

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

### Week 4 Report

October 1st - October 5th

Client: Danfoss/ Radek Kornicki

Advisor: Crain Rupp

### Team Members

Ryker Tharp — *Database Design*

Collin Vincent — *System Engineer*

Colton Smith — *Project Manager*

Gage Tenold — *Engagement Lead*

Cody Lakin — *Software Developer*

Will Paul — *Lead Architect*

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### Summary of Progress this Report

Developed an initial plan for the database schema that will be on each device and wrote the design document version 1.0. We also decided to start our front end application development using electron, and created a list of additional hardware we need ordered.

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### Pending Issues

Waiting on additional hardware from the client for the Raspberry Pis' (SD cards, PICANs, OBD2 Cables)

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### Plans for Upcoming Reporting Period

Acquiring Micro SD cards for each of the six Raspberry Pis, and Installing Arch or Alpine on each one. (Will, Colton, Collin)

Further research into CAN bus documentation (Cody)

Install and experiment with Python-can library, try to find data simulator (Cody)

Start building a base front end experiment Electron to test feasibility. (Gage, Will)

Have RQLite installed on both desktop and Raspberry Pi (Ryker)

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### Gitlab Activity Summary

Added files for project website to repo.

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

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### Past Week Accomplishments (from Week 4)

- Design Document 1.0
- Initial Database Design
- Decided to use Electron
- Specified additional hardware to order
- Looked into Socket CAN bus
- Set basic implementation goals for RQLite, Raspberry Pi Network, and CAN Bus translation

## Individual Contributions

| Team Member    | Contribution   | Weekly Hours | Total Hours |
|----------------|--|--------------|-------------|
| Ryker Tharp    | <ul style="list-style-type: none"> <li>Started developing test cases and expected results.</li> <li>Researched the use of RQLite, developed initial database schema.</li> <li>Worked on the current design and testing portions of the design document.</li> </ul> | 8            | 26          |
| Collin Vincent | <ul style="list-style-type: none"> <li>Worked on Design Document</li> <li>Worked on setting up the networking configuration on the Pi's</li> </ul>   | 10           | 27          |
| Colton Smith   | <ul style="list-style-type: none"> <li>Researched RQLite usage and tutorials</li> <li>Began setting up environment for RQLite</li> <li>Research on Dockerizing environment for RQLite to streamline device setup</li> </ul>  | 8            | 25          |
| Gage Tenold    | <ul style="list-style-type: none"> <li>Looked into pre-existing mesh networks and the standard ways they document their data</li> <li>Watched Electron tutorials and started working on a plan for how we can utilize it</li> </ul>                                | 8            | 25          |
| Cody Lakin     | <ul style="list-style-type: none"> <li>Installed python-can</li> <li>Acquired and connected PiCAN2 for 339, which can also be used for this project</li> <li>Played with python-can</li> </ul>   | 6            | 21          |
| Will Paul      | <ul style="list-style-type: none"> <li>Install necessary drivers and libraries on the raspberry pi virtual machine to test and prep for hardware</li> <li>Begin Frontend development</li> </ul>  | 7            | 23          |