EE / CprE / SE 4910 - sdmay26-07
Salt Spreading Autonomous Mobile Robot
Week 4 Report

10/15/2025 - 10/21/2025
Client: student-led
Faculty Advisor: Alexander Stoytchev

Team Members:

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

Weekly Summary

This week's key points were to continue our specific technical research tasks, come back with a product to suggest, and compile a bill of materials. We held a follow-up advisor meeting with Dr. Stoytchev on October 16th to present our research findings from the week prior. Sharing and discussing our findings as a group, we decided to continue our research. A discussion was also held on how everyone was finding the use of a scrum board and an agile workflow. The group agreed that the method suited our project well.

Past Week Accomplishments

- 10/15/2025 - Organizational Meeting
    - The team built and acquainted themselves with a new AGILE model that is organized under a SCRUM board in JIRA.
    - Migrated our research findings to a linked Confluence page for compatibility with our new JIRA.
- Completed Initial Component/Design Research
    - Isaac:
        - Researched GPS positioning modules and GPS positioning technologies/methods relative to the project’s use case.
        - Researched computational needs for the types of algorithms and libraries that we intend to use.
    - Dylan:
        - Researched motor and motor control options that fit our size and budget constraints.

    - Hoyt:
        - Researched prior art relevant to our project. Researched autonomous lawn mowers and other autonomous mobile robots designed for winter conditions.
    - Thomas:
        - Researched battery and power options for our robot, considering capacity, charging, safety, winter performance, and price.
    - Mikhail:
        - Researched general mobile robot platforms, including pre-built and custom options.
    - Shobhit:
        - Researched sensors and algorithms used for tracking other than GPS options.
        - Researched computer vision possibilities.
- 10/16/2025 - Weekly Advisor Meeting With Dr. Stoytchev (4:30)
    - We each presented our findings for specific research to Dr. Stoytchev and the other members. We decided to continue the initial technical research(Motors, Platform, Salt System, Sensors, Software). A follow-up discussion on the workflow style and 3d printer training was also held.
- 10/18/2025 - Research, Discussion, and Website
    - Individuals continued to research, and pairs discussed their research together. The team's website also began to take shape.
- 10/20/2025
    - Started to update the presentation for the advisor and come up with a bill of materials.

Time Tracking

Name	Individual Contributions	Hours This Week (Period)	Cumulative Hours
Isaac Blandin	Research Sensors, Navigation, Software & Computation. Built JIRA and Confluence Pages.	6	26
Dylan Bunting	Research Motors, Power, Software & Computation	7	23
Hoyt Dzwoniarski	Research Platform Mechanics, Software & Computation	7	23

Thomas Huedepohl	Research Motors, Power, Software & Computation	7	23
Mikhail McDade	Research Platform Mechanics, Software & Computation	7	24
Shobhit Singh	Research Salt Systems, Sensors, Navigation, Software & Computation	7	25

Plans for the Upcoming Week

- Finish assigned research and present findings to the group
    - Findings include:
        - Top contenders for our use
        - Comparisions
        - Prices
        - Links to storefronts accepted by ETG

- Documentation and Meetings
    - Design Document Part 4
    - Finish the Website and the Lightning Talk presentation
    - Weekly Documentation (All Members): Submit the weekly report (5 bullet points + 1-2 Paragraphs) to Dr. Stoytchev
    - Prepare a 5-minute PowerPoint finalizing research findings for the next advisor check-in.
    - Attend the weekly meeting on Thursday at 4:30 P.M

Summary of weekly advisor meeting

We met with our advisor and shared our research findings. After the presentation, he provided us with feedback on our research and asked that we finalize it by next week with a product that will work for our prototype. We discussed how training for 3d printing was going, and also held a discussion about the workflow style. The group agreed that the scrum board worked for us and that we would continue to use it. We