3100 Lightning Turtles

Pre-Season Newsletter #2

Pre-Season Training and Mini Competition Ramp Up!




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- PROGRESSIVE PROTOTYPING
- MRI TOURNAMENT
- MENTOR SPOTLIGHT
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Minnesota Robotics Inivitational Off-Season Tournament

We participated in our second off-season tournament in Roseville where we competed against 31 other teams.

Being off-season, the emphasis is not on winning, but rather on giving team members a chance to drive during one of our 8 matches and learning critical repair and strategy skills in a close-to-real competition environment. All these will apply directly to our upcoming competition season starting in March 2020.

Progressive Prototyping

We're progressively generating ideas, creating drawings to communicate those ideas, creating 3-dimensional cardboard examples - all leading to presentations to share mechanism ideas with each other to apply to our fall pre-season game "Quick Quota."

We've been Safety Trained and the rookies on the team are now learning hands-on skills to operate machinery in the woodshop.

Ecolab Visit

We recently visited the Ecolab Research & Development Center in Eagan to give associates who work there a close up view of how our team works, a chance to drive our custom-built robot, and time for our team leaders to talk with Ecolab leaders.

Ecolab is our number one corporate sponsor and provider of team mentors. We were pleased to be invited and it was a great experience.

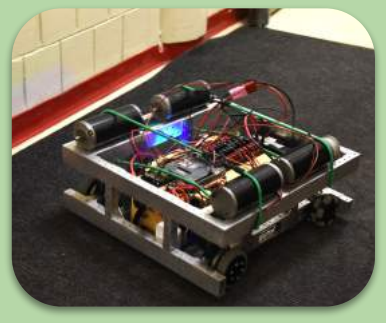
Team Training Update

Fall all-team training is well under way. Our students are refining all their design and build skills as they create training robots for our fall mini team competition. It's a fast-paced process, but everyone is working well together & the rookies are getting great practice.

Safety Training

Maise, Captain of FRC 2177, joined us in our shop to present the importance of safety to the entire team - Thanks Maise!

Drivetrain Development



Our team-created LT MK1 Drivetrains (for our fall competition) are programmed and drivable

Parent Meeting

Keep the Parents Informed! Our team leads and mentors delivered our annual parent info session - discussing expectations and complete plans for the year.

Mentor Spotlight
Conor Smith

Connor is a Research Chemist at Ecolab and this is his fourth year mentoring the team. He's the co-creator of our extensive fall training program this year and an all-around great guy!

Fall Training - Team Reports

Over the next 4 pages, you're going to see reports generated by each of our four student teams on how they are thinking about solving our fall competition requirements to pick up different sized balls (called components and accelerators) and place them or fire them into a container.

We're showing you the raw strategy on the next 4 pages with lots of unexplained detail. That's OK - Go for it and take a read through.

Strategizing is divided into 2 parts - the **What's** and the **How's**

>>THE WHAT'S<<

The **What's** is the strategy that deals purely with What do we want our robot to accomplish. In our fall challenge, there are many tasks the robot ***could*** accomplish - like pick up each sized ball, push balls by type & size, discriminate between ball sizes or lift, place or shoot balls into different sized containers/receptacles.

Each team needs to decide WHAT of these many tasks they want to accomplish. You can't do or design for everything. And yet each task earns you different levels of points based on difficulty & you need lots of points to win.

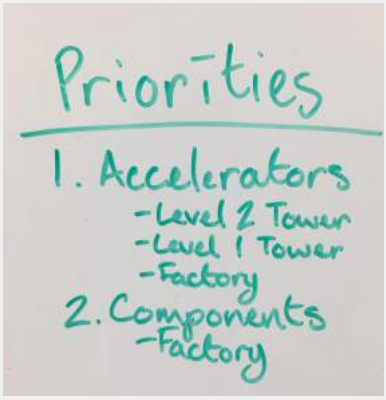
>>THE HOW'S<<

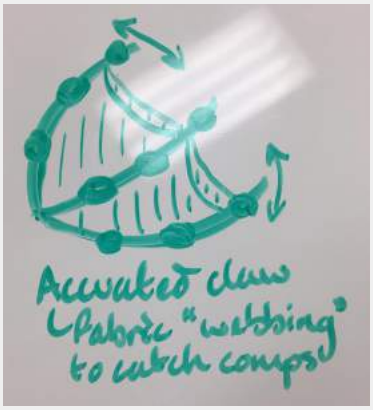
The **How's** is the strategy that focuses on How we want our robot to accomplish What we want it to do. This all about dreaming up, designing and prototyping solutions. To pick up balls, will we use a scoop, a motorized intake system, a hand that grabs a ball? And when it comes to placing the ball in a container, how do we eject it or how does it get into the container if the container is higher than the maximum height of the robot.

#1 TEAM BONK

THE WHAT'S

Our plan of action for the 15 second autonomous period would be to reach the industrial zone (3 points) and, if needed, deliver a single ACCELERATOR to the FACTORY in order to activate it. Our overall strategy focuses on delivering ACCELERATORS to the TOWER. We will focus on delivering to LEVEL 2 because we believe that will give us the most amount of points while taking the least amount of time. Additionally, we will deliver one ACCELERATOR to LEVEL 1 of the TOWER because it will give us the final 10 points needed to reach the 73 point goal. Our DESPERATION plan would be to start scoring COMPONENTS into the FACTORY in order to perfectly achieve our required 73 points.





THE HOW'S

OUR OVERALL STRATEGY:

<u>Pinball and Goose Claw</u>

- Using pneumatics in order to launch items
- Goose claw would have pincers with rollers on the ends.

<u>Air Launcher and Conveyor</u>

- A cannon that shoots out game pieces
- Conveyor would pick up items from the bottom and a conveyor would shoot it out

<u>Football Launcher</u>

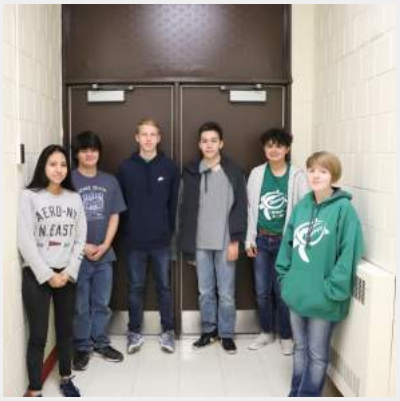
- A claw that has rollers to fire game pieces

<u>Kacchan's Severed (Teleported) Hand</u>

MEET THE TEAM

TEAM BONK

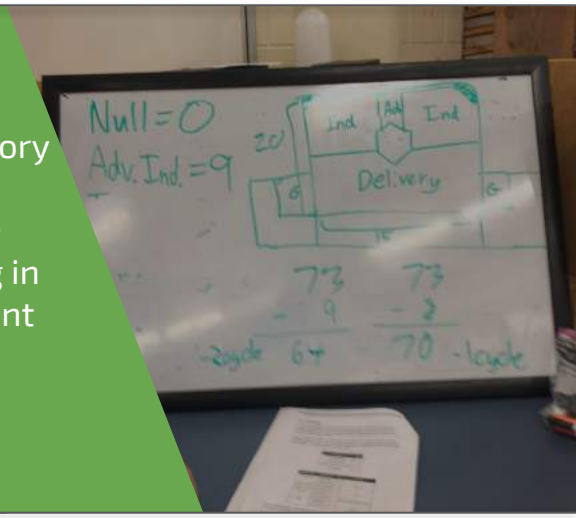
Luz - VETERAN OF 3 YEARS - ELECTRICAL DIVISION LEAD
Arielle - VETERAN OF 2 YEARS - BUILD DIVISION CO-LEAD
Josiah - VETERAN OF 2 YEARS - BUILD DIVISION
Jacob - VETERAN OF 2 YEARS - BUILD DIVISION
Collan - VETERAN OF 2 YEARS - DESIGN DIVISION
Danny - ROOKIE - MEDIA/PROGRAMMING DIVISION



#2 THUNDER TORTOISES

THE WHAT'S

We have decided to do a design that prioritizes doing both the factory and the warehouse. The factory is a hexagonal zone where game pieces (balls) are able to be scored and the warehouse is a storage container in the corner of the field. We decided to prioritize scoring in these two zones because it is simple to do and allows for quick point scoring.



THE HOW'S

Our robot design reflects our simplistic design philosophy because it will utilize a ramp to eject game pieces. We will also use a collector that collects game pieces from the floor which enables us to collect dropped game pieces. The drivetrain is the LT MK1 kit bot provided, which is a West Coast tank drive and uses two omni wheels in the front to allow for easier steering.

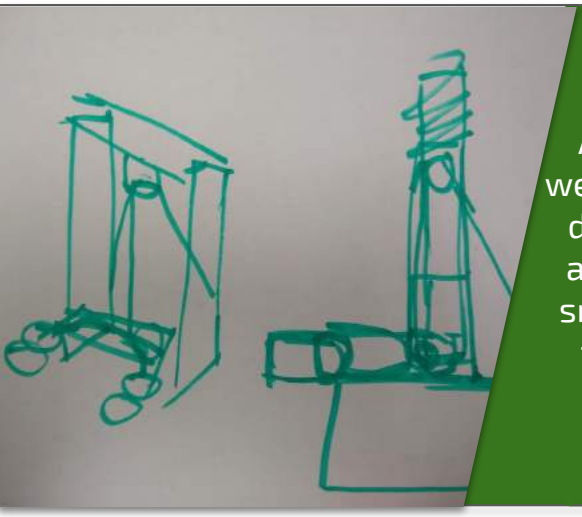
MEET THE TEAM

Jacky - Sophomore, design and build & is Design Lead
James - Senior, build and electrical
Max - Rookie freshman, interested in build
Destiny - Rookie sophomore, electrical, build and photograhy
Spencer - Sophomore, programming and electrical
Nina- Sophomore, build

#3 Tate and Everyone Else

THE WHAT'S

We are going to focus on the Accelerators (orange ball to the right), and we plan to get them from the loading zone and garage. For scoring - we are going to deliver the accelerators to level 2 (60 points) and will push components into the factory (13 points). Our scoring efficiency will be 50% for getting the game pieces in the tower and we are expecting 3 cycle counts. For anonymous we are doing the industrial zone (3 points). For teleop are main priority is level 2 and we are able to work with any combo.



THE HOW'S

At this current time we are indecisive about our final design, which we plan to finalize this during the prototyping stage. Nearly all of our designs will consist of an accelerator launcher for the higher levels and we have no plans to create a mechanism to pick up/control the smaller components. An example of our design ideas can be seen in the image to the left which shows a claw mechanism and elevator that raises an accelerator and launches it to level 2.

MEET THE TEAM

Bailey- Team lead, does every division besides programming, enthusiastic, on pit crew, values safety
Catey- Rookie freshman, interested in fab, build and design, eventually wants to learn about everything
Kevin- build and safety
Thomas- build, design, electrical. Likes to read
Tate- media, works on newsletter, likes to play video games
Niko- fab and build, on pit crew
Adelita- fab, wants to do more build and interested in working on the Chairman's presentation

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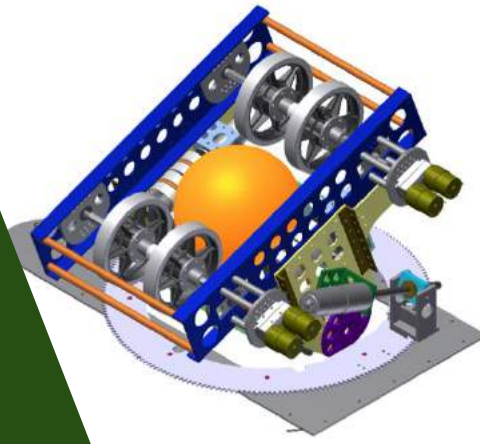
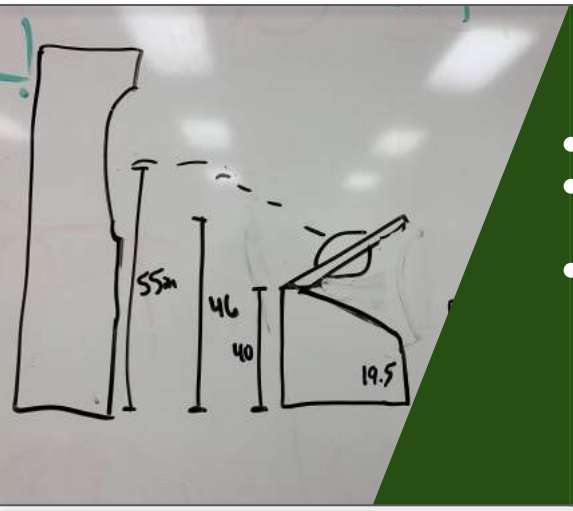
THE WHAT'S

We want to:

- Get to industrial zone for autonomous to score three points
- Do two cycles on Level 2 of the tower (60 points)
- Score one cycle on Level 1 of the tower (10 points)
- Factory if needed





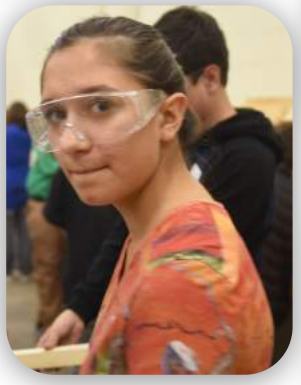
THE HOW'S

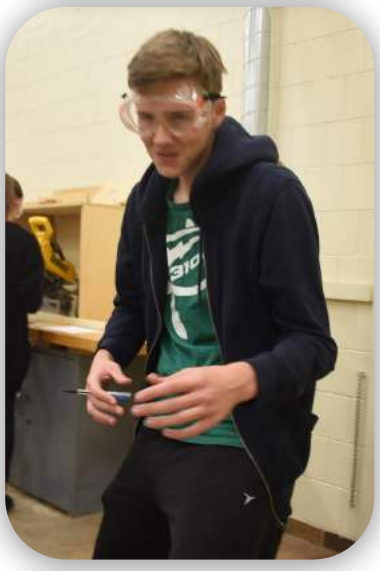
- Shooting accelerators using wheels for Level 2 tower
- Letting accelerator fall into Level 1 by turning around and letting it free fall
- Able to push balls into factory for extra points (if necessary)

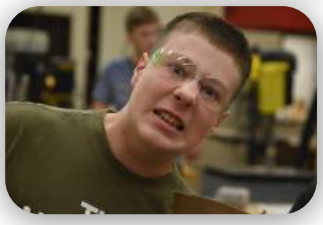
MEET THE TEAM

Ben - Sophomore - programming and communications
Quan - Senior - electrical, design and build
Guinevere - Sophomore - design
Jackson - Junior - build
Savannah - pre-Freshman (8th) - build
Oscar - Sophomore - Build co-lead - build and design
Will - Rookie Senior - programming
Megan - Rookie Freshman - programming & build
Kai - Rookie Freshman - programming & build

Team Work & Fun!







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