ANTARES WEEK 1 BLOG

On Jan 7th, Team 6962 Antares embarked on the new 2025 season, REEFSCAPE

Kickoff

The 2025 FIRST Robotics Competition season has officially begun and we are diving into the REEFSCAPE challenge. With kickoff on Saturday (1/4), our whole team convened and watched the livestream for the game reveal. We then split into groups to review and present the game manual, before holding brainstorming sessions where groups reassembled to discuss ideas and then present to the rest of the team.

Build & Design

Coral/Algae Manipulator

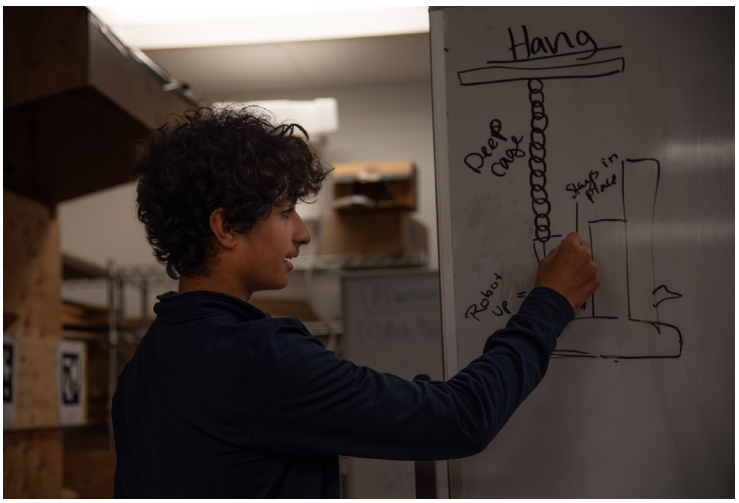
Through extensive prototyping, the coral/algae manipulator team has discovered effective methods for interacting with both coral and algae using roller mechanisms. Their tests revealed that a single roller can securely hold coral and center it by dragging it against a plate. For algae handling, the team constructed a test rig to experiment with various wheel sizes and roller configurations. Their findings indicate that smaller wheels placed closer together provide optimal algae grip by compressing it against the roller walls.

Hang

Initially, they considered two main approaches: an extendable arm that folds out and back in to lift the robot, and a novel “hole” concept where the cage would fall into the robot and lift it by pushing against the cage’s bottom. After some deliberation, our hang subgroup has zeroed in on an idea of the strategic “hole” in the robot. On Thursday, they began prototyping after creating a finalized CAD for their hole design. While this approach appears promising, the team is mindful of potential challenges, particularly regarding space constraints and whether electronics will be effectively integrated around the hole.

Ground Algae Intake

The Ground Algae Intake team is innovating with two distinct designs to optimize algae collection. Drawing inspiration from Team 254 The Cheesy Poofs 2023 robot, they’re exploring a rack and pinion mechanism. Simultaneously, they are experimenting with a pivot-based design which could offer simplicity. In order to effectively evaluate these options, the team is laser-cutting prototype plates for both designs. These prototypes will undergo rigorous testing to assess their effectiveness in algae collection and processor scoring.



Programming

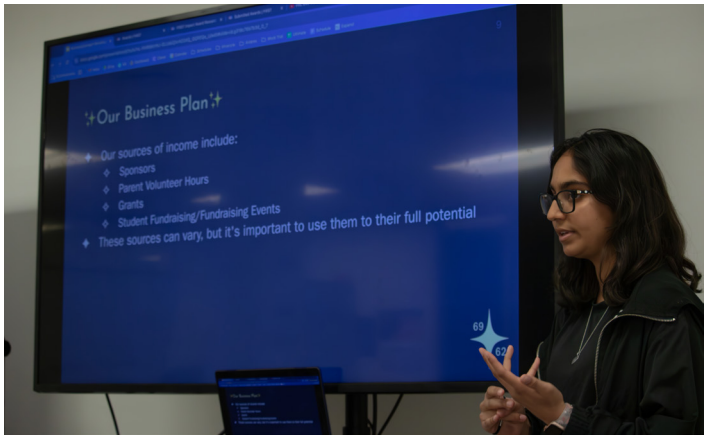
The programming team has been instrumental in establishing our robot's digital foundation. By Wednesday, they had already knocked out solid drafts of our subsystem setups. But they didn't just stop there. The team began simulation work and set up PathPlanner, a package critical for our autonomous routines. These setups are crucial as they define how each part of the robot—from the drivetrain to the manipulators—will function.

Drivetrain and Vision

The Drivetrain team has assembled a test robot, complete with updated gearing and motors on the swerve modules. They've even crafted a temporary cardboard bellypan for the test chassis—reminding us that the best solutions are sometimes the simplest ones. Once they complete the wiring of the robot's CAN network, they're setting the stage for the Vision team to begin real-world testing of their game piece and AprilTag detection algorithms. Vision has narrowed their focus to two crucial areas: AprilTag detection and Algae game piece detection. They're scouting algae game piece databases to find possible models to integrate with our Limelight vision system.

Business

The business team is mapping out sponsorship opportunities and developing a fundraising strategy to support our ambitions. Their focus is twofold: reaching out to parents for support and crafting a compelling new fundraising campaign—the fundraising calendar. Essentially, participants raise money corresponding to each calendar day's number. On day 15, raise $15; on day 22, raise $22—creating a progressive, achievable fundraising model. If successful, each student team member can potentially generate $496, with opportunities to exceed that goal.



More frequent updates can be found on the Antares Instagram.