Navigational Heads-up Display – Individual Contribution Summary

The following design report details the design of a Heads-Up Display. The intention of this system is to allow drivers to navigate to a destination with as little distraction as possible by generating a route between the user’s current position and the selected destination, and then displaying relevant information on the user’s windshield as they move along the selected route. The designed system can be divided into two major subparts: the mobile application and the System Unit. The mobile application was designed for Android devices to allow the user to search for destinations, select a route to the desired destination, and view turn-by-turn instructions. The System Unit was designed to receive information from the mobile application and then display that information in a user-friendly manner via a small projection device.

My primarily role throughout this project was Software Manager. As the Software Manager I oversaw the design, implementation, and testing of all software components of the project. The software components included the mobile application, the establishment of the connection between the mobile application and the System Unit, data handling/manipulation, and display generation. Regarding development, I was primarily focused on the mobile application. This included the development of the mobile user interface, the generation of routes, and the transfer of data to the System Unit. A significant portion of my time working on this project was spent on the user interface, specifically the map display – which displays search results and
routes. I was also very focused on creating efficient methods for generating routes and updating the user with relevant information as they moved along their selected route. Essentially, my primary focus during the development stage was to implement the turn-by-turn navigation. I was also responsible for the physical design of the System Unit - using 3D modeling software to create a custom casing, which housed the components of the System Unit.