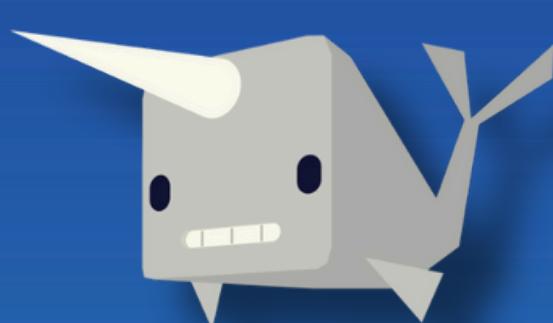
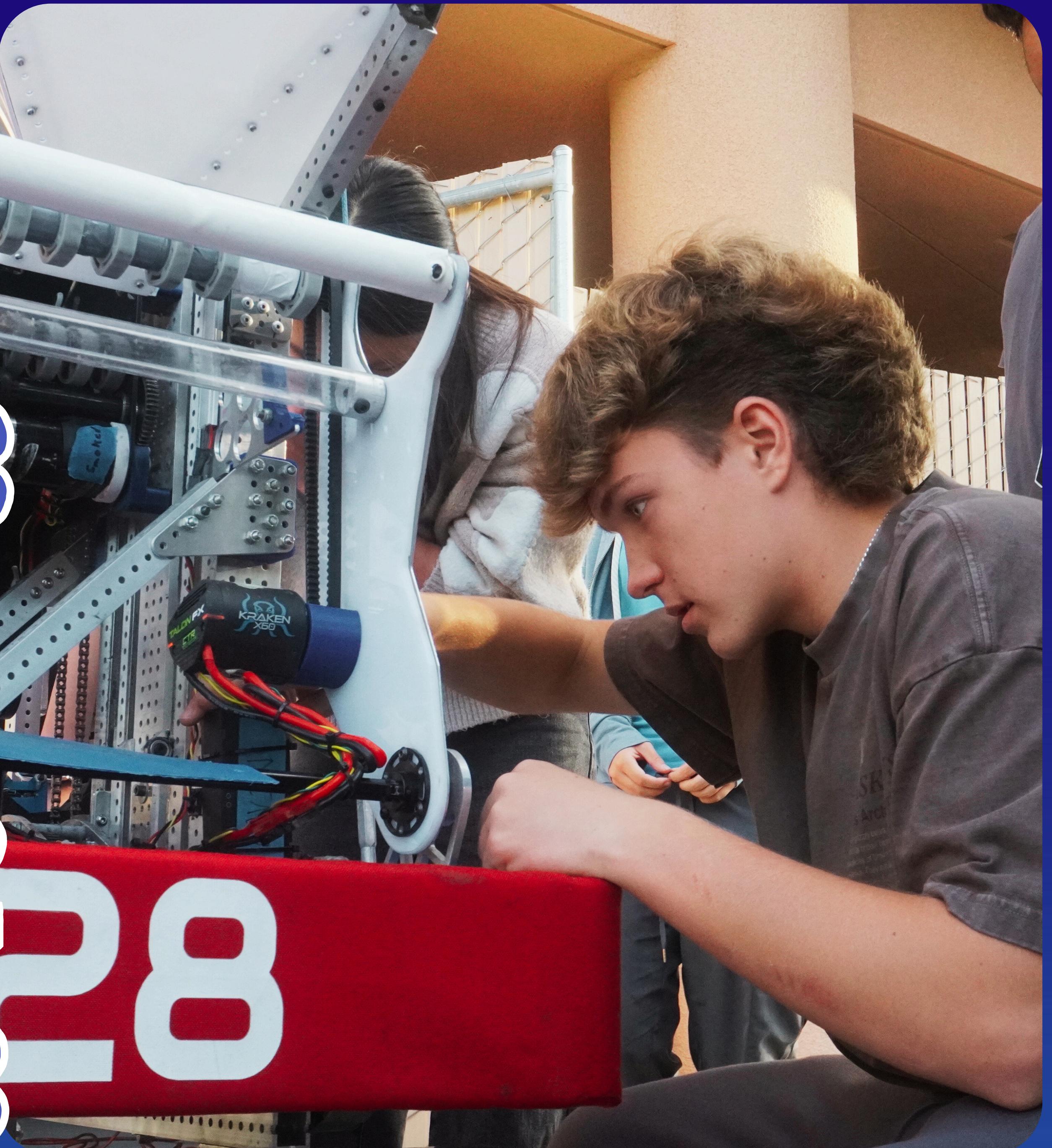


ROBOT

documentation

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SEPTEMBER

So far, Team 3128 has been hard at work constructing the robot. The following is the progress of Gillout so far!

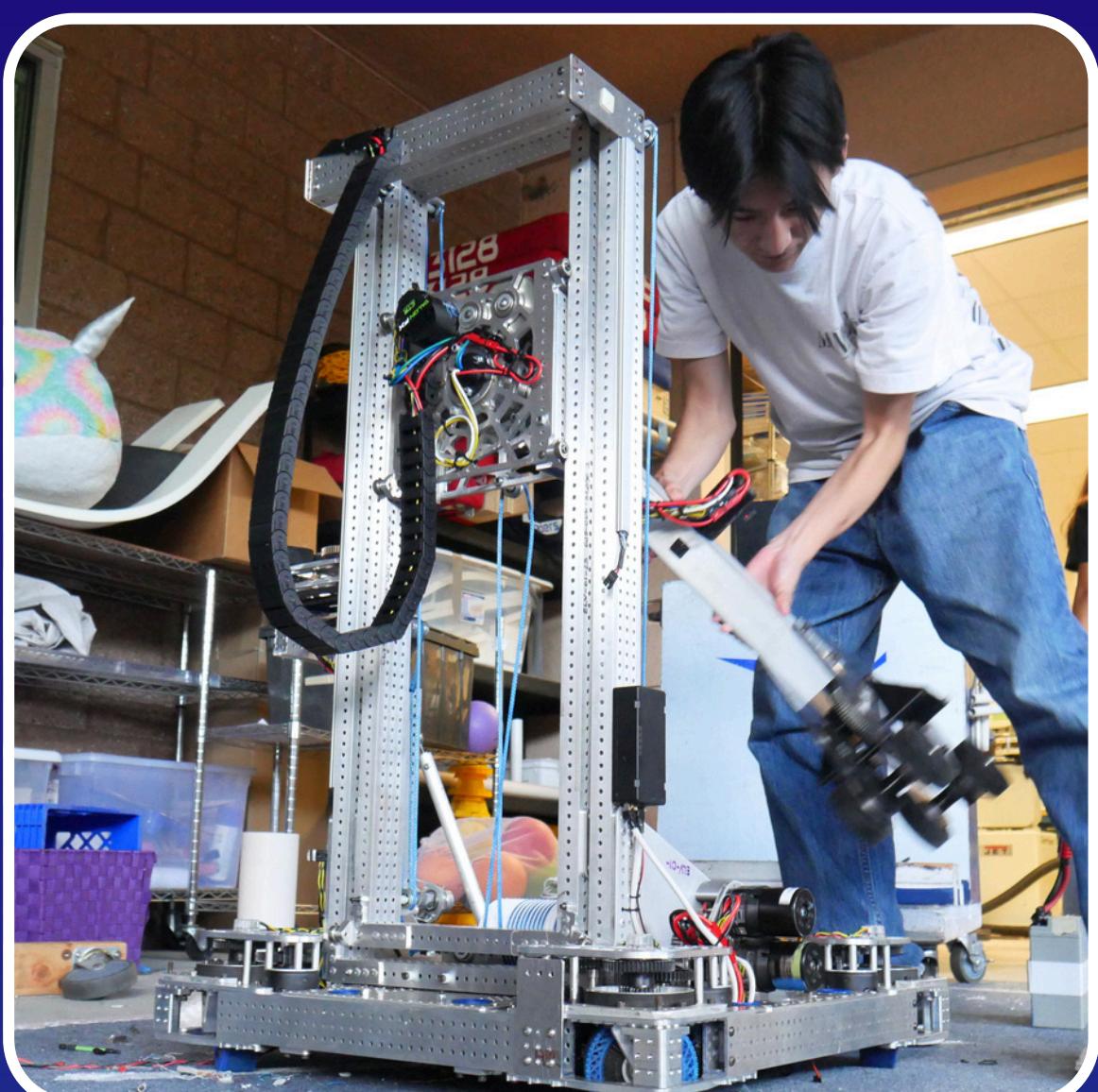
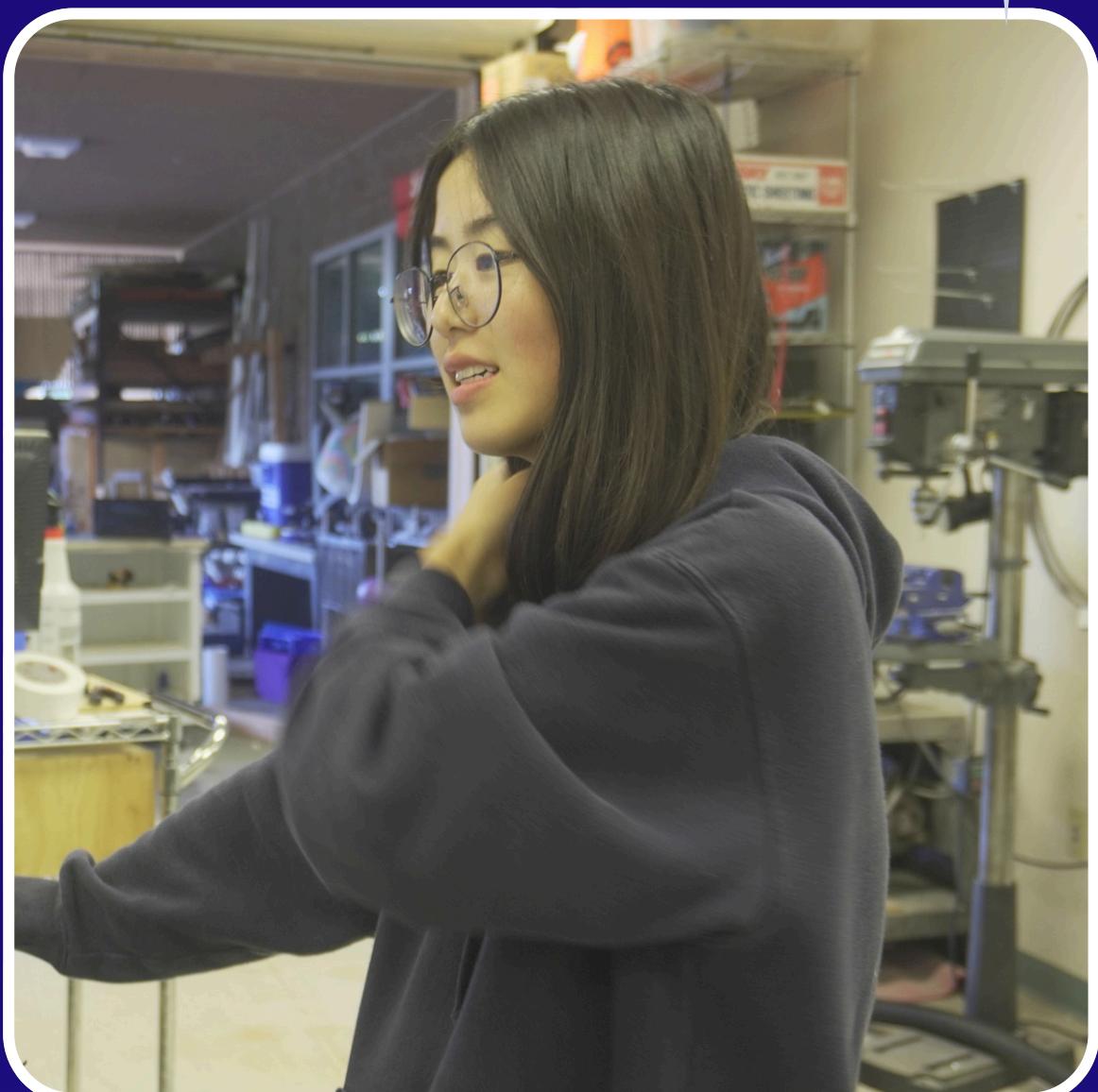
Currently, the team is working on testing the robot's code. The bot's wiring is finished and the testing phase has started. The subsystems and cameras are being tested to see if they are ready, and Controls is trying to make everything work consistently. The bot is being given between Controls and Mech now, but Controls is currently working on it more. So far, the robot can climb and pivot the arm. Mech is doing well on schedule but Controls is busy and a little behind. The bot has an elevator and an arm that can pivot so it can pick up coral and algae. It has an intake from the ground and it can climb. The bot will be able to go for a deep climb and can score coral on all levels. The main people working on the bot right now are Lucas and Audrey. The main challenge right now is managing the bot time between Mech and Controls



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Today, the team worked on Gillout, as well as finalizing the old on-season bot. The team is focusing on getting Gillout into functioning conditions, so it can drive, manipulate game pieces, and climb. The team is also making sure that all the subsystems are working correctly. On the other hand, the regular season bot from last year struggled with its intake, as it used a type of funnel that had problems during the past season. Additionally, Mechanical has begun to do rigorous testing to identify problems within the elevator.

Because of the minor problems, the Mechanical department decided to do some redesigning of the elevator from a continuous design into a cascade. Sharing workshop time with Gillout has been tricky, so Mechanical and Controls are maintaining good communication and cooperation to make sure they can both work on the bot in parallel. The bot, Gillout, was heavily based on Chillout 1778 and Team Blazing Bulldogs. The departments had begun to design Gillout's ground intake, which was not a part of the previous design during the season.



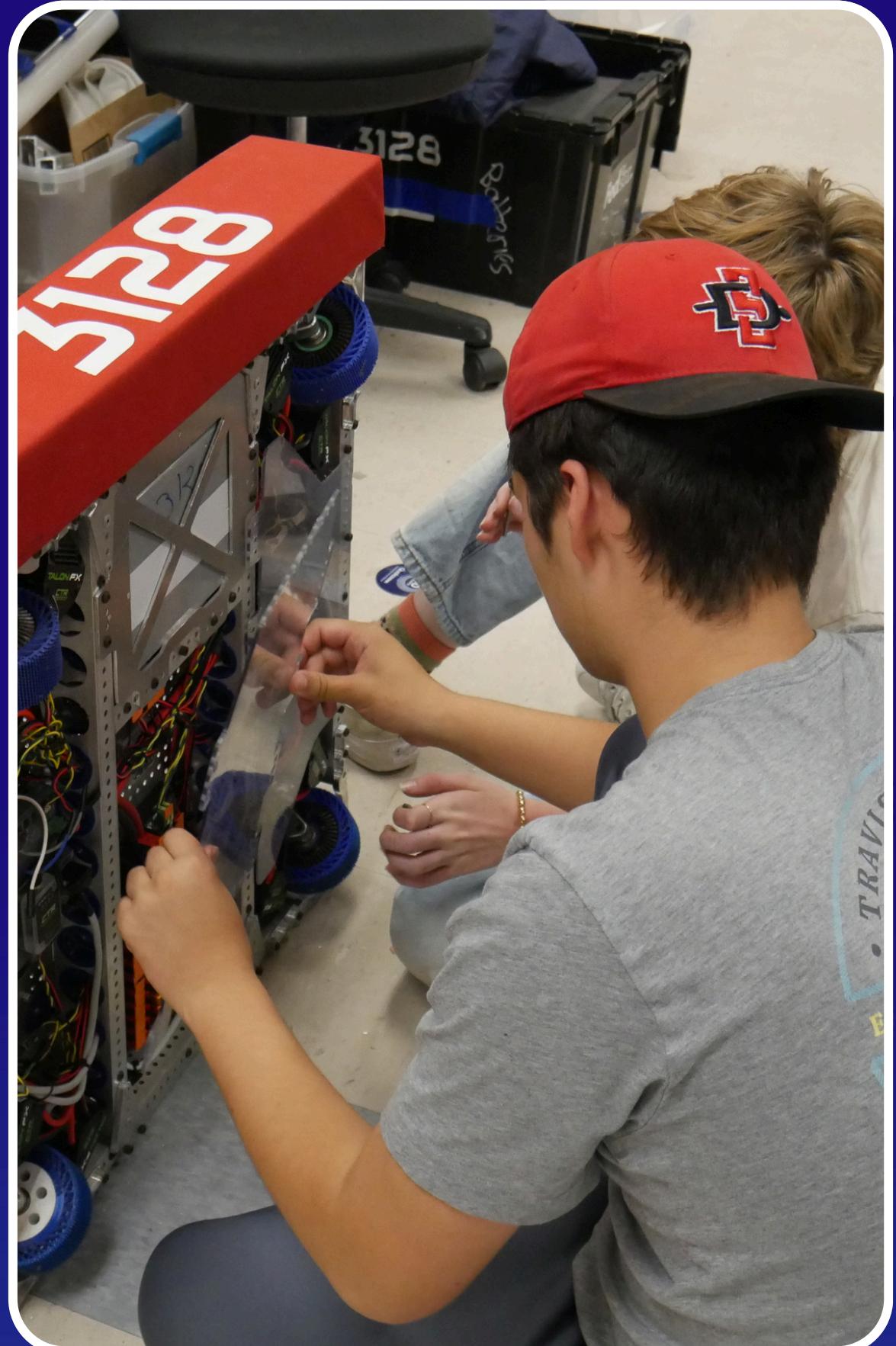
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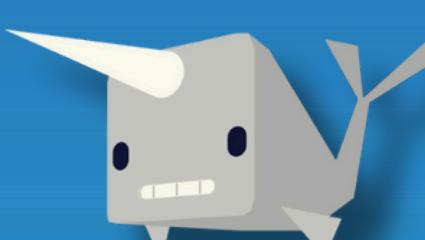
With competitions coming up, the Mechanical department has been working hard to make improvements for Gillout. Recently, the Mechanical department has begun manufacturing new parts.

Additionally, new members of the Mechanical department are going through subsystem training, and learning more about the team and each respective subsystem. New recruits are also participating in Mock Competitions held in the superpits, which are used to teach about solving problems and creating solutions.

On the other hand, the Controls department is also educating new members Java, a coding language used to program the robot. At the moment, the team is working hard on everything they can such as developing the handoff from the intake to the manipulator.



So far, the team is confident in the bot's performance other than a few errors with the manipulator. The bot is estimated to be mechanically finished by October 10th, but will be then handed off to the Controls department for testing. Finally, Controls will go back and forth with the Drive Team, who will be refining skills and practicing piloting the bot. However, the team has faced some challenges recently. Complications with the elevator not working and challenges with camera placement/purchasing are some of the minor issues, with major issues with intake complications. Right now, there are countless team members working tirelessly on the bot, however a few stand out. Currently, Lachlan is working on the elevator, Henry is working with the chain, and Steve is working Gillout overall. Since September, many new aspects have been incorporated into the bot. For example, the elevator has fully changed as well as the intake being finished and attached on the front. Overall, the Mechanical department has worked super hard to finish the mechanical part of the bot, and now it's time for Controls and Drive Team to take over and bring the team to competitions!



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OCTOBER documentation

Today is a busy day for the Mechanical department!

The Mechanical team's goal today is to mount the new elevator onto Gillout and make sure it functions correctly. Controls finished wiring the elevator, and Mechanical is working on pre-match checklists, packing lists, spare parts, and LRUs. If Mechanical finishes with the robot for today, Controls will work on programming the elevator. However, the elevator had issues with the tethering system, so Mech had to redo the whole elevator and replace it with chains.



image desc

Currently, Mech feels nervous about the upcoming competitions because the team is behind schedule with elevator problems. Yesterday, the team had set up a practice competition for the new members so that they could learn more about how competitions worked. To teach them about working under stress and pressure, older members tweaked part of the old robot, Gilbert, to give the new members a challenge. On the other hand, Gillout has been tested on all of its parts except for the elevator, which still needs to be repaired. As of now, the Mechanical department is working on the robot and is mainly focusing on mending the elevator.



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Furthermore, the Mechanical department has been trying to improve the VISION for the robot to help the driver with scoring. As for the Controls department, they are using JavaScript, PhotonVision, and Pathfinder for calibration. The primary goal for today regarding the robot is to complete the pivot setpoints and install the intake onto the robot. By the end of the week, these updates will be finished and tested. Gillout will be able to intake and score faster, with a more reliable pivot on both sides of the robot. These successes will be evaluated based on improvement in the cycle time and scoring consistency. The team is struggling with refining the vision of the robot and making the robot be able to grab the algae more efficiently from the manipulator. The main focus of today's work for the robot is installing a camera on the other side of the robot to assist with vision, as well as adding a shortened intake.

The Mechanical department continues to work on the new robot, Gillout. Today, the team has worked to shorten the intake of the robot in order to decrease the amount of time it takes when collecting game pieces, as well as removing some of the cameras on the robot for other uses.



Additionally, Mech has been improving and adding pivot setpoints for the robot in order to better score on level 2 (L2) from both sides of the robot. This will help save time during matches since it will reduce the need to reposition. Overall, these changes will help the robot with efficiency in upcoming competitions.

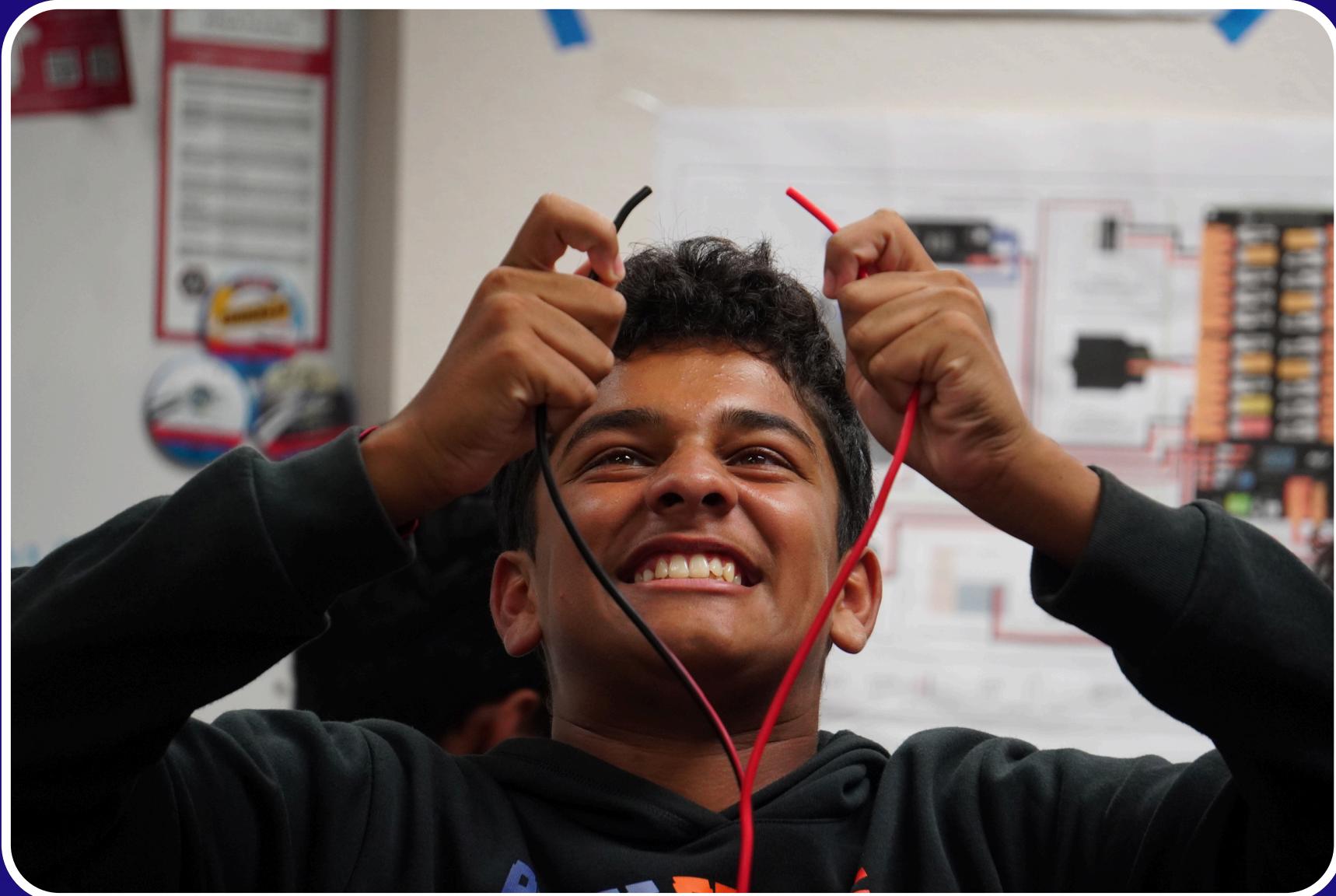


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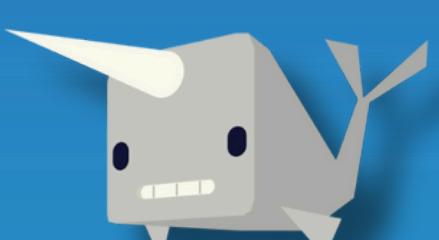
Right now, the Mechanical Department is busy fixing and studying the intake of Gillout. The team prioritizes working on the intake rather than practicing driving, as problems occurred repeatedly throughout the subsystem. The Mechanical Department shortens the intake length and widens it so that cargo can enter more easily. However, gears on the opposite side of the intake skip, and belts directly on it break. The Mechanical team works on adjusting the intake by studying designs from other teams and viewing slow-motion videos. The videos are studied from different angles and speeds to pinpoint where game pieces get stuck. Moreover, there are slight issues with the climb of Gillout, specifically instability issues. At times, the robot overextends, leading to mechanical injury.

Today, the Controls team occupies a portion of the workshop to work on automated scoring and refining set points.

The goal for October 17th is for the Controls department to finish the auto-align on Gillout so that the Mechanical team has more time and space to fix the intake and elevator.



Additionally, the team begins practice drive sessions with Paradox, Torrey, and Super Nerds in preparation for the "Stay Classy Classic" off-season competition on October 25 and 26. Overall, the team's collaborative efforts aim to ensure that both the intake and climbing mechanisms function optimally for the upcoming competition.



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The main focus for Gillout today is simply repairs and testing rather than adding new special components or features. This ensures that everything will run smoothly and efficiently. Because the Mechanical team is conducting so many tests, it has been difficult to give the Controls department a sufficient amount of time to work on the robot. Lucas and Bryce are the main members currently managing Gillout, while Emmi, Braylon, Henry, and Beatrice are the ones developing Gillbert. The controls team continues to use Java, a software used to code and control the robot. Since the last meeting, the team has primarily focused on testing and optimizing existing components, making sure today's work is a critical step towards guaranteeing that the robots are ready for performance and upcoming competitions.

Today, the Mechanical Department is focused on improving and testing Gillout. They are currently building the bumpers and fixing the elevator, while also reinnovating the intake for a smoother performance. However, the team is experiencing some challenges with the climber, which requires extensive testing to make sure it can properly support the robot's weight. Once the climber is fully functioning, the Mechanical team plans to hand over the robot to the Controls team for testing. The main goals for today are to get Gillout fully operational and drivable for the drive team, as well as to develop an additional part for the manipulator for the bot. By the end of the day, the team plans to have the climber completely repaired and tested, and intake and auto testing complete.



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Today, the team's primary focus is assembling the LRUs (Lightweight Removable Units), which are critical components in the manipulator designed to streamline the robot-building process for both Gillout and Gilbert. The unique inclusion of these pre-made manipulators sets Team 3128 apart, allowing for rapid and efficient assembly compared to traditional designs. The mechanical subteam, including Nika, Cooper, Rishi, and Dylan, is hard at work assembling the LRUs and ensuring all belts are properly installed. Due to an unorganized workshop, the group had challenges locating the necessary parts for the project. Additionally, the elevator on Gilbert has been successfully restored and is now fully functional. To support these efforts, the team is utilizing a Bamboo Lab 3D printer to manufacture a pulley system for the intake on Gillout. Software development continues with Java being used to control and code the robot's systems. One key goal for today is to test the LRUs on a testbench using game piece simulations to validate their functionality.

Other priorities include preparing for the Stay Classy Classic competition by finalizing the packing list and cleaning the workspace, which has impacted progress due to low attendance and missing components. A recent update includes a change to the climber's gear ratio, enhancing both torque and speed for better performance. By the end of the day, the team aims to have both LRUs completed and tested, setting the stage for efficient assembly and future success in competition.



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