EE / CprE / SE 4910 - sdmay26-07
Salt Spreading Autonomous Mobile Robot
Week 5 Report

10/21/2025 - 10/28/2025
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

The primary objective for Week 5 was to conclude the initial phase of foundational technical research to inform our design decisions. In order to meet our hard deadline of presenting a finalized Bill of Materials to Dr. Stoytchev by November 30th for purchasing approval. We successfully utilized our newly implemented JIRA SCRUM board to track individual research tasks, enabling us to collectively migrate all findings to the Confluence documentation page.

Past Week Accomplishments

- 10/22/2025 - Organizational & Documentation
    - Successfully transitioned to and began utilizing a new AGILE workflow model organized via a SCRUM board in JIRA.
    - All preliminary research findings were migrated to a linked Confluence page for more centralized documentation.
    - Began development and content population for the project website.
    - Started compiling the Bill of Materials based on initial research for presentation preparation.
- Technical Research Completion
    - Isaac:
        - Researched GPS positioning modules, GPS technologies, and methods suitable for our use case, alongside computational requirements for intended algorithms and libraries.

    - Dylan & Mikhail:
        - Researched various motor and motor control options, fitting size, and budget constraints.
    - Thomas & Hoyt:
        - Researched battery and power solutions, focusing on capacity, charging, safety, and cold weather performance.
    - Shobhit:
        - Researched dispensing mechanisms for the salt spreading system, as well as non-GPS sensors and algorithms for mobile robot tracking and computer vision possibilities.

- 10/28/2025 - Weekly Advisor Meeting With Dr. Stoytchev (4:30)
    - We met with Dr. Stoytchev and shared our consolidated research findings. The feedback provided was clear: we must now move from general research to final component selection. The group was instructed to finalize the research this coming week by selecting the top component contenders for the prototype's Bill of Materials. We also confirmed that the adopted JIRA/SCRUM workflow is effective for our team and will be continued.

Time Tracking

Name	Individual Contributions	Hours This Week (Period)	Cumulative Hours
Isaac Blandin	Research Sensors, Navigation, Software & Computation. Built JIRA and Confluence Pages.	9	35
Dylan Bunting	Research Motors, Power, Software & Computation	7	30
Hoyt Dzwoniarski	Research Motors, Power, Software & Computation	7	30
Thomas Huedepohl	Research Motors, Power, Software & Computation	7	30
Mikhail McDade	Research Motors, Power, Software & Computation	7	31

Shobhit Singh	Research Salt Systems, Sensors, Navigation, Software & Computation	8	33

Plans for the Upcoming Week

- The critical focus is on finalizing the technical design and documentation to meet the purchasing deadline.
- Final Design Selection & BOM
    - Finalize Assigned Research: Select the top contender for each major component/subsystem with detailed comparisons, price, and links.
    - Prepare Final Research Presentation: Develop a concise 5-minute PowerPoint summarizing the finalized components for the next advisor check-in.
- Documentation & Meetings
    - Complete Design Document Part 5.
    - Finalize the design and content of the Project Website and the Lightning Talk presentation.
    - Weekly Documentation: All members submit the required weekly report to Dr. Stoytchev.
    - Attend the weekly meeting on Thursday at 4:30 P.M.

Summary of weekly advisor meeting

We met with Dr. Stoytchev and presented the results of everyone's component research. We were instructed to finalize the research by next week, transitioning from general options to selecting the specific components required for our prototype. This is to ensure we can present a confirmed Bill of Materials for purchasing decisions by the November 30th deadline. Additionally, we provided an update on the team's 3D printing training progress and confirmed that the team's current SCRUM board and AGILE workflow are effective and will be maintained going forward.