**ECE445 Senior Design RFA**

*Taiqing Ling (taiqing2), Boyang Gong(boyangg2), Weichen Qi(wqi4)*

**Project Name: Smart Phone For Kids**

Problem Statement:

Many parents, especially young parents with children at ages around 5 years old, hesitate on whether they should give their children a cell phone. A regular cell phone could be over functional and complicated to use for such little kids and it is very expensive. So far, LG Migo has provided a solution: a kid-phone that can make phone calls to up to five numbers with one button. However, from our perspectives, there is something more we can do to improve this product. We aim to solve two problems with our design. First of all, LG migo has a limitation on the phone numbers. There might be some special time when the user wants to call a different number. Secondly, little kids are sometimes naughty and parents may worry that their children get lost. If there is some alerting system that can report children’s location and alert when there is a risk of getting lost, it could prevent this problem.

Solution Overview:

Instead of a regular monitor, we decide to use a touch screen so that it can display multiple information and would be easy to use. On the home page, it will display the real time and three tabs, respectively ‘MOM’, ‘DAD’, ‘OTHER’. Tapping ‘MOM’ or ‘DAD’ will directly call the prestored numbers. Tapping ‘OTHER’ will open a numeric pad, where the user can input numbers by himself. To solve the second problem, we will use a GPS sensor and build a mobile APP to receive the signal. Parents will be able to set some ‘safe locations’ in the APP. These locations could be the ‘school’, ‘kindergarten’, or ‘grandma’s house’, etc. Once the children leave the safe locations, there will be an alert message sent to parents’ cell-phone and parents can choose if they ignore it.

Solution Components:

SIM808 Module: It contains both GSM and GPS module, so that we can use it for making phone calls and sending locations.

Raspberry Pi Zero: We will use it as a PCB. It is small and can fit the size of a cell phone.

Touch screen module: For display and control

Mobile Interface: An interface that can pair to the GPS sensor and locate it on the map. It will also allow the user to tag specific areas as ‘Safe Location’.

Criterion of Success:

We will consider our project a success if it can successfully making phone calls with the three buttons and can sensitively send alert message to the mobile phone.