**ECE 4094**

**Project A**

**Progress Report**

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| --- | --- | --- | --- | --- |
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Contents

[**Objectives** 3](#_Toc72882369)

[**Progress to date** 4](#_Toc72882370)

[**Work to be completed** 6](#_Toc72882371)

# **Objectives**

The objectives of my project is to build an application that has the capablity to display arriving bus times and occupancies for a given bus stop and allow the user to select a bus time that best suits their needs based on given parameters. In order to simulate buses, the program SUMO is being used. This will allow the simulation of buses for a given route and traffic to make the experiment as realistic as possible. The application is being built for an android device. It will be able to connect to a server that is running the simulation so the bus details can be sent across through a TCP socket. This socket will allow data to be transferred from the server to the app and vice versa. Once a user has selected a bus that best suits their needs with the parameters given, they can provide a short description detailing their decision making skills into making that choice. This description with the data will be stored in a database.

# **Progress to date**

**Table

Description automatically generated**Throughout the first semester, progress has been made into the research behind the project and into the software being used. The software being used includes SUMO, Android Studio and a Python IDE. The languages being used are Python for the SUMO code and Java for the application. A quick demo bus route has been tested to see how buses intereact in the SUMO software. There has also been testing of how people interact with buses in SUMO to show how passengers move in the simulation and how passenger numbers are able to be tracked.

**Figure 3: Parameters of a bus**

A picture containing bicycle

Description automatically generated

**Figure 1: Bus at bus stop**

A picture containing chart

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**Figure 2: Bus carrying passengers**

**A picture containing text, computer, screenshot

Description automatically generatedGraphical user interface, text

Description automatically generated**

**Figure 5: Code for making passengers of a bus**

**Figure 4: Code for making a bus route**

# **Work to be completed**

Most of the work needing to be completed is the python script for the simulation and the development of the application. After this, testing is needed to ensure that all parts are working correctly individually as well as in a group. Once these are completed, the poster and final report are needed. The final report will be worked on throughtout semester 2 while developing the code and the app.Testing will also need to be done once all 3 parts are complete and are communicating with eachother. Figure 6 and 7 below shows the timeline for the project during semester 2, including dates when each section need to be completed by.

**Figure 6: Gantt Chart**

|  |  |  |
| --- | --- | --- |
| **Tasks and expected time allotment** | | |
| **Task** | **Expected hours** | **Start week** |
| Developing the Simulation | 3-4 weeks | 1st/5/21 |
| Developing the python script | 3-4 weeks | 31st/5/21 |
| Developing the app | 4-weeks | 10th/7/21 |
| Testing | 4-weeks | 16th/8/21 |
| Poster | 4-weeks | 13th/9/21 |
| Final report | 4-weeks | 13th/9/21 |

**Figure 7: Timeline of the project**