

sddec18-22 Automower (Autonomous Lawn Mower)

Weekly Report #5

Reporting Period: 03/01/18 - 03/7/18

Client: Micron Technologies/Ryan Marion

Advisor: Dr. Jones

Team Members

Sam Tinklenberg - Team Leader

Andi Li - Meeting Facilitator/Software Dev

Bryton Hayes - Test Engineer

Grant Duncan - Software Lead

Joel Seaser - Hardware Lead

Summary of Weekly Report

This week we mainly focused on finalizing the bill of materials of our phase one purchases so we can start building our device and testing code. This included some significant research into our options for wifi/ application connectivity, bump sensors, and acquiring GPS data. This week we also focused on defining communication standards between different parts of our project. We are working on making rules and standards so our app and microcontrollers can communicate with each other in a universal manner. This will make things much easier when we start combining the different pieces.

Previous Week Tasks Completed

General Tasks:

- Design Document v1
- Parts list

Specific Tasks:

- Completed phase one bill of materials
- GPS research
- Identify and define different pieces of information that will need to be communicated. The things that will need to be transferred are:
 - Schedule
 - Settings
 - Remote Control
 - Start/stop
 - Mowing History
 - Mower stats - such as battery
 - Sensor Data
 - GPS Data

Tasks In Progress for this Week.

General Tasks:

- Purchase materials
 - Chassis
 - Motors
 - Wheels
 - Reel Blade
 - Microcontroller
 - Extraneous complementary parts
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Specific Tasks:

- Raspberry pi and database connectivity research
- Mobile connection to mower
- Research Sugar ORM for SQLite database
- Research the best method of connecting the mobile app to the mower
- Create data structures for information to be passed from different parts of our mower.

Tasks Up for Next Week

General Tasks:

- Build chassis
- Test code
 - Motor Control
 - GPS data acquisition and processing
 - Wi-fi and database connectivity for the app

Specific Tasks:

- Microcontroller connection
 - Connect the microcontroller to the motor controller to make sure it's working
- Mobile to Raspberry Pi to Arduino connection
 - Make sure everything is connected
 - Implement Sugar ORM and SQLite database

Division of Work

Team Member	Contributions	Hours this week	Total Hours
Sam Tinklenberg	Bill of materials, design document, communication standards, device communication.	6.5	21
Andi Li	Design document, Raspberry pi to mobile app connection research	5	20
Bryton Hayes	GPS and bump sensor research, Bill of materials	7	23
Grant Duncan	Sugar ORM and SQLite database research	5	24
Joel Seaser	Bill of materials, high-level wiring diagrams	5.5	21.5

Summary of Weekly Advisor Meeting

Last week we ran Dr. Jones through our general ideas for our phase one design for our early proof of concept. We were able to demo some code for the app and explain our reasoning for picking certain parts dependent on our calculations of power and weight. Dr. Jones confirmed we were on a good track and agreed to assist us in refining and purchasing the phase one bill of materials.