

EE/CprE/SE 491 WEEKLY REPORT 4 (3/1/19 – 3/8/19)

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

The objective of the week was to meet with both the client and advisor to provide an update on the team's progress and to receive clarification and guidance of design decisions. Also, the team has discussed basic designs for the intrusion detection/emergency system, door sensing circuit, and message alert system. A list of possible additional parts that may be needed for the circuitry or for the physical case to help implement the functions was created in case these components should be ordered later down the line as the project progresses.

There are no changes in the team's project plan as of now. However, the team has been advised to be aware of potential additional functionalities, which may either be implemented or recorded as recommendations for future implementation of the product. This entails potential software applications that could be used with the road safe case to make a more practical solution.

Past Week Accomplishments

For the past week, the most significant accomplishment is that the team has finalized all the details, for the time-being, regarding the project and will start to implement our design into real circuit this weekend. Components, such as the sensors and locks, arrived in the mail this week. Thus, the team has allocated time over the weekend when all members are available to begin testing the parts and putting them into circuits.

The team held a phone-call meeting with the client to update her on our progress as well as to receive input on design choices that the team would like to pursue. It was decided that the road safe case does not need a reset passcode if the case has notification sending capabilities instead. Also, the types of sensors for object detection that will be used in the project was approved with the client. The external sponsor paperwork was provided to the client as well.

Described below is what each individual team members worked on:

Zixiao Lu: Met with the advisor Dr. Rover, discussed most of the uncertain chapters in our project plans (regarding confusion between the assumptions, limitations and the constraints). Also, still conduct his research on the proper chip we should use in the project. Still trying to figure out the emergency situation.

Yifei Wang: Met with the advisor, Dr. Rover, to talk about advantages and disadvantages of some solutions and discuss about project plan assumption and limitation part. Continued researching on different modules.

Kedan Xin: Met with professor Rover. Reading datasheet and Trying to figure out how to use sensors correctly. Design lock circuit and simulate them on Multisim.

Yue Chen: Met with advisor to finalize the details about the project. Made the phone case cover detection circuit. Researched on the intrusion detection system and GSM module. Making plan for creating a physical simulation environment.

Sarah Baratta: Met with client to update her on the team's progress and to clarify some of the product's functionalities. Met with advisor to review different solution approaches and update her on the group's current path. Reviewed different GSM modules and then made a purchase.

Individual Contributions Table

Name	Individual Contributions	Hours This Week	Hours Cumulative
Zixiao Lu	Research on selecting the proper chip, working on the emergency situation detection	6	20
Yifei Wang	Research on GSM/GPRS architecture. Find out some potential useful website.	5	22
Kedan Xin	Design and simulate circuit on Multisim.	6	25
Yue Chen	Researched on the intrusion detection system, circuit design for the intrusion detection system.	6	26
Sarah Baratta	Ordered GSM shield module, meeting with the client and advisor, designing the physical case	5	23

Plans for the Upcoming Week

The team plans to begin drawing more schematics representing the circuit behavior as a whole and integrating that into the revision of the project plan. By using the advice from the meeting with the advisor as well, other components that were previously misunderstood such as the assumptions and constraints of the proposed solution will be discussed between team members and then clarified in the document. The team will continue working on testing the circuit through physical simulations with the components that have arrived. This will entail integrating the GSM module for SMS if it arrives by next week, or if not, continue integrating the sensors and locks into the circuitry and recording our test result.

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

Zixiao Lu: Finish up the emergency situation and the chip research. Discuss with the advisor about research result and see what will be the further plan.

Yifei Wang: Start to work on the physical implementation. Hopefully, achieve sending message with the circuit.

Kedan Xin: Testing locking and SMS circuit on breadboard and troubleshooting.

Yue Chen: Implementing design into the real circuit. Testing the circuit sequence for the proper operation. Integrating the case cover detection system and intrusion detection circuit into the initial design.

Sarah Baratta: Look into durable, waterproof materials for the final product or simple materials for a prototype. Overall, begin the process of designing the case early and become more familiar with crafting a physical case with locks and different compartments since craftsmanship is not the team's area of expertise.