EE/CprE/SE 492 BIWEEKLY REPORT 2 (9/14/2019 – 9/27/2019)

Group Number & Project Title: (5) Road Safe Phone Case

Client: Christine Shea-Hunt

Advisor: Dr. Diane Rover

Team Members/Role: (Software) Zixiao Lu, Yifei Wang

(Hardware) Kedan Xin, Yue Chen, Sarah Baratta

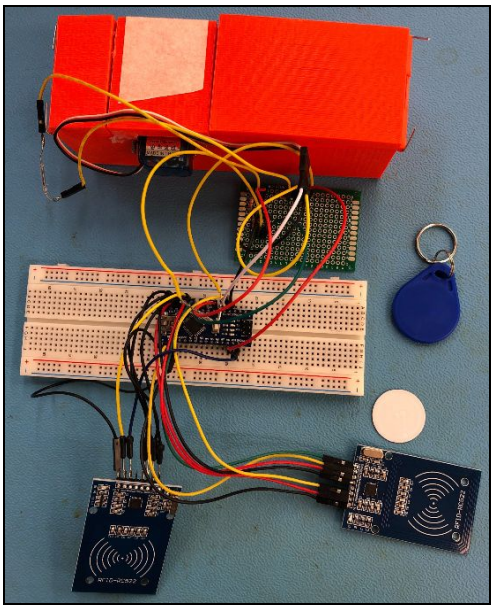
Weekly Summary

In the past two weeks, the team tried to make progress on the message texting function. The team has discussed many ways to achieve this function, but most of them involve monthly payment which is undesired for this project since it will hopefully be marketed. At this point, the team come up with two solutions. The first solution is the team needs to write a script to automatically sent the text message after push the emergency button. The second solution is to build an emergency system that can disable all functions of the case and can be reset through a password.

The anti-metal RFID stickers and Arduino nano also arrived. Thus, the reading functionality was tested on the conductive material of the phone and the Arduino Uno was swapped out for the smaller version. A life-sized prototype was printed using the university's 3D printers. Lastly, the team met also revised the website to be more organized and profession and the past semester's presentation was also revised to include updated information and pictures of the circuit.

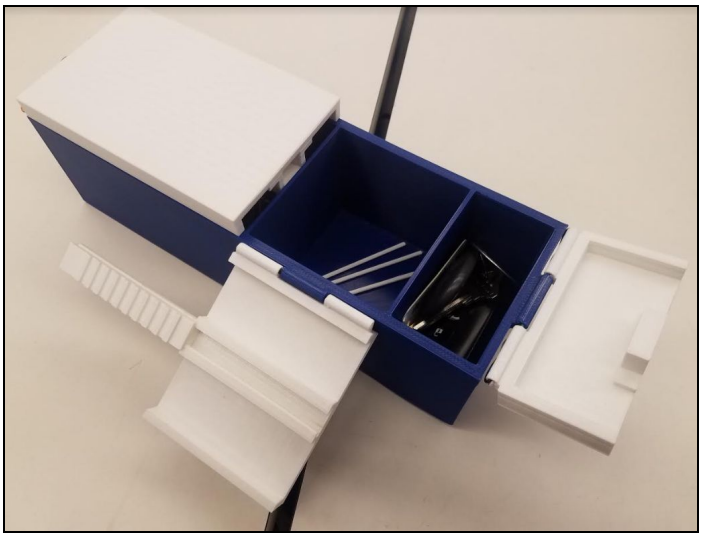
Past week accomplishments

The team rewired the circuit to include the new components that were ordered, the RFID stickers/readers and the smaller microcontroller as can be seen in the image on the right. The anti-metal stickers worked but required a greater distance than desired. The connections will later be soldered onto a perfboard when the remaining functionalities are integrated into the circuit Also, the team had a meeting this week to further discuss the emergency message alert system. The team has two solutions. Either use software technology to write a script to automatically



send the alert message or build a password-protected reset system to manage the emergency situation.

The team was able to 3D print a life-sized prototype case and locking device, as shown in the image below. Keys fit in the case easily, which is shown on the right side of the case. However, there are some mechanical alignment issues with the locking bar and track. The phone is also too large to fit in the case. The team will try to fix these issues by reprint the locking device and by decreasing the lock portion of the case so that it fit everything.



Described below is what each individual team members worked on:

Zixiao Lu: Implemented the send message Android App.

Yifei Wang: Attended meeting with advisor. Worked on RFID system system and revised sequence of the code.

Kedan Xin: Meet with advisor, worked on presentation, built prototype, changed microcontroller, soldered circuit. Troubleshooted with teammate RFID system

Yue Chen: Attended the team meeting to discuss message function of the project. Helped RFID implementation. Helped to solve the mechanical issues of the case.

Sarah Baratta: Helped integrate the RFID detection into existing code. Worked on the first group presentation slides and updated the group's website.

Individual Contributions Table:

Name	Individual Contributions	Hours This Week	Hours Cumulative
Zixiao Lu	Implemented the send message Android App.	6	56
Yifei Wang	Attended meeting with advisor. Worked on RFID system system and revised sequence of the code.	6	62
Kedan Xin	Meet with advisor, worked on presentation, built prototype, changed microcontroller, soldered circuit. Troubleshooted with teammate about RFID system	8	72
Yue Chen	Attended the team meeting to discuss the current issues. Helped to rebuild the case. Helped to implement RFID into the circuit.	6	66
Sarah Baratta	Meet with advisor to catch up, revised website, worked on first group presentation, brainstormed messaging alternatives	8	68

Plans for the Upcoming Week

For the upcoming week, the team will work on the first presentation of the project by meeting to rehearse with one another and by running through the presentation with the advisor. Also, the team will start to work on the two solutions of the emergency system. Ideally, the script will work but the team only has experience with implementing one on a computer. If this does not work, the team must be prepared to quickly replace this application with a reset function instead. The team will also work on fitting all the current components into the phone case and find a way to hide the wires and lid sensors inside the case.

Described below is what each individual team members plans to work on:

Zixiao Lu: Keep finishing the android app, makes it more neat and looks better. Do research about sending message without using the SMS module.

Yifei Wang: Help Lu with writing code. Do research about circuit reset system.

Kedan Xin: Modifying the life-sized case to fit the RFID readers, Arduino nano, and magnet detection sensors.

Yue Chen: Keep trying to solve the mechanical problems of the case. Research about how to build a password protected reset system.

Sarah Baratta: Re-doing the emergency button circuit to fit with the with microcontroller and RFID readers. Helping Lu write and test the script for the messaging application, if he needs assistance.