

sddec18-22 Automower (Autonomous Lawn Mower)

Weekly Report #10

Reporting Period: 04/12/18 - 04/18/18

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 past week we were not able to meet with Dr. Jones due to scheduling conflicts. In a quick conversation about our status, he mentioned that he did not have much to discuss, but he liked the 3D model and our progress thus far. He told us to expect the time commitment to our project to increase significantly.

Previous Week Tasks Completed

General Tasks:

- Testing GPS
- Serial communication between Arduino and RPi
- Reel blade disassembly

Specific Tasks:

- Picked up all the parts that were available at ETG for the perimeter wire
- Mobile
 - Got push notifications working
 - Code cleanup
- Raspberry pi
 - Some php code is working.
- Motor
 - Set up motor, motor controller, and battery
 - Test and configure motor movement

Tasks In Progress for this Week.

General Tasks:

- Perimeter wire circuit
 - Building the perimeter wire onto breadboard
 - Creating parts list of missing parts for the perimeter wire
- Final Project Plan

Specific Tasks:

- Mounting of reel blade to chassis and connection to motor
- Mobile
 - Implement database querying
 - Create methods for sorting the database by time and deleting outdated rows
 - Finish method to calculate next mow time from database tables
- Raspberry Pi
 - HTTP Server
 - Handle HTTP post and get requests.
 - Get php scripts to work to add stuff to database.
 - Networking
 - Work on getting the phone and raspberry pi to be able to connect together more automatically and less manually.
 - Database
 - Create other tables for more information from the arduino.
 - Firewall
 - Make a little bit more robust.
- GPS
 - Research and test WAAS connection
 - Validate GPS data

Tasks Up for Next Week

General Tasks:

- Finish Perimeter Wire Circuit
- Mounting of Reel blade to c channel and connection to gear motor
- Design document v2

Specific Tasks:

- Raspberry pi
 - Authentication
 - Come up with a way to authenticate users when they try and send requests to the web server.
 - Connectivity
 - Connect the raspberry pi to the local network automatically.
 - Come up with a solution for the raspberry pi to still be functional when it loses connection while it mows.
- GPS
 - Test WAAS configuration
 - Mapping coordinates to GUI
- Mobile
 - Get location data from mower
 - Use location data to make a map of where the mower has been
 - Update weather to use mower's location instead of phone's

Division of Work

Team Member	Contributions	Hours this week	Total Hours
Sam Tinklenberg	Worked on Raspberry pi connectivity. Working on php scripts.	8	65
Andi Li	Disassembly of Reel blade, Project Plan v3, Design Doc v2, Final presentation, and made final edits to solidworks design	14	60
Bryton Hayes	Testing motor, WAAS configuration and research, wiring diagram v2	10	68
Grant Duncan	Enabled push notifications on the Mobile App, code cleanup, started implementing database query method	7	56
Joel Seaser	Disassembly of Reel blade and working on perimeter wire circuit and finding rest of parts. Worked with Bryton to test motor with controller and arduino	10	53.5

Summary of Weekly Advisor Meeting

We did not meet with Dr. Jones this past week. However, we have a meeting with our client this coming week. We will be giving Ryan a final run down of our progress this semester. We will use this meeting as a warm up and preparation for our faculty panel presentation next week.