

Within this initial phase of our project, I have been focused on part sourcing, programming within the microcontroller, and PCB design. The first item is important to get crucial parts for the board, such as the microcontroller for the OBD connector and the screen dashboard. Several different dashboards were considered, such as a display with touchscreen and better resolution, but it was decided to go for a cheaper alternative due to budget constraints. The microcontroller goes out of stock frequently, so sourcing this was important to ensure the OBD connector can be created. An additional part that was important to source was the Bluetooth module that goes in the OBD connector, as this was hard to source in the past.

The next item I worked on was initial programming within the microcontroller. I used a breakout board for the SAMD21, where I got used to the registers and capabilities of the device. I used this to program initial LED control for the status LEDs and to get familiar with UART, which would be used to communicate with the vehicle. I also began working with the Bluetooth module to establish a connection between itself and the microcontroller.

Over the next semester, I will continue to program within the microcontroller now that I am used to its capabilities and registers. I will also continue to work on PCB design, which I have little progress on currently as the microcontroller is not fully programmed yet. This PCB design will progress along with getting better control over the Bluetooth module and its transmission of data received from the car to the Bluetooth module, then to the display.

At our current progress, I feel confident that we will finish our project on time and that it will be successful, as we already have many parts of the project working. The main issue I see for the work I have ahead of me is the transmission of data between the car, OBD connector, and display, but that is where the majority of my attention will be on the upcoming months for this project. Now that the software development, IOT capabilities, and important parts have been sourced, I believe we are on track to finish on track with our deadline.