CST471

Memo

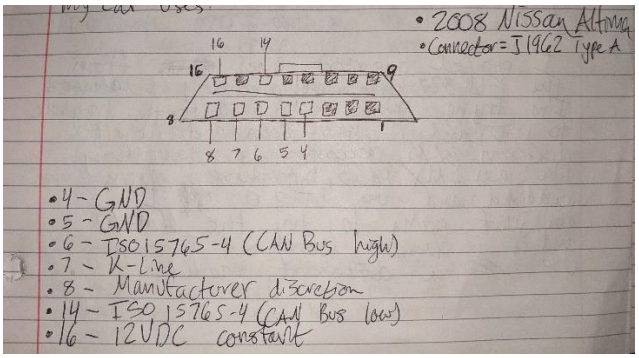
To: Kevin Pintong

From: Zak Rowland

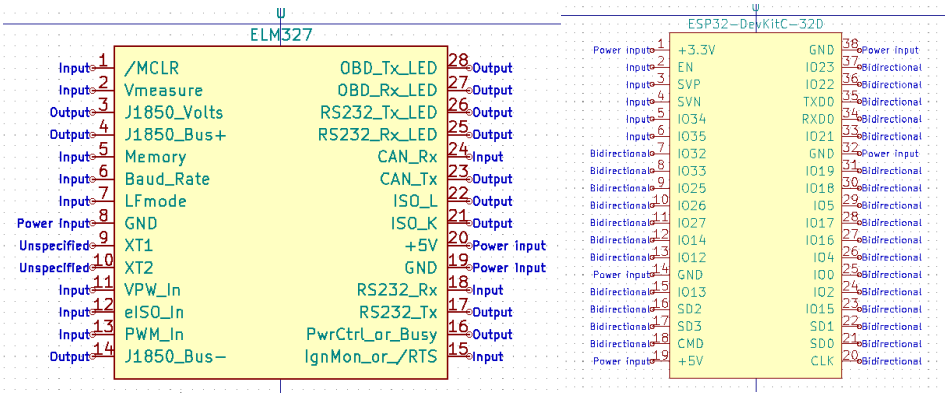
Date: November 24, 2020

Re: Memo 3

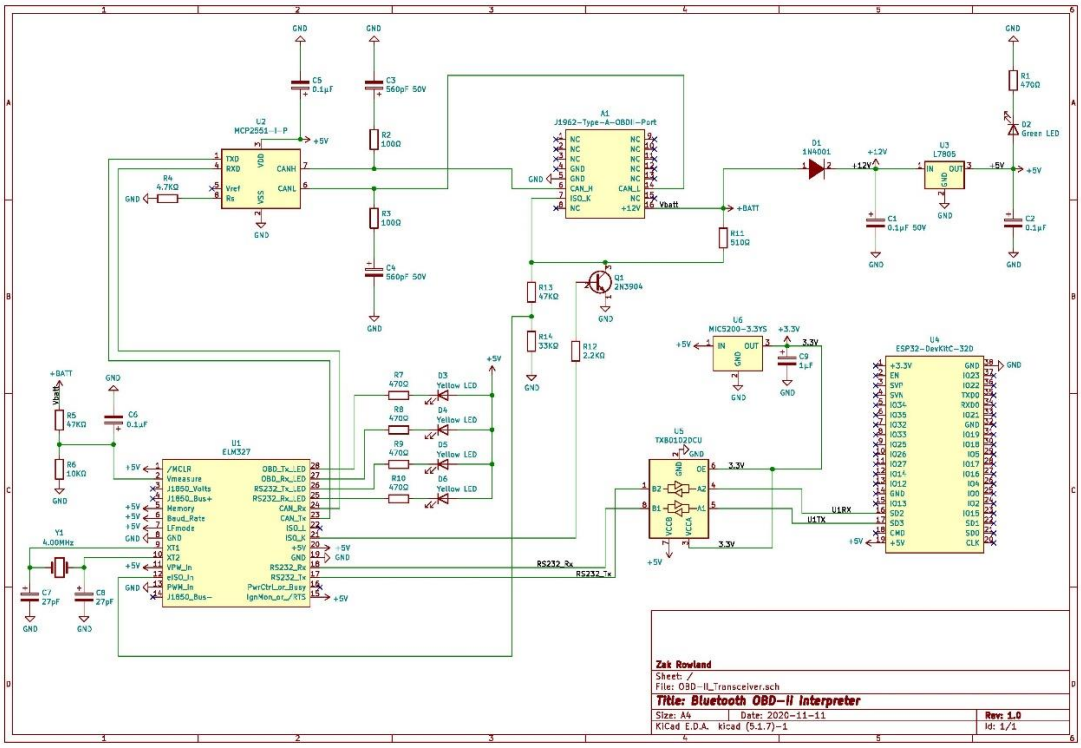
Over the past month since the last memo, I have made good progress. While working on preliminary design review documentation, I verified the pinout of my car's OBD-II port as seen in the image below.



I needed to verify this pinout because depending on the vehicle, some pins of the ELM327 don't need to be used. I began developing a library of schematic symbols I will need for the project including the ELM327, OBD-II port, ESP32, and others. Examples of these symbols can be seen in the images below.



Once I had the ELM327 symbol, I began working on the schematic for the OBD-II port module. The ELM327 datasheet provides a diagram of how the chip could be wired, so that helped a lot when creating the schematic. One problem I had was choosing a Bluetooth module. I compared many different modules including the HC-05, HC-06, HM-11, HM-19, and others, but I just could not come to a confident decision on the module to use. Because of this, I decided to go with the ESP32 because I have used it before, it has Bluetooth 4.2, and is the same price as the modules mentioned previously. After fixing some symbols in my library, choosing a few more parts, and making the necessary connections, the schematic was finished as seen in the image below.



Once the OBD-II port module's schematic was finished, I began looking into parts for the handheld module. This schematic will be much easier to create since there are far fewer parts. I need to decide on a power switch, battery, battery charger, and an A/D converter to monitor battery voltage. I already have some options in mind from Adafruit, but I don't want to go with them just yet until I compare to other options. Since I haven't decided on these parts, this schematic doesn't have much progress besides a symbol for the RPi4 GPIO header.

The past week or so has involved mostly working on the draft report and design review presentation. Today I am finishing ordering all parts I'll need for the OBD-II port module. Although I made good progress, I am still slightly behind schedule concerning finishing schematics and ordering parts. If the parts come in a reasonable time, I'll be able to finish most or all of my deliverables for the term.

Total time worked: 35 hours

Schedule / project management (Trello):

https://trello.com/b/57kp2fr0/zaks-senior-project