

Bi-Weekly Report 3

1. Summary

Over the past two weeks, the team's biggest accomplishment was selecting a microcontroller. They are moving forward with the Raspberry Pi 3B+. Another highlight includes the software screen flow. This document organizes pages for developers. Other milestones include updating the team website, progress on the design document, ordering parts from the ETG, finding Raspberry Pi libraries, and organizing the team to hit the ground running once we get the necessary parts.

2. Individual contribution (finish before tmr afternoon)

- a. Member contribution to progress.
- b. Hours worked by each member for the week.
- c. Total Cumulative hours for each member.

Our team is working seamlessly, and we are making some progress. Our goal is to have a prototype for the project by the end of the semester, so with our current pace, we will be able to achieve that goal. As of now, the exact work details and timeline are not clear, therefore the time spent on the project by each team member varies. All the team members are a valuable asset for this project and each one is contributing in their own way. The following paragraphs display what each member did and the amount of time spent by each one.

- d. (Philip) Philip presented his raspberry pi research to the team, and together they selected a microcontroller. He was the one to place the parts order to the ETG. The team's website hadn't been edited, so Philip began updating it. The website contains the bi-weekly reports, design documents and his member information. He has been doing background research so hardware has "next steps" once they get the microcontroller.
- e. (Ali) Ali attended all of the team meetings, including the meeting with our advisor, where he discussed with our advisor some possible solutions to our main pending issue. He presented his research on bluetooth and found libraries that could be used in android app development. He worked with Shuang to create the Software Function Diagram and the Screen Flow Diagram for the app. He started looking into android app development using android studio. He is also reading about different ways to structure the database.
- f. (Shuang) Shuang has attended and kept meeting notes of the weekly group meeting. She collaborated with Ali on creating the software Function Diagram and the Screen Flow Diagram for Android and iOS app design. She attended the meeting with the advisor and presented the software diagrams. She introduced Firebase and Document Database to the software team and started looking into building iOS UI using XCode.

- g. (Isaac) Isaac attended our second meeting with our senior design advisor to get his opinion on the design diagram we came up with for the hardware part of the Road Safe Phone Case. He was able to ask our advisor on his opinion on the design diagram and how we might be able to improve on it. He also asked if our advisor had some ideas that would improve on our design structure in general. Isaac also did some research on the raspberry pi microcontroller and was able to help the team decide on which microcontroller to choose. He was also responsible for doing some deeper research on the the different types of bluetooth protocols that would be ideal for our design.
- h. (Chad) Chad researched microcontrollers and decided that the Raspberry Pi 3 would work best for our project. He also researched OBD-II interfaces and which ones will work best for our project. Chad attended the team meetings and discussed with his team members about which microcontroller will work best. Chad also attended the advisor meeting, where he informed the advisor about our problem we are having finding the OBD-II to USB adapter and how we may need to build our own.
- i. (Shihab) Shihab researched the raspberry pi project board and all its features and the protocol it uses to communicate with other parts of the system. He also gave the idea that if the ECU reader device was removed from the car then it saves the signal and sends it to the parent's device whenever the car gets close to that device. Shihab also was a valuable member in the team meetings and the client meeting through his comments and ideas, but similar to last week and due to time conflict he was not able to attend the advisor meeting.

Name	Weekly hours	Cumulative hours
Philip	4	17
Ali	6	17
Shuang	4	17
Chad	6	15
Isaac	5	13
Shihab	6	13

3. Pending issues

The main pending issue we have right now is finding a replacement for one of the parts that we wanted to order, the OBD scanner. We were advised not to go with this part due to possible firmware issues. Unfortunately, there is the possibility that we cannot find the replacement, in that case we need to find an open source design document for the part and implement it ourselves, which will be an interesting challenge. The other pending issues we have are learning about the raspberry pi and its different libraries, and starting the app development on different platforms.

4. Plans for next 2 weeks

These next two weeks, we still have more catching up to do unfortunately. This is because there was a problem with the parts we were going to order. Because of this, our number one priority this week is getting our parts ordered, hopefully within the first few days. We also need to have a discussion with Matt from the ETG about the parts we are ordering and making sure there is no issue with them this time. After we get the parts ordered, we will hopefully be able to start working on the hardware side of things and learn how to program with OBD-II readings and how to transmit bluetooth signals to an application on a smartphone. For software, we are going to start developing our app so that we can have something to test our bluetooth transmitting circuit with when it gets finished and also so we can have extra hands with the hardware side because that is going to take the most work. We also plan on continuing to upload our progress to our website and have another meeting with our client and advisor to let them know where we are at.