

sdmay19-21: Distributed mesh network for data collection and predictive analytics

Report 5

October 8th - October 12th

Client: Danfoss/ Radek Kornicki

Advisor: Crain Rupp

Team MembersRyker Tharp — *Database Design*Collin Vincent — *System Engineer*Colton Smith — *Project Manager*Gage Tenold — *Engagement Lead*Cody Lakin — *Software Developer*Will Paul — *Lead Architect*

Summary of Progress this Report

Made the decision that RQLite didn't fit the project since it didn't allow the node to node connections that our network would need. Created some sample screens for our front-end application and UI. Started working with CAN messages and how to stub them with Socket Can. Started configuring PI's for some initial connectivity testing.

Pending Issues

Need a way to test the Can bus messaging.

Waiting on additional hardware for the Pi's. - received SD cards this week, still need some special cables.

Plans for Upcoming Reporting Period

Research alternatives to RQLite for data storage (Ryker, Colton)

Look more into how to implement push notifications and start on building UI with Electron (Gage)

Set up some automated ip assignment system so that we don't have to manually set static ip address for every device(Collin)

Get socketcan with Python figured out. Read the data from the can and output it. Try to use with Craig's helper methods. (Cody)

Gitlab Activity Summary

Added files for project website to repo.

Soon to upload Frontend base and Start of bash Pi Initialization script

Added code for the canbus and the network configuration.

Past Week Accomplishments (from Week 5)

- Decided with client not to use RQLite
- Built a basic UI and got a list of desired changes from Client

- Found out about adhoc mode on the wifi cards and made a basic setup

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Ryker Tharp	<ul style="list-style-type: none"> ● Tested RQLite with Colton ● Began Research into FireBase 	5	31
Collin Vincent	<ul style="list-style-type: none"> ● Created a image of the rpi install so we can clone it to other sd cards to reduce setup time for future devices. ● Created a systemd service to run all of our code on startup ● Used the deprecated iwconfig utility to setup the wifi cards because iw, netctl, wpa_supplicant, and NetworkManager didn't work with static ip adhoc mode. 	10	37
Colton Smith	<ul style="list-style-type: none"> ● Implemented RQLite ● Discovered RQLite doesn't meet requirements ● Started research into DBForge, RedGate, and Firebase. 	9	34
Gage Tenold	<ul style="list-style-type: none"> ● Built a basic UI for the project ● Looked into API's for how to provide push notifications 	8	33
Cody Lakin	<ul style="list-style-type: none"> ● Installed socketcan ● Learned to use vcan data simulators ● Learned to read can data with sockets 	7	28
Will Paul	<ul style="list-style-type: none"> ● Setup of virtual Pican system, help/work with cody to use socketcan and understand the canbus ● Research data format & analytics with Python's numpy/pandas 	6	29