EE / CprE / SE 4910 - sdmay26-07
Salt Spreading Autonomous Mobile Robot
Week 9 Report

11/19/2025 - 12/02/2025
Client: student-led
Faculty Advisor: Alexander Stoytchev

Team Members:

Isaac Blandin - Project Manager & Software Team Lead
Dylan Bunting - QA Lead & Electrical Team
Hoyt Dzwoniarski - Electrical Team
Thomas Huedepohl - CAD Lead and Electrical Team Lead
Mikhail McDade - Software Team
Shobhit Singh - Scribe & Software Team

Weekly Summary

Over Thanksgiving break and the week before, our team continued multiple of the more formative tasks for the project. The electrical and drivetrain team have continued their work, incorporating recent changes to the design, and the software team have continued their work on testing individual sensors and electronic assignments.

Past Week Accomplishments

- Isaac:
    - Performed further GPS testing.
        - Overcast, sunny, static, dynamic.
- Thomas:
    - Soldered headers to multiple electronic components to allow for better interconnections during prototyping and testing.
- Dylan:
    - Assembled recently acquired drivetrain components
        - Motors, wheels, axles, bearing/support assembly
        - Still needs to be attached to the wooden superstructure.
- Mikhail:
    - Worked on testing and implementing client-server applications on our Arduino Uno.
    - Completed a successful test of controlling a stepper motor with the Uno.
    - Not worked with this before, so a lot of formative learning as part of this.

Past Week Accomplishments (Cont.)

- Hoyt:
    - Created circuit schematic of new power distribution system, including each buck converter.
- Shobhit:
    - Worked on a variety of tasks associated with proving the feasibility of the ESPCam for object detection and collision avoidance
        - Determined computation requirements for the camera module
        - Experimented with the feasibility of a machine learning object detection within our hardware limitations.
            - Performed initial model training with sample collection and cleaning
    - Created a MVP mobile companion application
        - Basic UI
        - Communication between ESP32 and application.

Time Tracking

Name	Hours This Week (Period)	Cumulative Hours
Isaac Blandin	5	56
Dylan Bunting	3	48
Hoyt Dzwoniarski	5	50
Thomas Huedepohl	2	48
Mikhail McDade	7	54
Shobhit Singh	8	58

Plans for the Upcoming Week

- Prepare and practice for faculty panel presentation
- Complete drivetrain and add motor controllers.
- Tear down and reverse engineer purchased salt spreaders
    - Attach a relay for control
- Continue testing with ESPCam to assess the capabilities of ESP-powered CV options.
- Integrate GPS with Arduino to send correction data.
- Complete power system redesign & order components.

Summary of weekly advisor meeting

- No meeting, advisor out of office for the week.