sddec18-22 Automower (Autonomous Lawn Mower)

Weekly Report #9
Reporting Period: 04/05/18 - 04/11/18
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

Progress was slow on the raspberry pi, lots of systems that need to work together, but kept on running into issues. The issues mainly came from php not working with HTTP requests and sql. The issues causing the slow progress has been found. However, we are close to getting the raspberry pi and android app to work together.

Previous Week Tasks Completed

General Tasks:
- Receive parts and find workspace/ storage for them (senior design lab access)
- Basic wiring diagram

Specific Tasks:
- Raspberry Pi
  - Fixed a few small issues relating to the database tables.
- Mobile
  - Updated Weather to save to database
  - Started implementing push notifications
- GPS
  - Solder headers and set up GPS module
  - Tested receiving relevant data

Tasks In Progress for this Week.

General Tasks:
- Final Project Plan.
- Test GPS and validate data
- Research GUI for coverage representation
- Sharing information between Arduino and RPi

Specific Tasks:

- Pick up parts from ETG for the perimeter wire and start assembly and testing once motor drives and sound drivers come in
- 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.
- Mobile App
    - Finish push notifications
    - Work on database querying

Tasks Up for Next Week

General Tasks:
- Disassemble Reel blade and figure out how to mount it and attach belt from motor
- Final design document
- Prepare for final presentations.

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.
- Mobile App
    - Create methods for sorting the database by time and deleting outdated rows
    - Finish method to calculate next mow time from database tables
- Motors
    - Set up motor controller
    - Power motor
    - Test PWM signals for different speeds
    - Calibrate PWM for stopped motor
- GPS
    - Test data with a valid signal
    - Research visual representation

Division of Work

Team Member	Contributions	Hours this week	Total Hours
Sam Tinklenberg	Web server, firewall, databases on raspberry pi. Handling HTTP requests on the raspberry pi.	10	57
Andi Li	Made improvements on solidworks model	7	46
Bryton Hayes	Set up GPS module and test extraction of relevant data. Research GPS GUI	10	58
Grant Duncan	Implemented database saving on weather part of app. Worked on push notifications.	6	49
Joel Seaser	Perimeter wire parts list and getting them from ETG. Calculations receiver and sender	6	43.5

Summary of Weekly Advisor Meeting

Due to some scheduling conflicts on our side with portfolio presentations, we did not have a meeting with Dr. Jones this past week. After a brief conversation, he mentioned that he did not see any specific reason to meet last week, but that he expected the time commitments to go up a bit from here on out.