

EE/Cpr E/ SE 492 BI-WEEKLY REPORT 3

9/24/18-10/8/18

Group 8 - Smart Garbage Management

Advisor: Prof. Goce Trajcevski

Team Members: Colin McAllister, Nick Pecka, Robert “RJ” Duvall, Steven Brown,
Brendan Finan, Sam Johnson

BI - Weekly Summary

Over the last two weeks, we delivered our first PIRM presentation, created the app, made changes to the algorithm based on PIRM feedback, and finalized the PCB. The new algorithm will use genetic algorithms to find a “very good” solution instead of a perfect solution, capping time complexity. The PCB will be ordered at the end of the week, with some last-minute placeholders to accommodate future feature additions. The app team ran into a few technical difficulties this week with the Android manifest, but got them resolved.

Completed Deliverables

- Nicholas Pecka - Met with team (1 hour), Met with team and advisor (1 hour), Developed sketches and a list of requirements for Resident/Collector Dashboards (2 hours), Worked on Resident Dashboard portion of App (4 hours)
- Colin McAllister - Met with Steven to discuss power management solutions for garbage can sensor (2 hours), Standardized communication protocol between garbage sensor and Amazon Web Services (1 hours), met with team for weekly meeting (1 hour), met with team and advisor (1 hour)
- Brendan Finan - Create navigation for the app(2h), Placed feature flags (1h) , created input monitors (3h), researched Amazon Maps MQTT API (2 hours) (8 hours total)
- Robert “RJ” Duvall
 - Created the Open Street Maps display using Google Maps for the our route on Android App (10 hours).
 - Worked on fixing corruption issues after updating Android Studio (10 hours).
 - App crashes when rendering Map.
- Steven Brown - Placed order for the PCB (4 hour)
- Sam Johnson - Brainstormed solutions to density problems (1 hour). Research into the Vehicle Routing Problem (4 hours). Design of genetic algorithm to solve VRP (4 hours). Development of Mutation Code (2.5 hours). Development of Cross-over code (2.5 hours).

Name	Hours This Week	Total Hours
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Colin McAllister	5	53.5
Nick Pecka	8	59
Robert "RJ" Duvall	20	77.5
Steven Brown	10	76.5
Brendan Finan	8	66
Sam Johnson	14	87

Plans for Upcoming Week:

- Display route from our Routing Algorithm on App - Robert
 - Take the route created from our routing algorithm and display it on the generated Google Map.
- Construction of the device - Steven
 - Create a holder for the PCB; attach the power source
 - Add the accelerometer to the can
- Continue to develop microprocessor code - Colin
 - Implementing functions on the circuit board as they are added.
 - Finish interfacing accelerometer with FiPy using i2c
- Continue work on views for web/mobile app - Nicholas
 - Setup Resident Dashboard portion of app to be ready to accept AWS data

- Setup Collector Dashboard portion of app to be ready to accept AWS data
- Work on new genetic algorithm for routing- Sam
 - Develop code for processing generations
 - Develop code for checking fitness
- Continue finishing activity implementations- Brendan
 - Connect to AWS Databases
 - Tie AWS responses to value displays