EE / CprE / SE 4910 - sdmay26-07
Salt Spreading Autonomous Mobile Robot
Week 7 Report

11/05/2025 - 11/11/2025
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

This week, our team continued work on detailed design plans. This included physical design of our drive base and detailed control system design. We made some changes to the team's organizational structure by dividing it into two teams: software and electrical/drivetrain. The software team is headed by Isaac, and the electrical team is headed by Thomas. However, we were not able to complete as much as we would have liked due to waiting for component deliveries. In general, this week turned out to be a 'hurry up and wait' type of week.

Past Week Accomplishments

- Isaac:
    - Completed online 3D printing training portion
    - Began mapping out all of the control/data connections for a pinout-level control system diagram.
- Thomas:
    - Began detailed drivetrain design drawings
        - Fully dimensioned out, soon to be converted to CAD drawings, but
- Dylan:
    - Completed calculations of torque requirements for drive motors
    - Made final selections for drive motors and wheels
- Mikhail:
    - Mapped out all of the available ports on our main controllers (ESP32 and Arduino Uno R4) as relevant to our specific design.
- Shobhit:

    - Determined all pinouts and protocols for the desired data from the CV camera, GPS module, and bumper sensors.

Past Week Accomplishments (Cont.)

- Hoyt:
    - Created full power system design diagrams

Time Tracking

*** Fell behind on hours this week due to waiting on components, hoping to make up time in the coming week now that we can begin testing as parts come in.

Name	Hours This Week (Period)	Cumulative Hours
Isaac Blandin	3	44
Dylan Bunting	4	40
Hoyt Dzwoniarski	3	39
Thomas Huedepohl	3	40
Mikhail McDade	4	42
Shobhit Singh	3	44

Plans for the Upcoming Week

- Complete all initial detailed design diagrams
- Complete CAD drawing of drivetrain
- Complete in-person 3D printing training
- Experiment with physical salt-spreading solution options
- Continue testing with ESPCam to assess the capabilities of ESP-powered CV options.
- Complete first Differential GPS Test
- Complete BOM for supporting components
    - Any specialty wiring, buck converters, non-3D-printable brackets, etc.
    - ***Backlog from last week

Summary of weekly advisor meeting

Our weekly advisor meeting with Dr. Stoytchev was brief this week. We discussed the detailed design progress that was made, and Dylan presented the new selections for drivetrain components. We officially divided into sub-teams (software and electrical/drivetrain) to improve meeting efficiency, ease scheduling, and reduce planning overhead. Otherwise, we just gave updates and formed a plan to catch up in the coming weeks.