

Team 2537: Space RAIDers Newsletter

January-February 2021

Training Season

Electrical

The electrical subteam teaches electrical members the basics of electricity, how to use it, how to calculate values, how to put together electrical components, and electrical safety.

The first few weeks of electrical training covered safety and the basics of electricity. The electrical safety portion consisted of procedures for battery spills, electrical shock, outlet terminals, proper insulation techniques, and how to identify ground, neutral, and hot. The basics on electricity were Ohm's Law, passive and active components, wire gauge requirements, fusing, and integrated circuits. After studying the basics, electrical students worked on projects using Arduino kits supplied by the team where they coded circuits through digital computer interfacing. In the final weeks of training, electrical members learn about tools used to build the robot including soldering irons and crimping tools.

Operations

The Operations team launched campaigns focused on STEM outreach and diversity.

Outreach is part of our team's core mission to inspire future generations of STEM professionals. This winter, we hosted nine zoom outreach events for elementary and middle schools. We supplied materials and engaged over 100 students, mainly from less advantaged communities, in hands-on STEM activities!

Our diversity campaign seeks to increase STEM engagement of underrepresented groups. We use presentations, hands-on activities, and guest speakers to recruit and discuss inclusivity.

Many thanks to **NASA** for sponsoring Team 2537 in 2021, and helping us continue these campaigns!

Do you want to sponsor or work with us?

Email: operations@team2537.com

Website: team2537.com

Software

During the training season, software students met weekly to learn Java including variables, operations, conditionals, control loops, methods, classes, object oriented programming, and more. We also taught use of team development using version control (Git) and formal code reviews.

To keep it fun and robotics-oriented while remote, we used our Java skills to program virtual robots. We tested our battle-bots using the IBM battle-bot simulator: Robocode. Our training season concluded with a tournament where our robots battled it out to see whose would stand at the top.

Mechanical

Mechanical trainees learned OnShape: an online cloud-based computer aided design (CAD) program. Students created parts and assemblies that they ultimately developed into a basic structural frame, bumpers, and a telescoping mechanism. Trainees also learned about common robot components including gusset plates, bearings, and many fasteners. To work within the limitations of remote training, the team supplied and trained students on the use of manual fabrication tools such as hacksaws, punches, and hand drills.

2020 - 2021 Student Leadership

Communications Lead: Angelina Zhou

Electrical Co-leads: Maggie Tyson, Ryan Nguyen

Mechanical Lead: Angela Voo

Operations Co-leads: Sonia Albert, Samuel

Ghezae

Project Manager: Kathy Ho

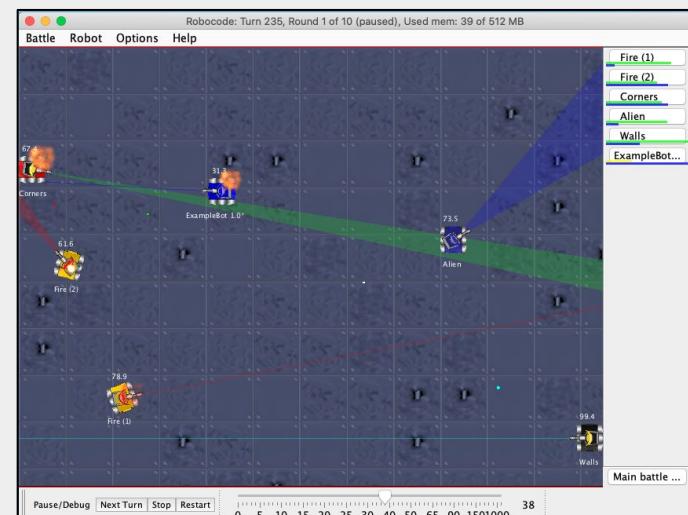
Safety Lead: Sean Miller

Software Lead: Daniel Fu

Team Captain: Shyam Pillai

The screenshot shows two Java code files in a code editor window. The first file, EnemyRobot.java, contains code for a robot named 'EnemyRobot' with methods like 'reset()' and 'getRobotName()'. The second file, EnemyTracker.java, extends 'AdvancedRobot' and includes a constructor that initializes radar and gun turn settings. Both files import various Robocode classes and interfaces.

Robocode software



Robocode competition



Telescoping mechanism CAD design