Team Number: MELHS19   School Name: Melrose High School   Area of Science: Psychology

Project Title: **4 U App**

Problem Definition:

Our project is to create an application for people who have a learning disability. We have a new student in the school who is challenged and needs help getting around the school. This isn't just for our new student, it's also for anyone who has a disadvantage when it comes to learning. We attempt to make it usable for not only at school but for people or families who have a child who is challenged. It will help them navigate an area and help them to choose the right place to go at the correct times because there are so many choices to make.

Problem Solution:

In this application, we will code it to map out the area with all the surroundings as accurate as we can. For instance, as we program it for our school, we will include the actual High school building, the Cafeteria, the Ag building and the New Gym building. When the class change bells ring we will sync it to the program so the user will know where to go and what teacher to look for when the period changes. A future addition we are thinking about putting into the program is a set of learning games and soothing music to calm the user if they have a sensory issue.

Progress to date:

We have started designing the program to work in NetLogo. We will work on room recognition and how it will work. Also, we are going around the school and making the map by hand at first and then will put it into the program. We are considering Radio-Frequency Identification (RFID Scanner), Near Field Communications (NFC), and Bluetooth devices to track the user based on their starting location and destination based on predetermined routes. We can detect when the user arrives at the intended location by telling the user that "You are here" when they have reached the appropriate location.

Expected Results:

To start this project, we are going to make a model in NetLogo to be a proof of concept for the future of the application. This will help us in the refining of the necessary steps in the development of the application for the system, which we will need a server for it to run.

We intend to have it set up so when the user opens the application it starts automatically with no wasted time. It will then be showing the map, have teacher recognition on, and have the games and music menu available. Once we get this model to run and work properly we hope to make it into a real working application to have on the Appel App Store or the Google Play Store so people can actually use it to help additional people. We hope to make this application user friendly to anyone on the spectrum of common disabilities or anyone with a disadvantage when it comes to learning.

Team Members: Gracie Sanchez and Chantilly Fulgham   **Sponsor:** Mr. Alan Daugherty

<u>Citations</u>

Websites:

Radio-frequency location identification.

https://en.wikipedia.org/wiki/Radio-frequency_identification_Helping_the_handicapped

http://www.wwusda.org/ways-to-help-the-disabled.html

Personal interview:

Dewayne Fulgham, experienced with computer systems software, analysis, design, mentation**.**

IBook:

Helping People with Special Needs, Part I 12th International Conference, ICCHP 2010, Vienna, Austria, July 14-16, 2010. Proceedings

MHS Library:

Electronic Life: How to Think About Computers, Michael Crichton, 1983.