

## **EE/CprE/SE 492 BIWEEKLY REPORT 7 (11/23/2019 – 12/6/2019)**

**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 successfully added the Bluetooth module into the Arduino microcontroller and has been working on putting all the pieces of the project together. However, the team encountered two issues. The first one is the parts installation. Because the box is separated into numerous sections, each section has limited space. It's tough to fit screws and screwdrivers into the box to secure the components. However, the team was able to find an alternative way to secure the parts in the box by using UV glue ( a type of glue has excellent viscosity after exposure to UV light). The second issue we encountered is the malfunction of the locking circuit. The team used a new microcontroller for the final product and soldered the wire connection among the components for stability. However, during testing, the locking circuit could not perform proper locking function. For this issue, the team is still troubleshooting the problem.

### **Past week accomplishments**

1. Added the Bluetooth function to the Arduino
2. Found the way to secure the components in the box

We have print out a final version of the case and we have to secure the motor to the case. In the previous version of prototype, we were using screws to stable the motor. But for this new model, there was very hard to do that for insufficient room. So we need to find out some alternative ways. At the beginning, we first want to use gorilla glue or some other super glue to attach the motor on the case. After some trials, we found it wasn't stable. After talking to a graduate student, we found UV glue would be a good choice for us. UV curable adhesives are ideal for manual assembly processes. Because they will not cure until exposed to light, users can make fine adjustments to alignment before bonding. Permabond UV Glue (UV and Visible Light Cure Adhesives) cure quickly when exposed to light of the appropriate wavelength and intensity. They are one

component adhesives which are solvent free (100% solids) and are ideal for many applications in which glass or plastic which are able to convey UV or visible light is bonded to itself or metals and other substrates. So, we tried that on the testing prototype case and saw it was good enough for now.

3. Finished the final project poster

We went through the poster when meeting with Dr. Rover. She provided many helpful ideas to make the poster looks better and more professional. We didn't being consistent in letter capitalization and Dr. Rover corrected us. She also pointed out some of our diagrams were not serving its function. She helped us adjust the order of different modules to make it more readable and more organized. We think the poster looks nicer after the revision.

Described below is what each individual team members worked on:

Zixiao Lu: working on the user token authentication, finished up the database and display text format. Research on Bluetooth connection

Yifei Wang: Helped to connect bluetooth module. Use UV glue to assemble the motor with the case and test the stability.

Kedan Xin: Helped to connect bluetooth module. Also, finished designing and printed out the 3D module of the second case. Assembled the parts together.

Yue Chen: Finished initial design of the poster. Helped for Bluetooth module implementation. Tested the UV glue stability. Helped to troubleshoot the locking circuit.

Sarah Baratta: Began to work on the user manual for the case as long as sketches to depict use cases, which may possibly be added to the team's website. Meet with advisor to update and receive feedback. Discussed current case design with client and asked for feedback. Present project difficulties to class.

**Individual Contributions Table:**

Name	Individual Contributions	Hours This Week	Hours Cumulative
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Zixiao Lu	Working on the user token authentication, finished up the database and display text format, research on Bluetooth connection	8	82
Yifei Wang	Helped to connect bluetooth module. Use UV glue to assemble the motor with the case and test the stability.	8	94
Kedan Xin	Helped to connect bluetooth module. Also, finished designing and printed out the 3D module of the second case. Assembled the parts together.	10	110
Yue Chen	Finished initial design of the poster. Helped for Bluetooth module implementation. Tested the UV glue stability. Helped to troubleshoot the locking circuit.	10	102
Sarah Baratta	Revised the poster, meet with advisor, discussed marketing options with client, wrote user manual	10	106

### Plans for the Upcoming Week

For the upcoming week, the team will keep working on creating a connection between the case and cell phone and implementing the emergency message function. Also, we will troubleshoot the locking circuit to fix the issue of improper operation. As we will have final presentation next week, we will also create powerpoint for that and practice a bit. Even if we finish everything, we think there is a lot of work could be done to revise the product. We would come up with some potential work to the next group who might take over.

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

Zixiao Lu: Finish up the Bluetooth connection and the rest of the application

Yifei Wang: writing the final report and state prepare for presentation. Help to assemble all the parts together and make it work.

Kedan Xin: improve the design of the case, troubleshoot the circuit system and assemble the final prototype

Yue Chen: Troubleshoot the locking circuit and putting all the parts together.

Sarah Baratta: Research marketing options for the client. Record all changes that need to be adjusted from the second life-sized prototype so that the final product is as desired when printed. Also, continue working on documentation, such as use cases and the user manual.