

## BloomBus Abstract

### **Objective:**

Ensuring that people know when a bus will arrive at a stop allows for better planning and better shuttle service management. When preparing for their day, students will be able to check the bus app and plan accordingly. The shuttle service will check the drivers in real-time and see which are properly doing their jobs. Here, an ANN will be used to perform the predictive tasks.

### **Background:**

The idea for a tracking bus system was first proposed years ago. The project was inspired by colleges and cities that have their own transportation tracking. The idea to use an ANN was introduced after attempts to use radio proved insufficient.

### **Hypothesis:**

An ANN can predict when a bus will arrive at a stop by analyzing data and then create a mathematical model; an ANN will use this model to determine output for any valid input. After training on bus route times and other related data, an ANN can accurately predict when a bus will arrive at any stop.

### **Methods:**

### **Research**

Continuing development of the ANN will be paramount to this research project. The ANN is currently in development using JavaScript and will train on a Nvidia Jetson TX2 board (GPU) once data is available.

### **Result Evaluation**

Results from the ANN will be tried against reality. The ANN is expected to predict when a bus will arrive at a stop. The bus's actual arrival time will be compared to the ANN's prediction. The ANN will be trained off more data until it gives reasonably accurate results.

### **Teamwork**

This project is led by Michael O'Donnell and Nick Ashenfelter along with help from Dr. Robert Montante and John Gibson. We plan to research and work alongside each other. Together we find credible sources and share ideas for the ANN. We have divided up tasks equally and work together to reach our end goal.

### **Results:**

We have not trained the ANN yet. However, we have learned about ANN, SSH, JavaScript, Experimental Hardware, Documentation and more. We have made progress towards setting up the ANN and the app GUI that will go with it.