University of Florida
Gator Robotics

Monthly Newsletter Issue No. 02 October 2015

Welcome back to the Gator Robotics Monthly Newsletter! This month we have some exciting updates on the status of our projects and what they are planning for the future.

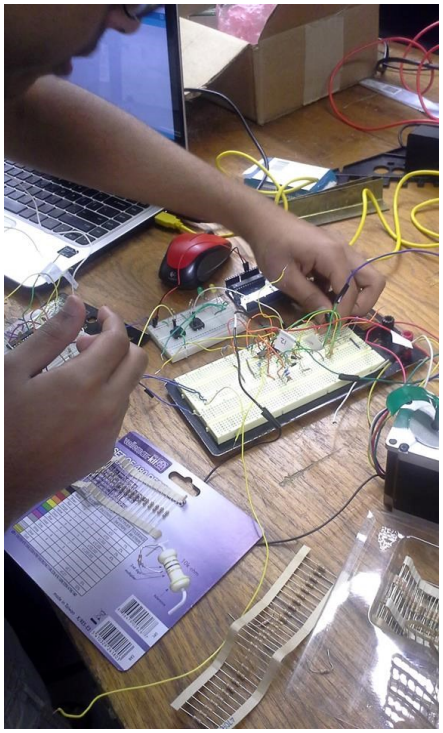
Current Projects:

Aggregator

This past month, the Aggregator team has been working on their robot's mobile platform, i.e. the mechanisms behind how the robot moves. Based on weight, size, and load capabilities of the robot, necessary specifications were determined for the desired motors and wheels. Motor choice also involved determining gear ratios to achieve the desired movement speed. Three types of wheels are being considered for this year: aluminum, polycarbonate (3D printed), and carbon fiber. Behind the design of these wheels, such factors as weight to strength ratio, manufacturing time, and cost were taken into consideration. Currently, the polycarbonate wheel is being built in the rapid prototyping lab and a prototype of carbon fiber wheel is planned to be made. The wheels will be tested on a universal testing machine to determine which will perform best. Also this month, wheel hubs, motor mounts, and other attachments were designed in order to distribute load and transmit torque to the wheels. The team is also working on the design of the hopper and bucket ladder that will be integrated with the developed mobile platform.

Tailgator

Tailgator is almost done! The mechanical team is going to finish manufacturing the sides of the cooler. There was a minor setback in grill size changes, but this was quickly remedied by updating other parts. The last few components to finish the mechanical structure are being purchased soon. The electrical team has tested the grilling process. The grilling process uses sonar technology to sense that a burger is on the grill. The grill also opens and closes automatically, with a linear actuator, based on a timer. Once the grill system is completely calibrated, the electrical and mechanical teams will integrate their results together. The Tailgator is on track to be finished by homecoming!



Battle Bots

Battle Bots is underway and on track to have robots done during the spring semester. The Battle Bots team consists of 4 smaller teams that are building 3 pound robots. These teams are working in secret from each other in order to keep their ideas unique and to produce bots that can handle any situation. In future years, the best of these 3 pound robots will be scaled up to a 12 pound robot in order to compete in large competitions. The Battle Bots team is also teaching its members how to use Solidworks and the electrical engineering knowledge necessary to build awesome robots.

Onboarding

Gator robotics onboarding hit the ground running this past week as students showed up to learn about the basics of robotics. Onboarding consists of 8 meetings where the students will learn about the software and major concepts needed to build a fully functioning robot. This week, the students will explore Solidworks and how it is used to model robots and their parts before manufacturing takes place.

Robotics around Campus Spotlight: Propagator

Propagator is an unmanned surface vehicle that is designed and manufactured by students of the Machine Intelligence Laboratory (MIL). Every year, the University of Florida competes with Propagator in the RoboBoat competition, hosted by the Association for Unmanned Vehicles Systems International (AUVSI) Foundation. Propagator is built out of fiberglass, which makes it much lighter than if a metal exterior was used. The boat's shape is used to make manufacturing easier and give less drag in the water. Propagator also utilizes a student-designed and built thruster system that allows it to maintain speeds above 10 knots. More information about Propagator can be found at progator.org.

Team Meeting Information:

Aggregator:

Contact: https://www.facebook.com/groups/ufLunabotics/ or uf.aggregator@gmail.com

Next Meeting: Thursdays at 4:30 pm in MAE-C 010.

Tailgator:

Contact: https://www.facebook.com/groups/UFTailGator/

Mechanical Meetings: Tuesdays at 6:00 pm in a Marston study room.

Electrical Meetings: Mondays and Wednesdays at 5:00 pm in MAE-C 010.

Battle Bots:

Contact: https://www.facebook.com/groups/833890823376470/

Meetings: Thursdays at 5:30 pm in MCCB 2102.

Onboarding:

Contact: redoswald@gmail.com

Meetings: Mondays at 6:00 pm in MAE-B 234.