get("Intake2");
    Servo guard = hardwareMap.servo.get("Guard");
    DcMotor rightfront = hardwareMap.dcMotor.get("RF");
    DcMotor leftfront = hardwareMap.dcMotor.get("LF");
    DcMotor rightback = hardwareMap.dcMotor.get("RB");
    DcMotor leftback = hardwareMap.dcMotor.get("LB");

    //Reversing Motors and Servos
    intake1.setDirection(CRServo.Direction.REVERSE);
    leftfront.setDirection(DcMotor.Direction.REVERSE);
    leftback.setDirection(DcMotor.Direction.REVERSE);
    arm.setDirection(DcMotor.Direction.REVERSE);

    //Adding Brakes to the Motors
    arm.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
    leftfront.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
    leftback.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
    rightfront.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
    rightback.setZeroPowerBehavior(DcMotor.ZeroPowerBehavior.BRAKE);
```

```
//Adding Encoders
    arm.setMode(DcMotor.RunMode.RUN_USING_ENCODER);

    int armPos = 1;

    waitForStart();

    int downPos = arm.getCurrentPosition();

    while (opModeIsActive()){

       //drive control
       /*rightback.setPower((gamepad1.left_stick_y - gamepad1.right_stick_x)/2);
       rightfront.setPower((gamepad1.left_stick_y - gamepad1.right_stick_x)/2);
       leftfront.setPower((gamepad1.left_stick_y + gamepad1.right_stick_x)/2);
       leftback.setPower((gamepad1.left_stick_y + gamepad1.right_stick_x)/2);
       */
       rightback.setPower((gamepad1.right_stick_y)/2);
       rightfront.setPower((gamepad1.right_stick_y)/2);
       leftfront.setPower((gamepad1.left_stick_y)/2);
       leftback.setPower((gamepad1.left_stick_y)/2);


       //position arm control
       /*if        (armPos == 1) { //down
          if      (arm.getCurrentPosition() > downPos + 50)   arm.setPower(-0.2); //almost there
          else if (arm.getCurrentPosition() > downPos + 300)  arm.setPower(-0.4); //too high
          else if (arm.getCurrentPosition() > downPos + 1000) arm.setPower(-1); //way too high
          else  arm.setPower(0);//basically perfect
       } else if   (armPos == 2) { //middle or hover
          if      (arm.getCurrentPosition() > downPos + 2500) arm.setPower(-0.8); //too high
          else if (arm.getCurrentPosition() > downPos + 3000) arm.setPower(-0.4); //way too high
          else if (arm.getCurrentPosition() < downPos + 1500) arm.setPower(0.4); //too low
          else if (arm.getCurrentPosition() < downPos + 1000) arm.setPower(0.8); //way too low
```

```
else     arm.setPower(0); //perfect
        } else if   (armPos == 3) { //up or dump
           if      (arm.getCurrentPosition() > downPos + 4000) arm.setPower(-0.4); //more too high
           else if (arm.getCurrentPosition() > downPos + 3800) arm.setPower(-0.2); //too low
           else if (arm.getCurrentPosition() < downPos + 3400) arm.setPower(0.4); //too low
           else if (arm.getCurrentPosition() < downPos + 2400) arm.setPower(0.8); //way too low
           else  arm.setPower(0); //perfect
        } else if   (armPos == 4) { //manual control for testing purposes
           arm.setPower(gamepad2.right_trigger - gamepad2.left_trigger);
        }*/

        //arm position changing
        if (gamepad2.left_bumper)      armPos = 1;
        else if (gamepad2.y)           armPos = 2;
        else if (gamepad2.right_bumper) armPos = 3;
        else if (gamepad2.x)           armPos = 4;

        //manual arm controlling
        /*if (gamepad2.y) {
           arm.setPower((gamepad2.right_trigger - gamepad2.left_trigger) / 2.5);
           downPos = arm.getCurrentPosition();
        } else if ((arm.getCurrentPosition() - downPos) < 25) {
           arm.setPower((gamepad2.right_trigger) / 2.5);
        } else if ((arm.getCurrentPosition() - downPos) > 3600) {
           arm.setPower((-gamepad2.left_trigger) / 2.5);
        } else arm.setPower((gamepad2.right_trigger - gamepad2.left_trigger) / 2.5);
        */
        arm.setPower((gamepad2.right_trigger - gamepad2.left_trigger) / 2.5);

        //color sensor testing
        telemetry.addData("red", colorSensor.red());
        telemetry.addData("green", colorSensor.green());
        telemetry.addData("blue", colorSensor.blue());
        telemetry.addData("red + green", (colorSensor.red() + colorSensor.green())/5);
        telemetry.addData("color guess",
mineralColor(colorSensor.red(),colorSensor.green(),colorSensor.blue()));
        telemetry.addData("arm angle", arm.getCurrentPosition() - downPos);
```

```
telemetry.addData("raw arm angle", arm.getCurrentPosition());
            telemetry.addData("arm position", armPos);
            telemetry.update();

            //guard
            if      (gamepad2.dpad_up)   guard.setPosition(0);
            else if (gamepad2.dpad_down) guard.setPosition(1);

            //intake
            if (gamepad2.a) {
               intake2.setPower(1);
               intake1.setPower(1);
            } else if (gamepad2.b) {
               intake2.setPower(-1);
               intake1.setPower(-1);
            } else {
               intake2.setPower(0);
               intake1.setPower(0);
            }

            //Timekeeper
            sleep(1);
            idle();
         }
      }

      public static boolean mineralColor (int red, int green, int blue) {
         return ((red + green) > blue * 4) && ((red + green) < blue * 6); //true is yellow, false is white
      }
   }
```

After Meet 2 and 3

Update:

Meet 2 and Meet 3 definitely did NOT go as planned. The robot continuously fell apart. We were not getting along well together. The stress was high, and the team was sinking. And well, we paid the price. Our scores in matches were poor and our ranking among other teams plummeted. But, all teams have there ups and downs.

Afterwards, we did some team bonding. Walking to Dutch Bros, talking and getting to know a little bit more about one another. We definitely felt bad about our performance, so we worked harder to fix our errors. We came up with possible new designs for our robot, and we thought of more outreach ideas.

We put our past errors behind us, and we marched to a new and improved beat-- literally. We put on music and put our heads together to make the future better.

Meet 2 - our scores

Match 1

autonomous	N/A
silver minerals - lander	-
gold minerals - lander	-
depot contents		
end game	-
alliance team	12076
	TOTAL POINTS: 2

Match 2

autonomous	chain fell off
silver minerals - lander	-
gold minerals - lander	-
depot contents	-
end game	-
alliance team	4662
	TOTAL POINTS:0

Match 3

autonomous	N/A
silver minerals - lander	-
gold minerals - lander	-
depot contents	-
end game	chain keeps falling off
alliance team	
	TOTAL POINTS: 0

Match 4

autonomous	N/A
silver minerals - lander	-
gold minerals - lander	-
depot contents	-
end game	-
alliance team	
	total points:25

Match 5

autonomous	N/A
silver minerals - lander	
gold minerals - lander	
depot contents	
end game	crater
alliance team	.
	TOTAL POINTS: 25

Meet 3 - our scores

Match 1

autonomous	almost got up the crater wall
silver minerals - lander	-
gold minerals - lander	-
depot contents	-
end game	-
alliance team	15341
	TOTAL POINTS: 0

Match 2

autonomous	got marker into depot and parked.
silver minerals - lander	-
gold minerals - lander	-
depot contents	1
end game	hung!!!!!!!!!!!!!!!!!!!!!!
alliance team	7527
	TOTAL POINTS: 52 + depot claim

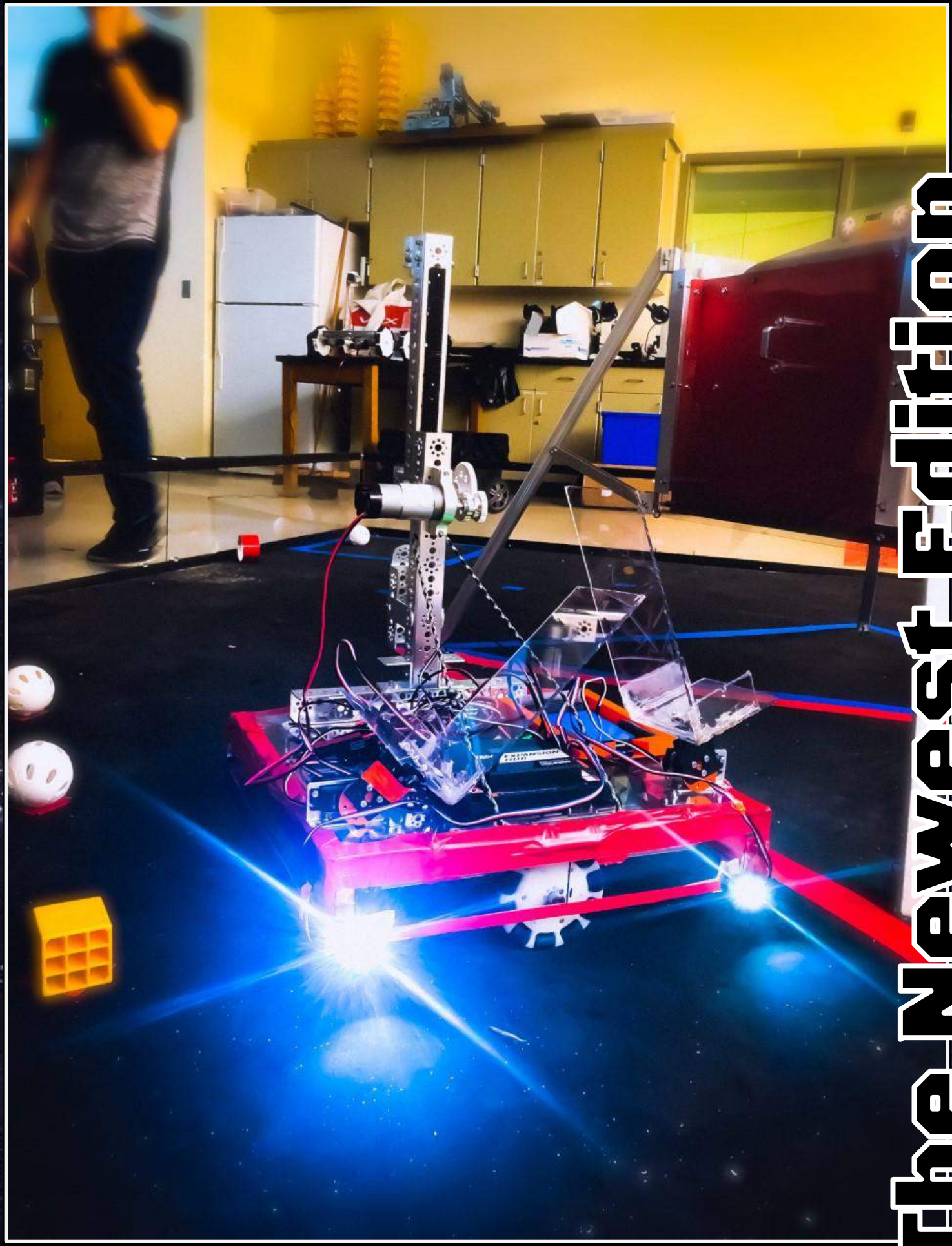
Match 3

autonomous	claimed and parked
silver minerals - lander	-
gold minerals - lander	-
depot contents	5
end game	-
alliance team	4662
	TOTAL POINTS: 25 + depot

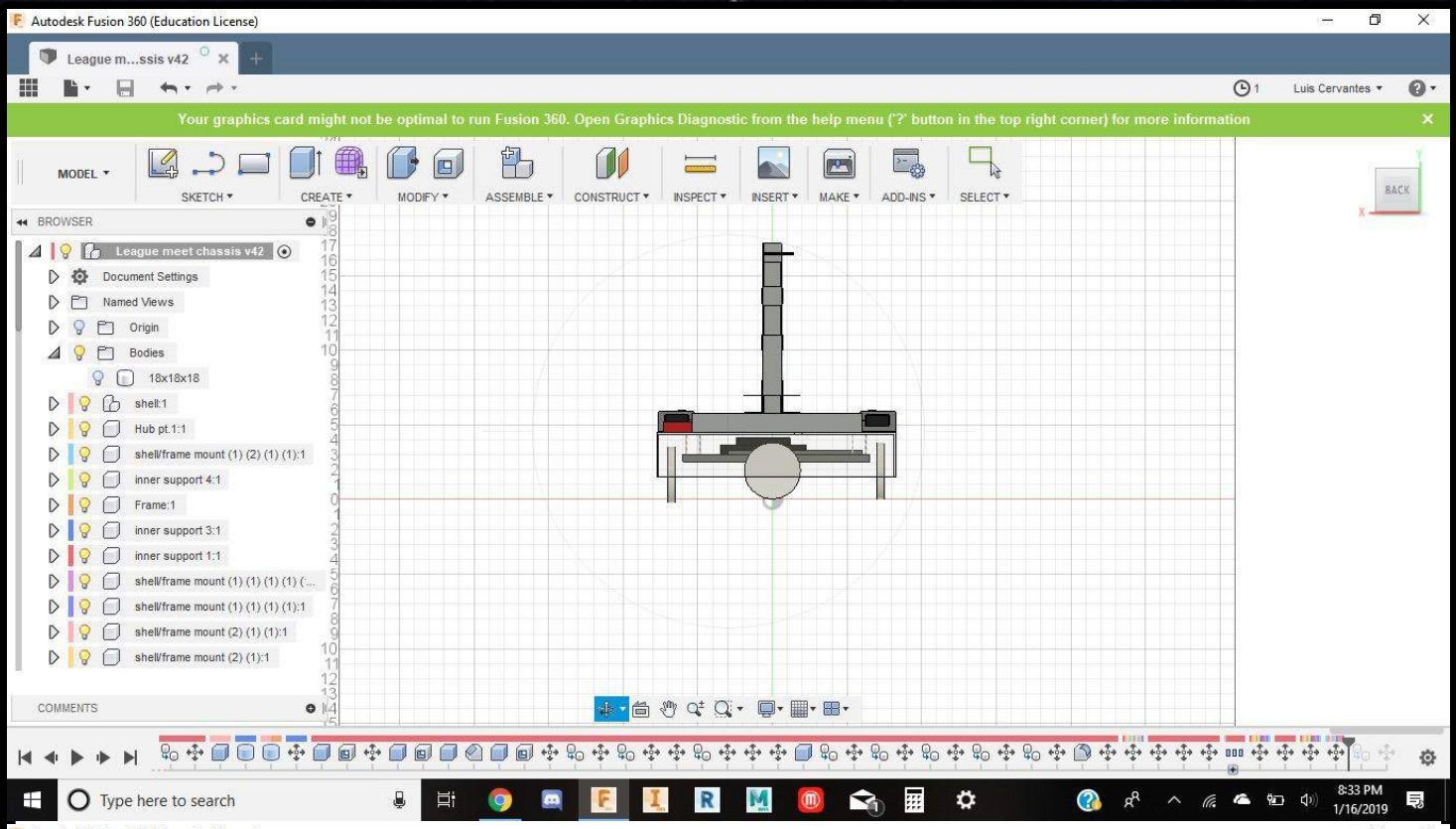
Match 4

autonomous	**claimed and parked**
silver minerals - lander	**-**
gold minerals - lander	**-**
depot contents	**||||**
end game	**tried to hang, but failed**
alliance team	**12050**
	total points:33

*** due to correcting problems in the pit, there was no one to record Match 5.



The Newest Edition


Autodesk Fusion 360 (Education License)
League m...ssis v42
Luis Cervantes
Your graphics card might not be optimal to run Fusion 360. Open Graphics Diagnostic from the help menu ('?' button in the top right corner) for more information
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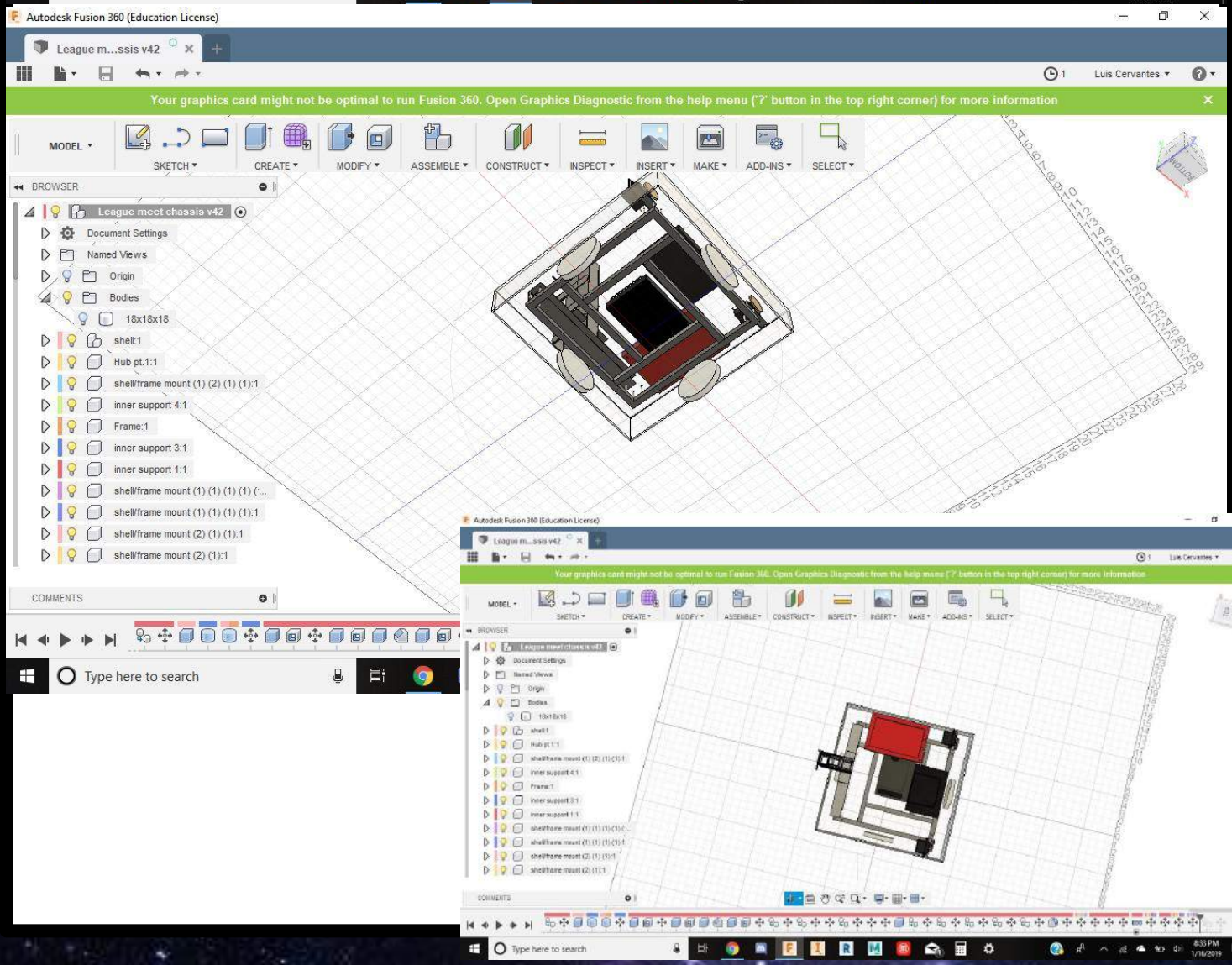
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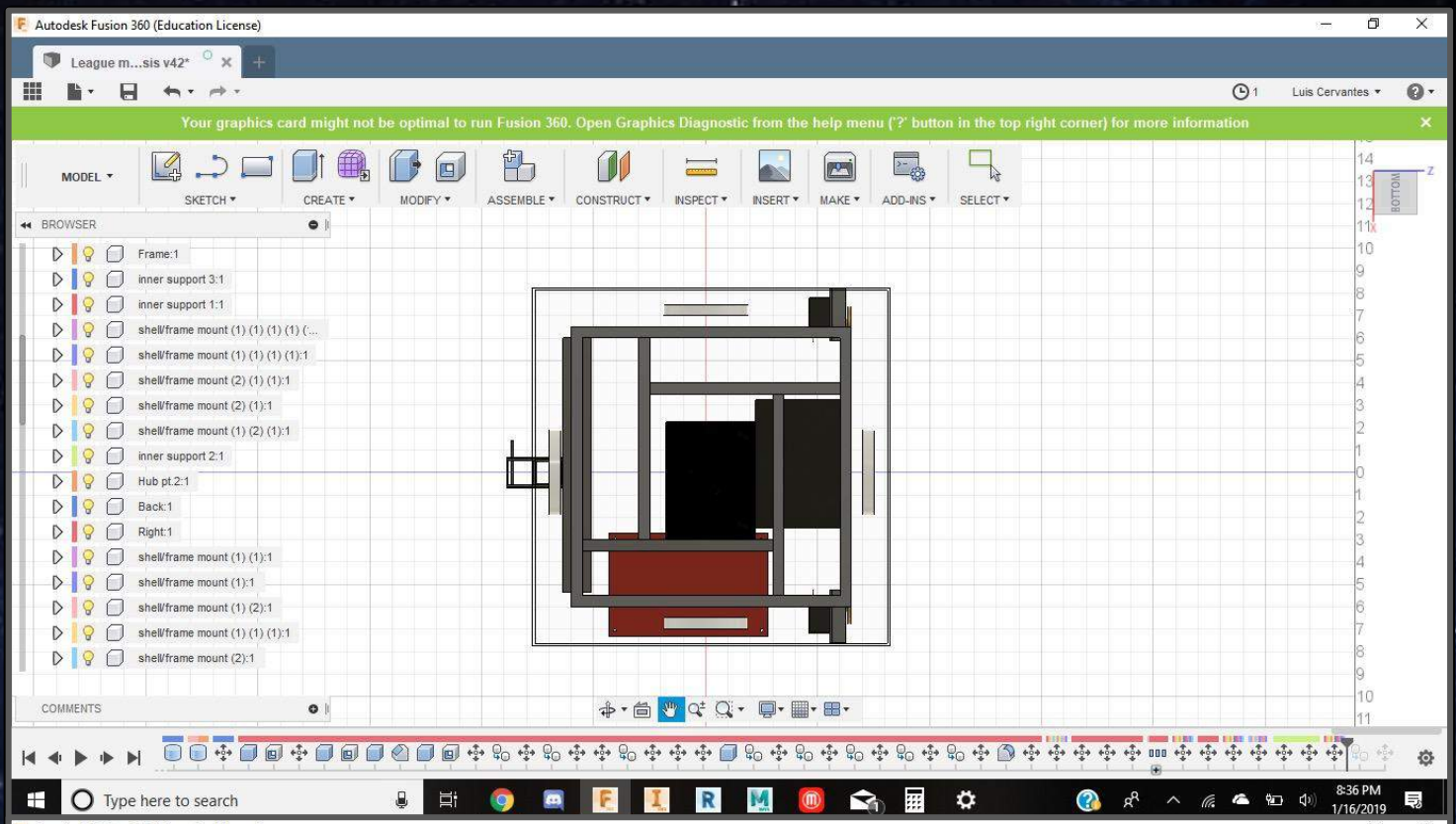
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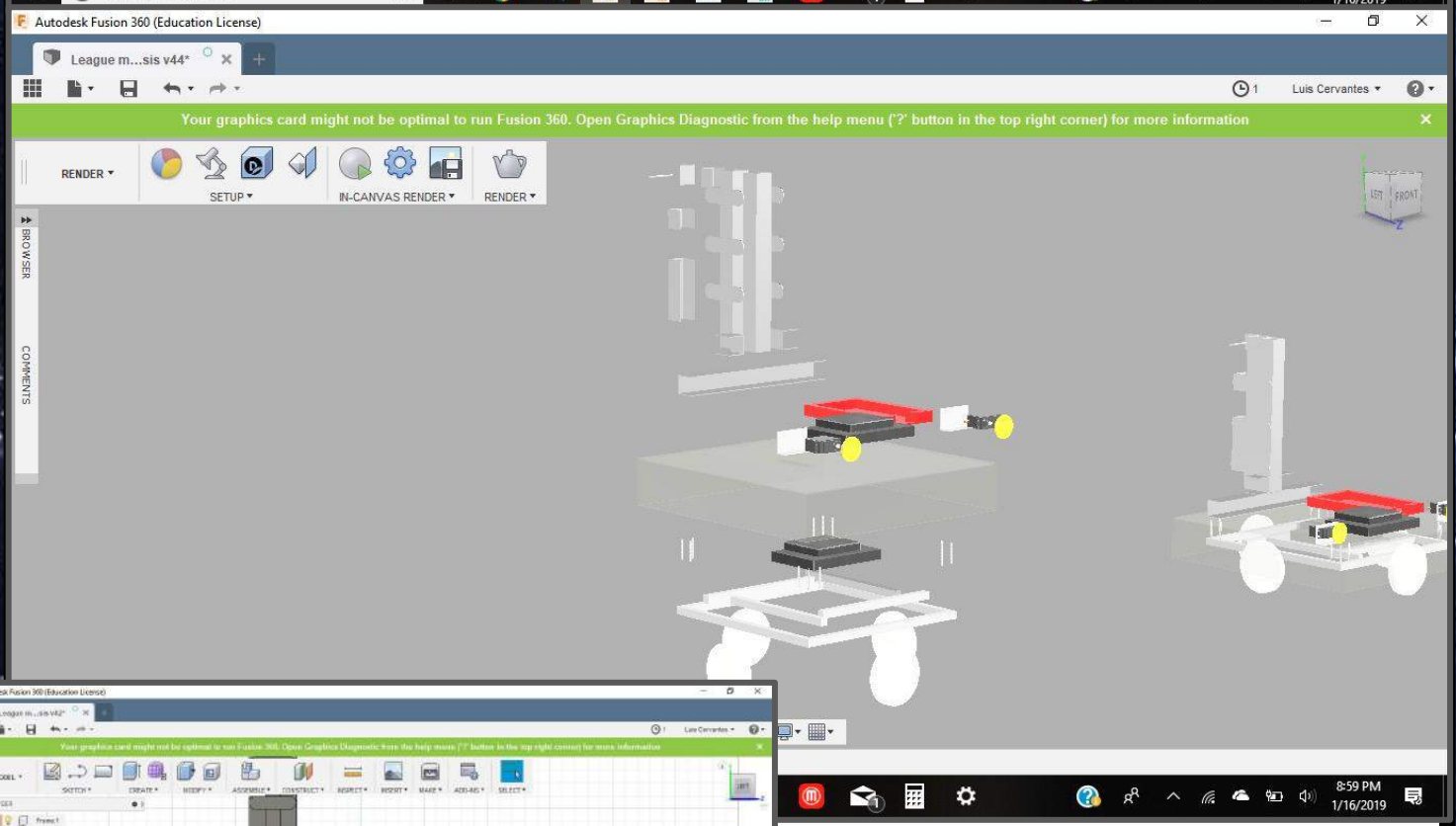
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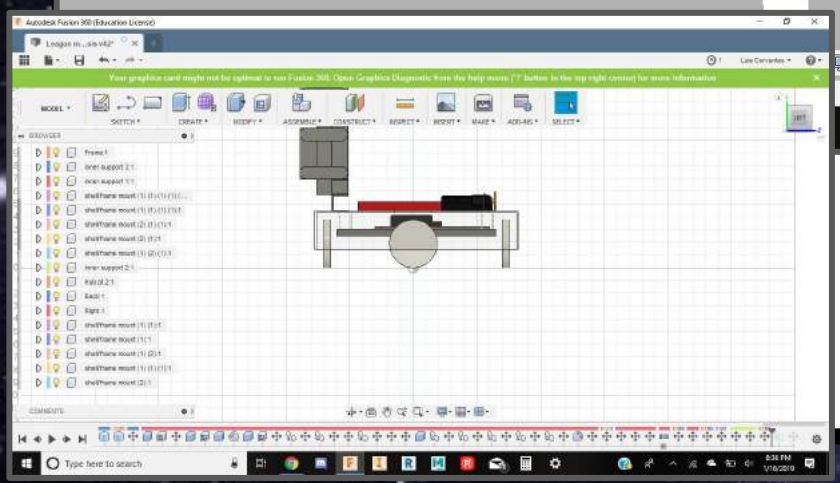

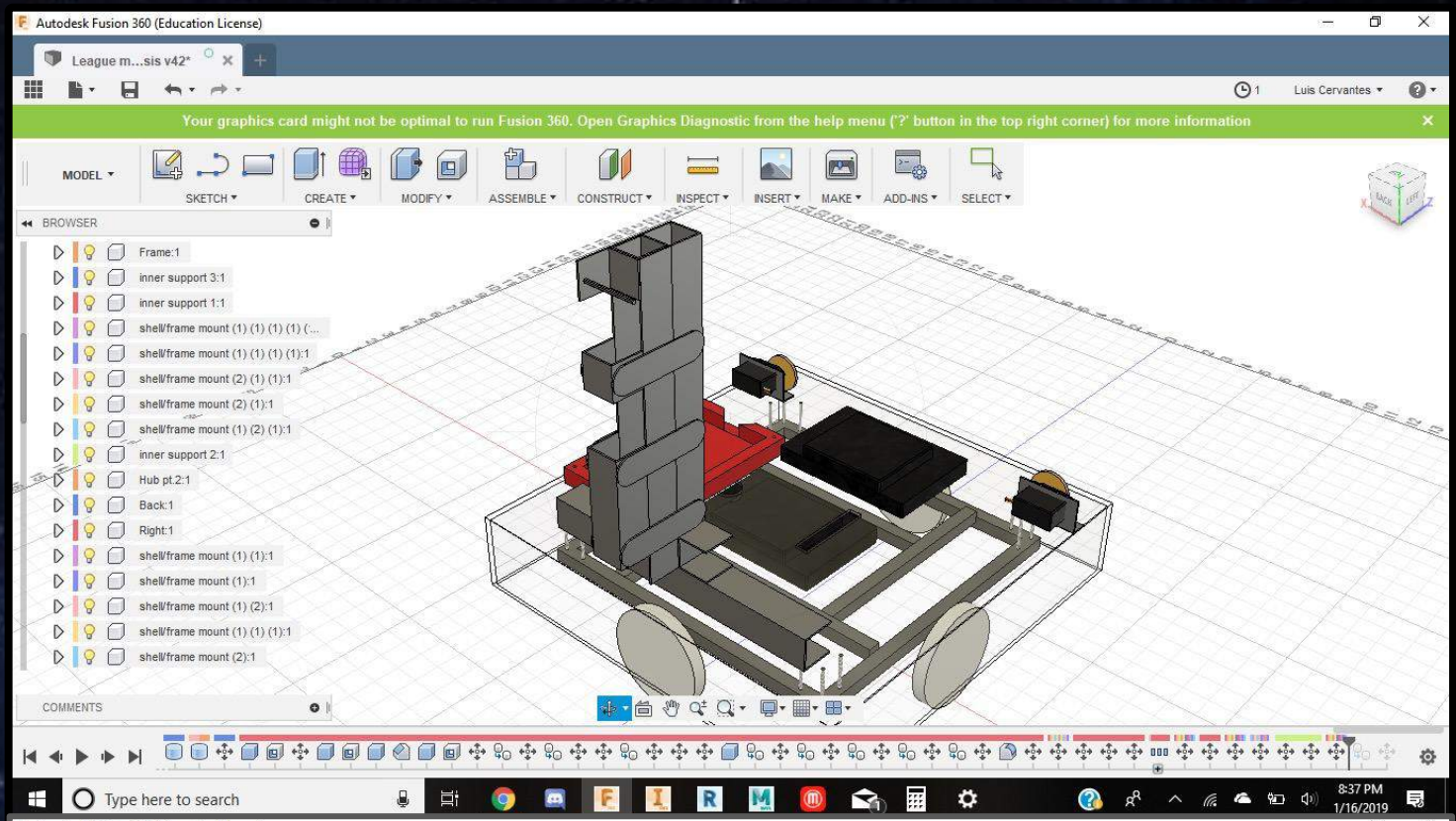
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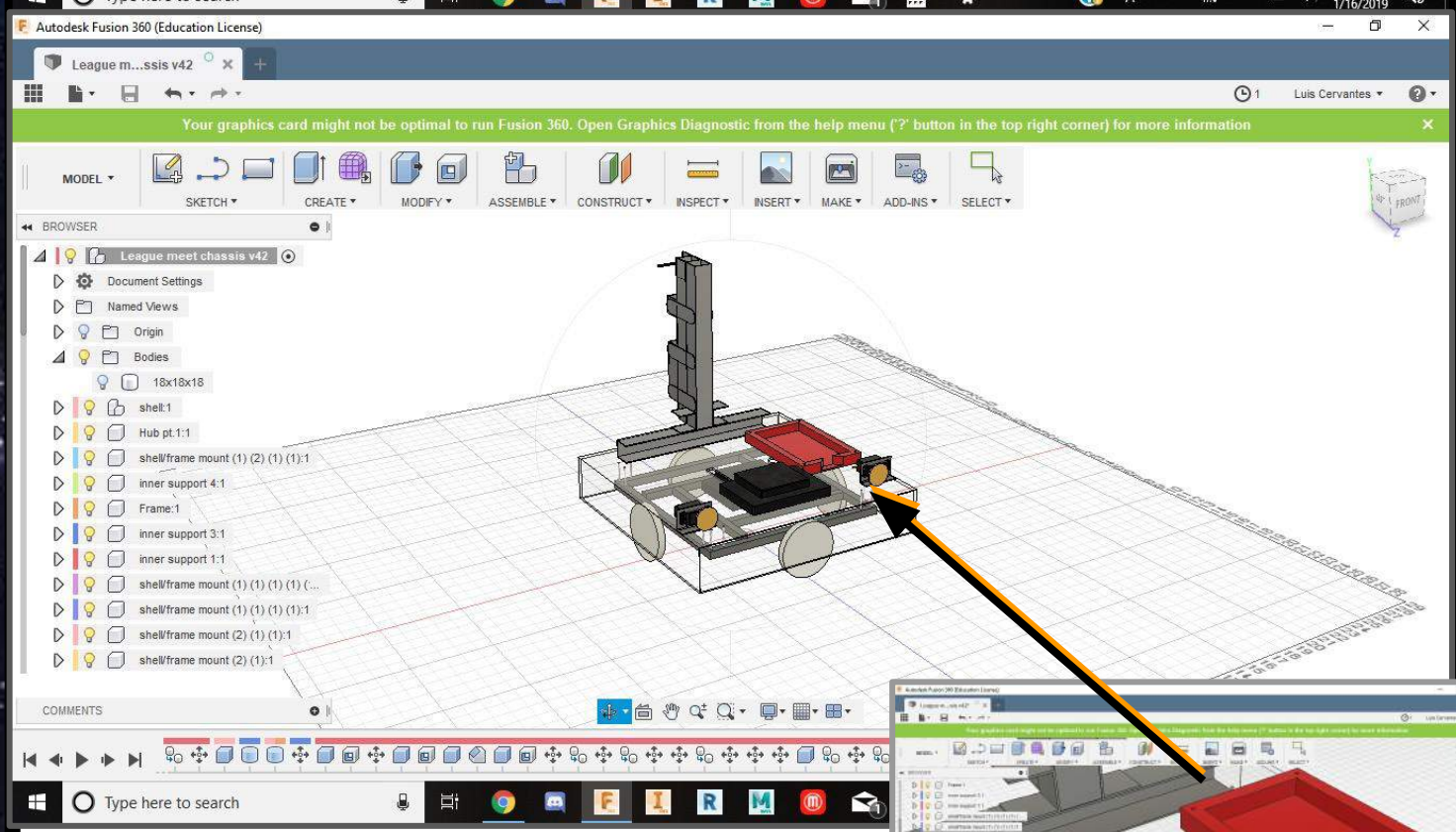
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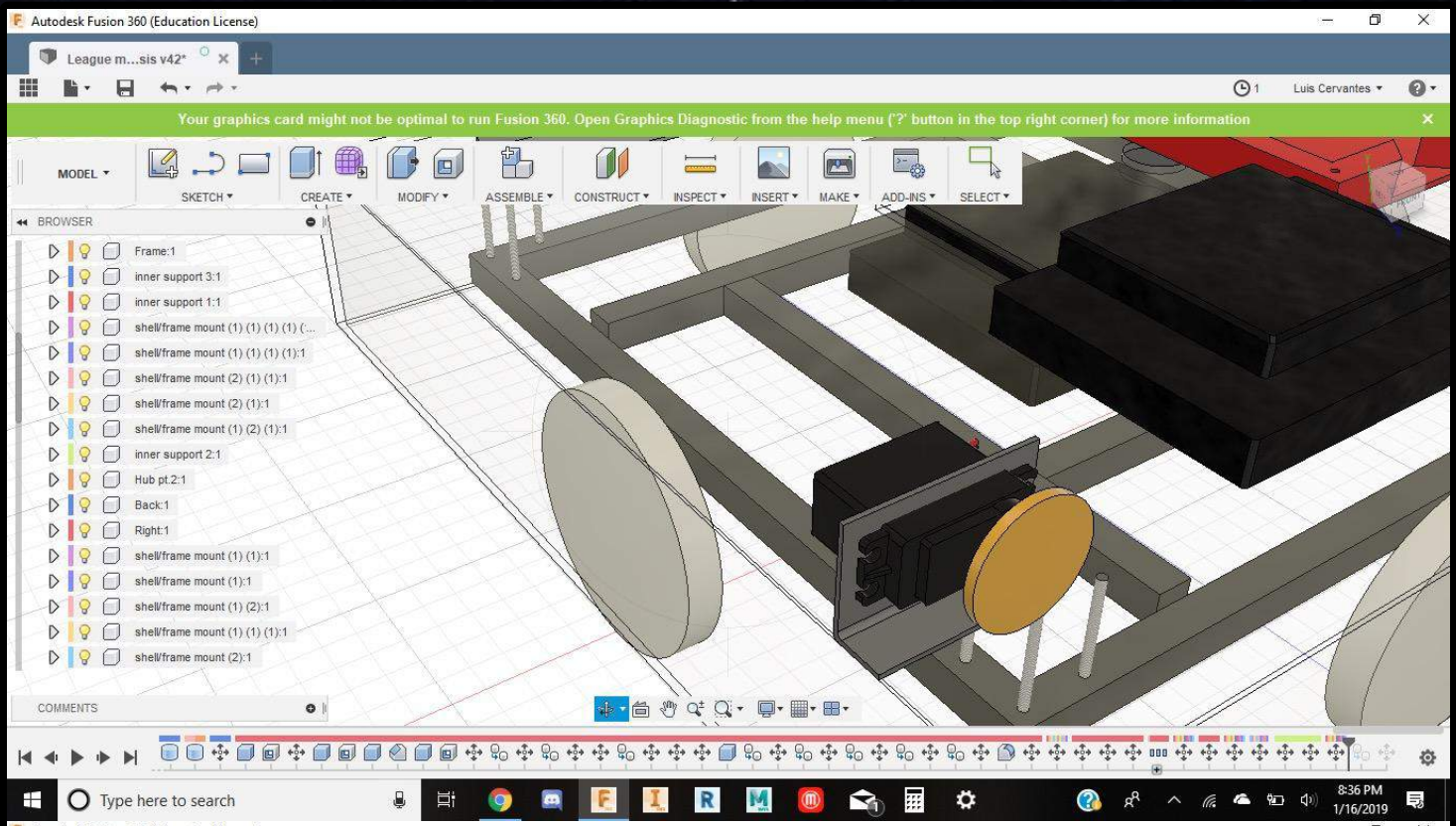
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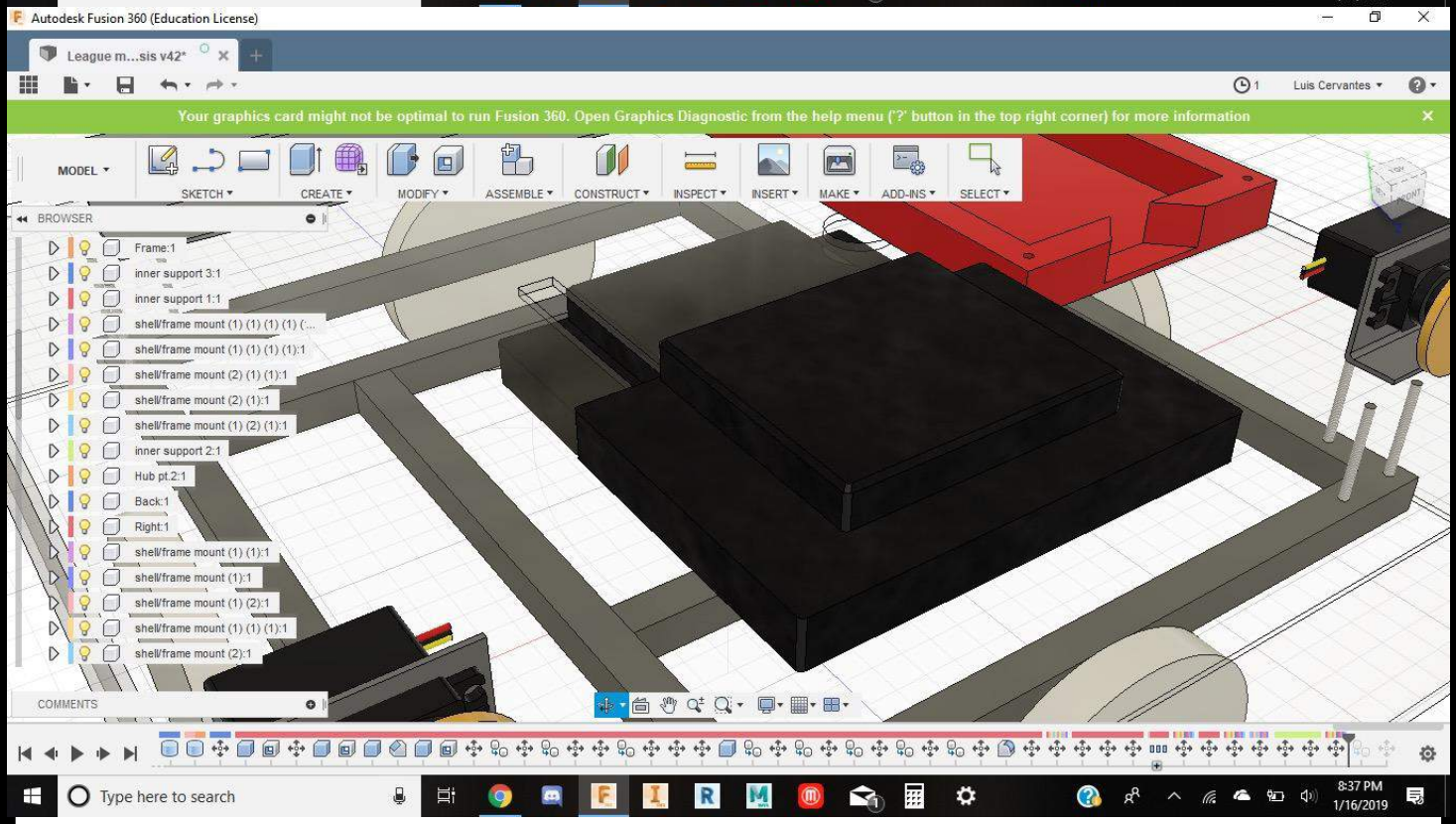
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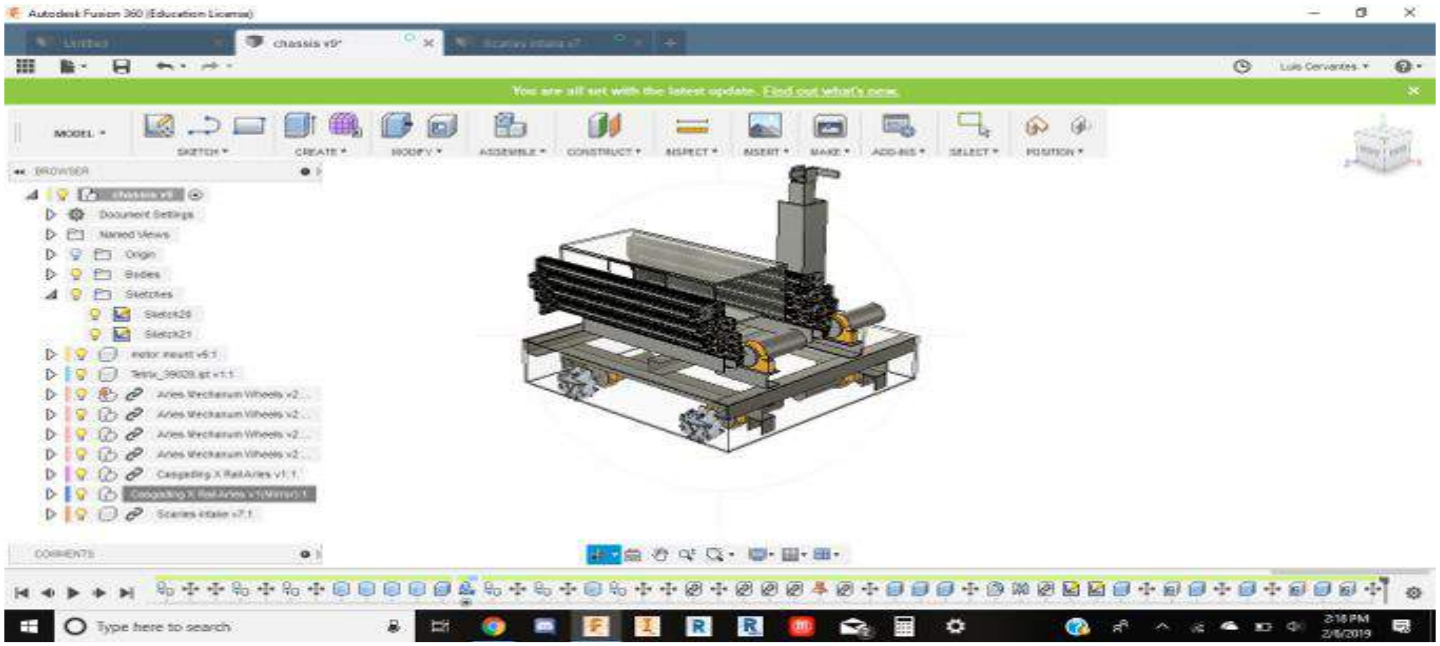
1/16/2019


SWISS MISS
MILK CHOCOLATE
SWISS MISS
I have an announcement...
STAR WARS
...we have rebuilt the robot... again...


Autodesk Fusion 360 (Education License)
chassis v9*
You are all set with the latest update. Find out what's new.
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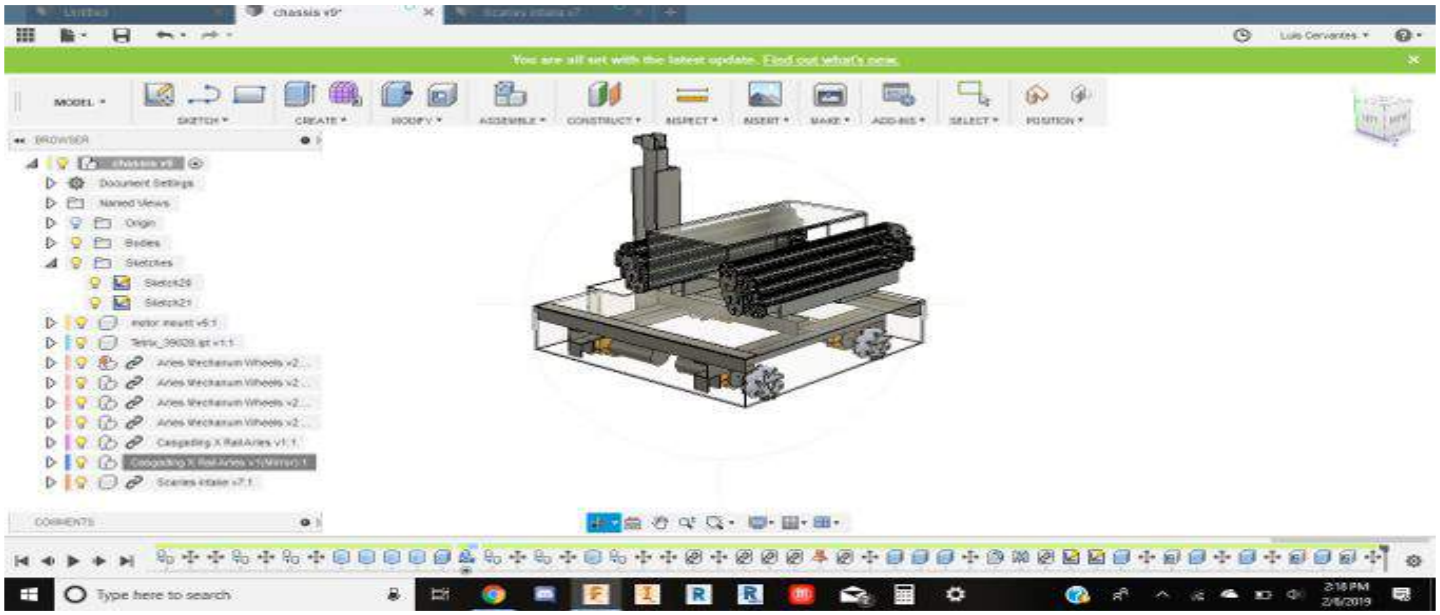
chassis v9*
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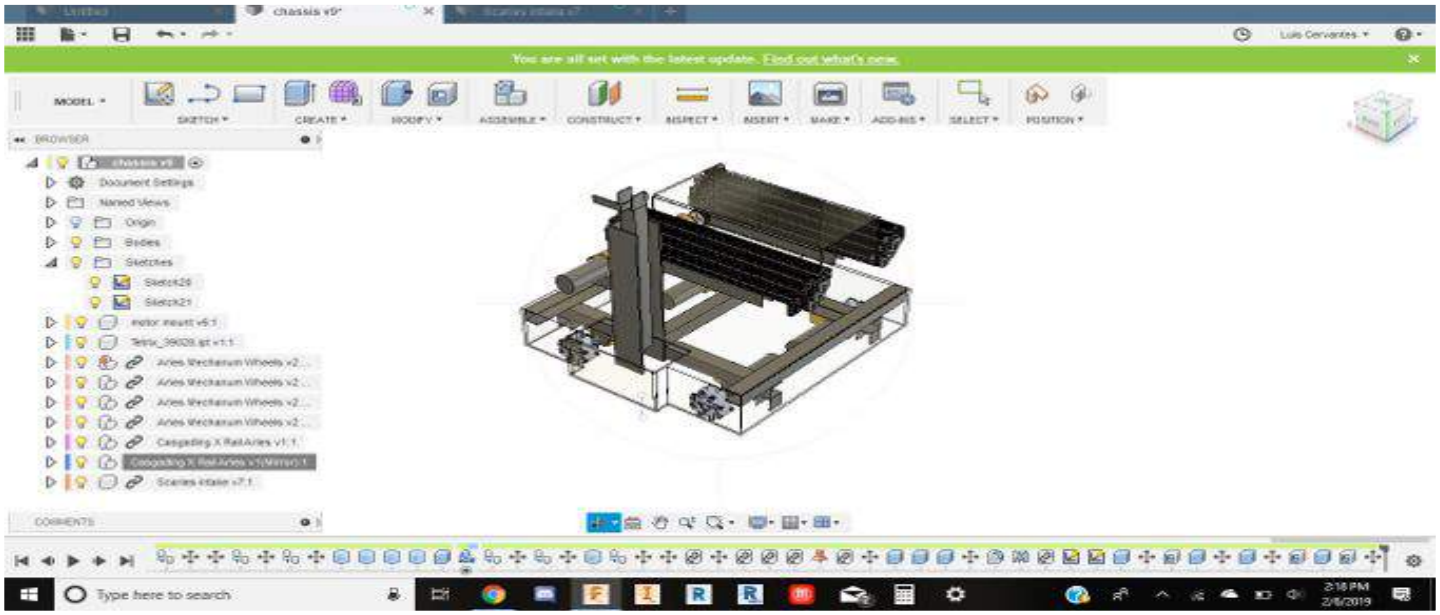
chassis v9*
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Sketch20
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COMMENTS
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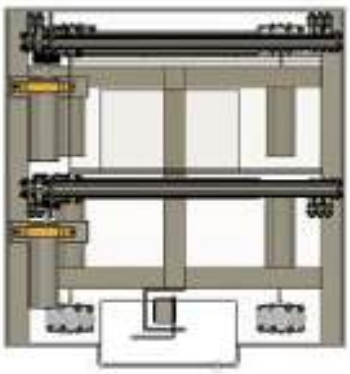
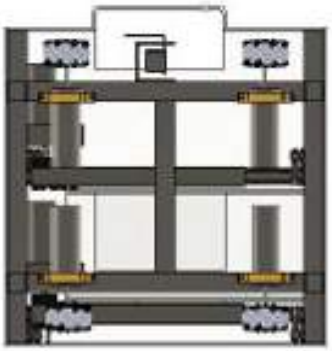
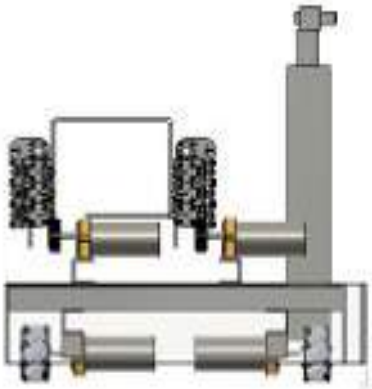
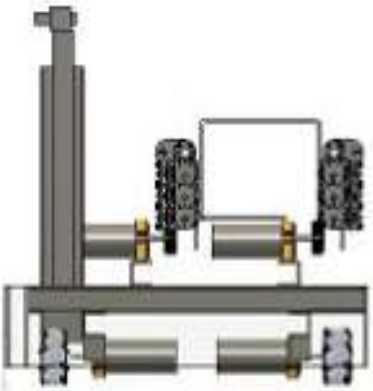
2/6/2019

A FEW MORE ANGLES



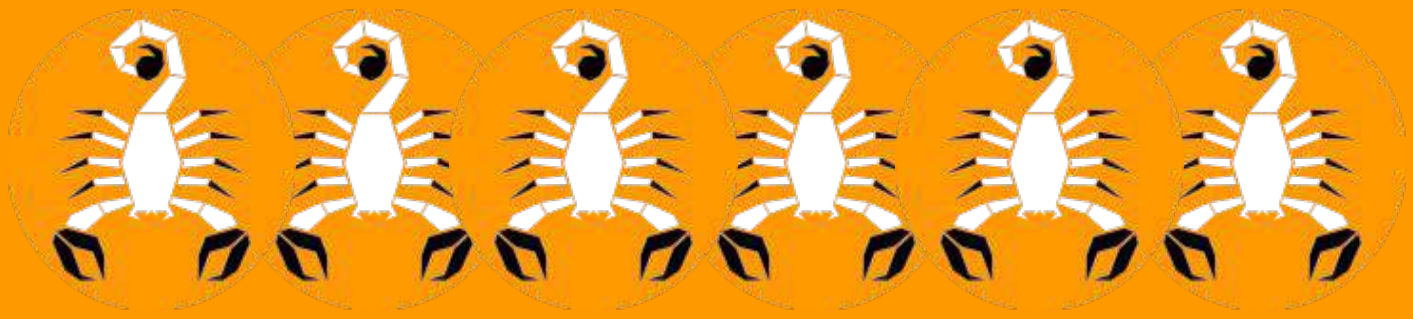




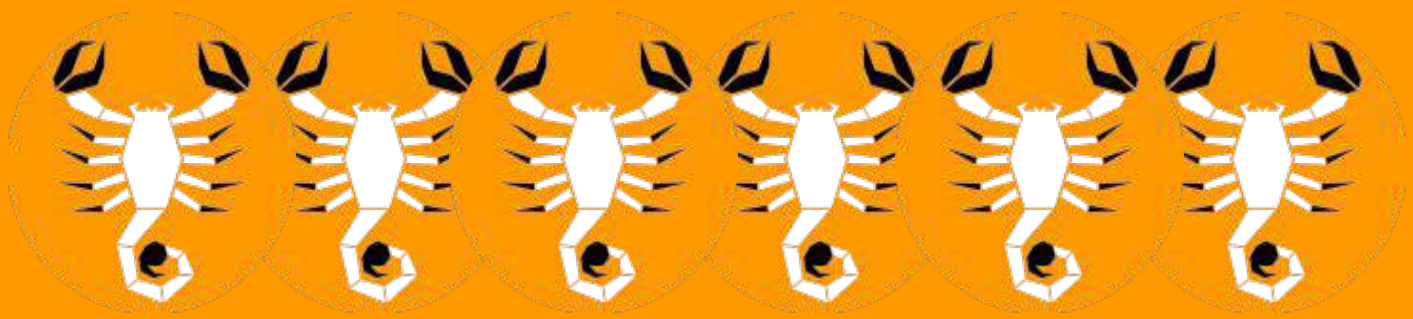


After school everyone piled into cars are drove to Dillard, Oregon to the Western Regional Business Office of Roseburg Forest Products. We walked in and started our interview with Roseburg Forest Products. It was very much like the interview with the judges at our past tourname-nts. Then they showed us a video introducing their machinery and how it worked. The "End-dogger" was especially cool. It had 96 axis of motion. We also showed them our robot, and they gave us ideas on wires and arm placement.


Hanson
Family
Vacation
2018



Scorpio Update after League Meet



OK! How'd we do at League Tournament? Allow me to explain…

We show up around 6 am. to show up, coffee in our hands, ready to move table and set around chairs. Time comes for the notebook to be given to the judges, and Madeline runs around like crazy to find a man with a name tag accompanied with the scribbled name "Matt".

The notebook is given and it's time to wait for our judges meeting. We passed the time by fiddling with our earbud cords, fixing the stuff the fell apart on the robot, and eating really sticky rice-crispy treats.

We scramble to gather our composure before our judges interview, and after our meeting, we give a round of hive-fives because we thought we nailed it- we had everything! Polar bear jokes, good enthusiasm, and time to answer questions. We had a good feeling about our performance. Now all we had to do was have some fun with our robot.

Despite our good attitude and rose-colored lenses, our robot performance was not so hot… we scored an average of 65.2 points per match, including the work of our alliance members… (But hey! We are improving from Meet 2 and Meet 3! But still… not great.)

Ok. So, we thought our team was in a bad spot. The rose-colored glasses were ripped from our faces and stomped on. We all glumly walked to the competition room with the playing fields and waited to hear the accomplished teams receive awards and move on, while Scorpio… we thought, would not.

But then our name was called for an award…
and then another…
and then one more…?!

WE WENT WILD!!!!!!!

What? WHAT? How did WE- THE PEOPLE WHO COMPETED WITH POOR PERFORMANCE- WIN AN AWARD?!?!?

Wait…….. Our notebook was pretty good, right? And remember we had a decent interview??? OH MY GOSH SCORPIO!!! WE'RE MOVING ON THE SUPER QUALIFIERS!!!

This moment- this exact moment- is when we knew we needed to change. We were granted a second chance to fight and we were not going to throw it away.

Andrew, In a victory pose, very much like Rocky, as he runs the trophy to our team.

Team Member Interviews. - Five people (well, as many as I can get…), once a week.

How do you think the team is doing at the moment?
What do you think we need to accomplish before the next tournament?
Any ideas?

ALEX CHURCH
FRESHMAN
TUESDAY, FEBRUARY 5

“I don't know how to describe it to be honest. I think we’re doing good. We need to accomplish a lot before the next tournament, but we are slowly getting to the point of being in a good spot. Slowly, but surely. If we work together and communicate with each other, i think we will be able to get everything done.”

KOU CASTLE
FRESHMAN
TUESDAY, FEBRUARY 5

“I feel like we’re making great progress. We are working together and having great communication. I feel like we need to accomplish driving competitions, to find the best drivers. We also need to set specific build days. Just cleaning up the small details. Making sure that we stick to specific dates we set and driver over and over, making our performance flawless will help fix our small errors.”

ANDREW WHIGHTSIL
SENOR
TUESDAY, FEBRUARY 5

“I feel like we are accomplished a lot in the little time we had. We need to just use these last few days to just practice, practice, practice. Before the next tournament we need to set driving goals, perfect autonomous and get better at competition day activities. We need to make sure we know whos doing what at competitions. Team discussions and team decisions need to be made. There's no ‘I’ in team., and I think if we work on communication and working together, we can get everything done.”

MADELINE PATRICK
FRESHMAN
FRIDAY, MARCH 8

“I feel really good about where our team stands right now. We have an amazing robot, and I am confident that its performance on Sunday will be a high quality one. We rehearsed our judges interview with a few teachers today, and it went pretty well. We just need to cut down on the time of everyone’s short snippet of speech. Our notebook is beautiful- at least in the team’s opinion. Tomorrow everyone will be meeting at RHS at 6:45 a.m. and boarding the bus to Portland, a three hour drive. We are so happy to be able to even get the chance to battle it out with other teams to go to World’s. We will thrive tomorrow and Sunday. I feel it. Things are going to be in our favor. And if they turn out to be against us, Scorpio will problem solve and come up with a solution. It is what we do best.”


MEETING DATES
Important Dates
Nov. 3- Meet 0 (RHS)
Nov. 17- Meet 1 (RHS)
Dec. 8- Meet 2 & 3 (RHS)
Team #
Scorpio: 13189
Taurus: 15391
Aries: 15392
Remind:
Discord:
Driver

Our Plan

Kou Castle and Madeline Patrick will be reaching out to members on other robotics teams at STATE, which will help with Alliance Selection nearing the end of the competition. Kou, with great speech skills, will be presenting Scorpio to teams within the pits; giving them our strengths, weakness, and a little bit about what Scorpio is about. Of course, it will be delivered with a smile. Madeline, with skills of observation and persistence along with explaining things in a hurry, will be watching teams compete on the field and then following them to the pits introducing Scorpio, giving them the same information that Kou will be providing to those already in the pits.

Both Kou and Madeline will be possessing a notebook for note keeping on teams of their strengths and weaknesses. This will help if we rank high enough to be in the position to be an Alliance Captain.

Now, we understand that some teams may be encountered twice, but is that really a con? No! It just means those particular teams will really know the name of Scorpio. And, let's say that Kou does not mesh well with a team. Madeline then has the opportunity to talk to that particular team to try and bond Scorpio with that team. Its fool-proof, right? Well, we hope so.

Alex Church, will be scoring matches of teams we might select as an alliance. Madeline will be receiving scores from him to record with the team she watched.

Our drive team will be composed of Jace, Andrew and Sam. Jace as driver coach, and Andrew and Sam as drivers. Scorpio has put them on the job because Jace has a good eye for identifying the problem at hand, so after the match we will be able to correct it immediately in the pit. He also has great communication skills. Nobody knows the ways of the robot better than Andrew, and Sam is great with controls. So they will be perfect in the driver position.

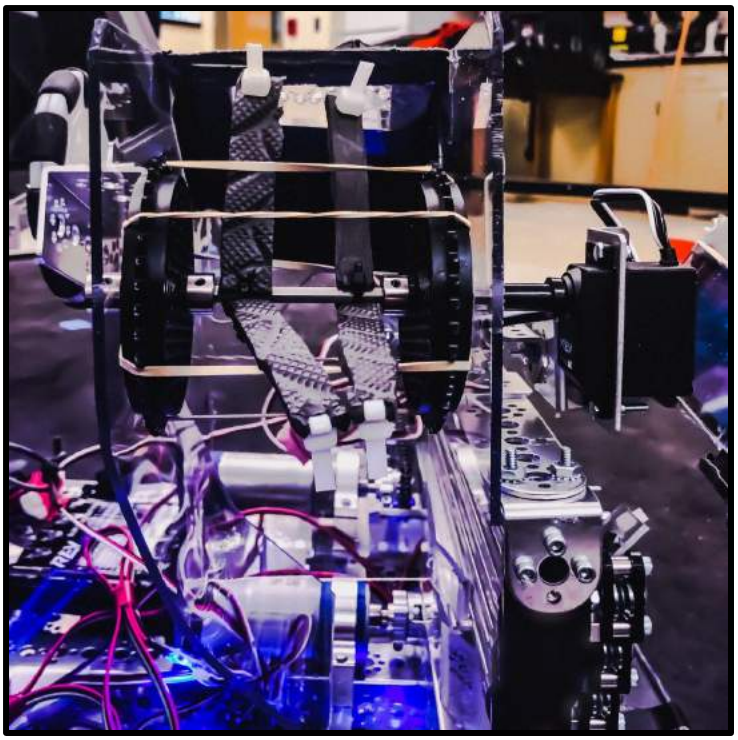
People stationed in the pit ready to aid drivers and driver coaches or repair small bits of the robot will be Luis, Morgan, Ethan, Chase, and Michael. They will be demonstrating **Gracious Professionalism** and greet other scouting teams with a smile and give them information about us as a team and our robot. They will also be ready to work fast and efficiently when the robot returns from a match to fix any errors.

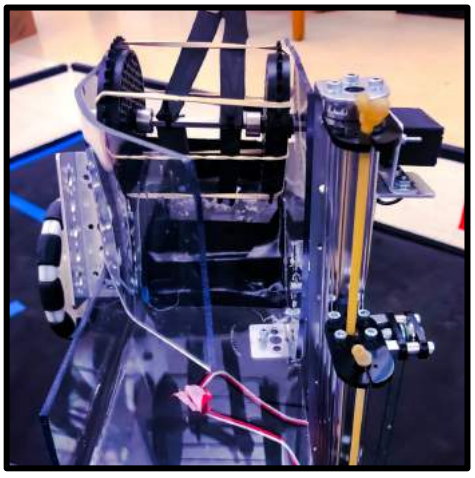
With this plan, we believe there will be little to no flaws. We will succeed, and we will be advancing to Worlds. Optimistic? Maybe. But we have worked hard enough to put this play into action.

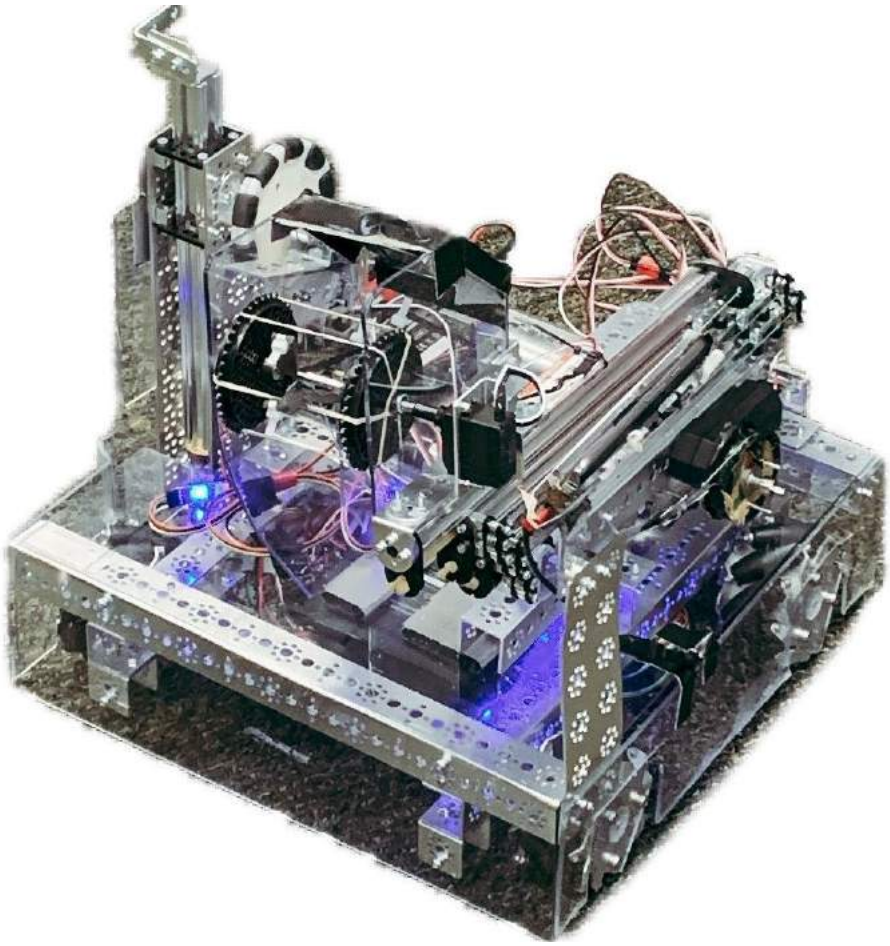
- Scorpio

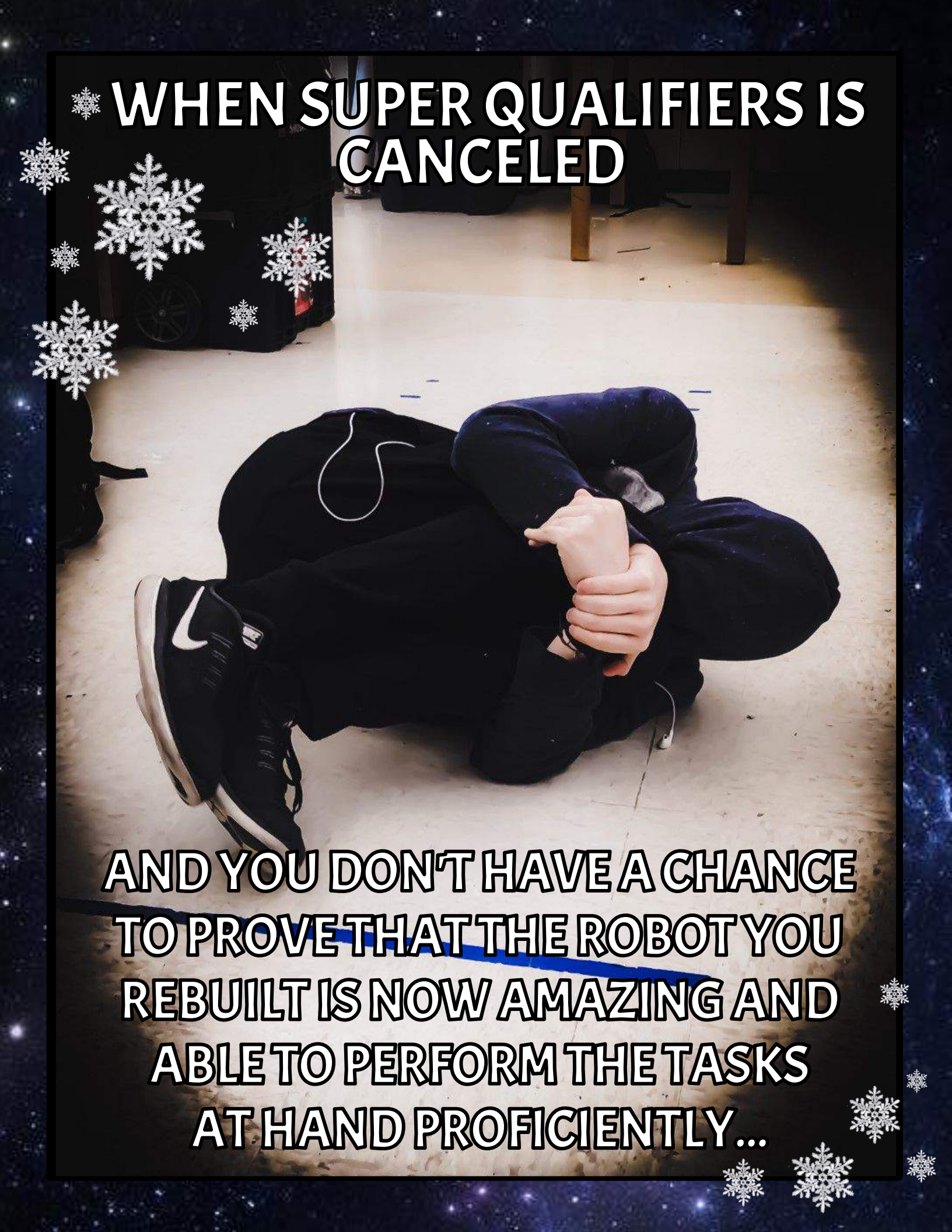
THE NEW AND IMPROVED INTAKE

This NEW INTAKE in composed of a servo and two gears with rubber bands (4) so then it can grab minerals as it spins, bringing it into the intake full rectangle like shape. We have a piece of lexan that makes a gap big enough for the gold minerals to slid out the back but the silver have to be released out the side of the intake box due to having a bigger diameter than the gold minerals. hope the cut lexan will us to differentiate the placement of minerals i lander, giving us lots o' points.








WHEN SUPER QUALIFIERS IS CANCELED
AND YOU DON'T HAVE A CHANCE TO PROVE THAT THE ROBOT YOU REBUILT IS NOW AMAZING AND ABLE TO PERFORM THE TASKS AT HAND PROFICIENTLY...

Ok what the heck? Mother Nature!? God?! Why so much snow? NOW WE CAN'T GO TO SUPER QUALIFIERS!

I guess it goes to data now… is our data good enough? I don't know! We only got to super qualifiers because of our awards! Will our awards be accounted for?

SO MANY QUESTIONS!
I CAN'T BREATHE!
I AM GOING CRAZY!

Ok I am calm. I was informed not to panic, and that Scorpio will find out if we are going to State (from the data) on Tuesday. Only 4 more days… I can contain my emotions till then… I hope.

Tuesday rolls around…

OMG OMG OMG OMG OMG OMG OMG OMG OMG OMG OMG OMG

YAY!

SCORPIO IS COMING TO STATE!

We are all too excited. Three weeks. Pedal to the metal. Let's do this thing, and let's do it well!

Business Plan

RHS Robotics Business Plan

- **Description:** RHS Robotics is a school program providing the opportunity for students to be involved with FIRST Tech Challenge. The club was created and run by students, with the guidance and support of mentors and coaches. That means students are controlling fundraising, outreach, event planning, and more.

  Robotics at RHS are focused on teaching others about robotics and promoting FTC. We, Scorpio, help mentor other teams and students newly enrolled in RHS Robotics. Additionally, we go out to the community to spread the word of Scorpio and introduce the ideas of our club. This is a quick glimpse of things we have accomplished.

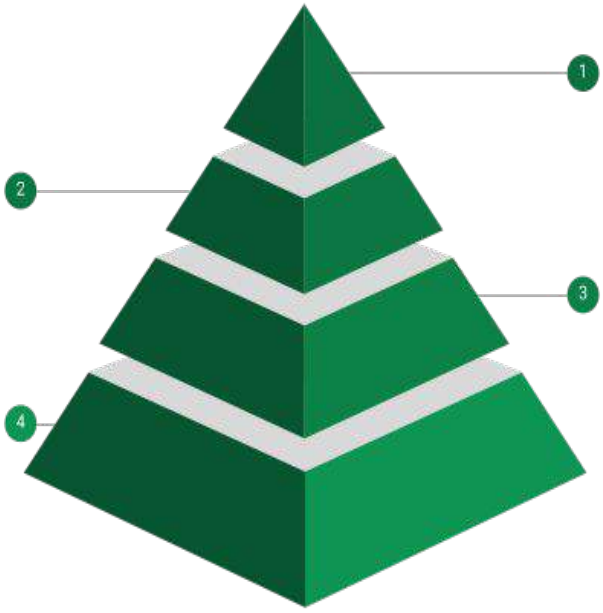
- **Structure:**

School

RHS helps create an environment where students and FTC can correlate.

Students

RHS students hold the club in their hands. They put in the effort and make things happen.



Parents/Mentors

The students' parents along with mentors help students accomplish what needs to be done.

FIRST Tech Challenge

The dynamic organization that provides the structure for STEAM, promoting and sharing it.

- **Financial Goals:**
  - Purchasing Kits for every year
  - Purchasing specific parts for ideas easily
  - Buying better tools (i.e. Drill Press, Heat Gun, 3D Printer, etc.)
  - Team shirts - for every team (Four teams of at least ten people each.)
  - Registration fees, and having money left over to pay for other necessities.
  - Providing a healthy variety of concession items when Scorpio hosted Meets 0-3.
  - Funding from sponsors, grants, and donations instead of having to pay out of pocket for various items.
- **Club Goals:**
  - Expanding FIRST Tech Challenge throughout all of Roseburg
  - Bringing in new members
  - Sharing the importance of science and engineering and teaching young students about the opportunities robotics gives
  - Frequently make it to state and worlds
- **Process:**
  - Growing, networking, and promoting FIRST Tech Challenge in our community and others.
  - Partnering with companies to accomplish higher quality objectives.
  - Increase in population of robotics participants.
  - Creativity and imagination
  - Consecutive problem solving
  - Student Leaders

Design

The newest iteration/design of our robot is an omnidirectional drive. We decided to do this because of the control it gives on the mat. The drive allows us to slide left, right, forward, and backwards. This new drive allows us to latch onto the lander more easily, as well as provide easy access to any portion of the field.

As a team, we decided to not focus on *getting* in the crater, but rather, *extending* our arm *into* it. We accomplish this by a simple pulley mechanism. This arm is less focused on scoring, but rather, setting up our teammate to score, as we believe in the first core value Coopertition. This works by raking and scooping out balls for our teammates to score.

Our autonomous is fully completed, with a lift system, mineral color sensing, and depot claiming. This allows us to be sure of scoring the most points possible from the earliest possible part of the match.

The arm lift is a linear slide system which pulls us 4 inches off of the ground at the last 30 seconds of endgame.