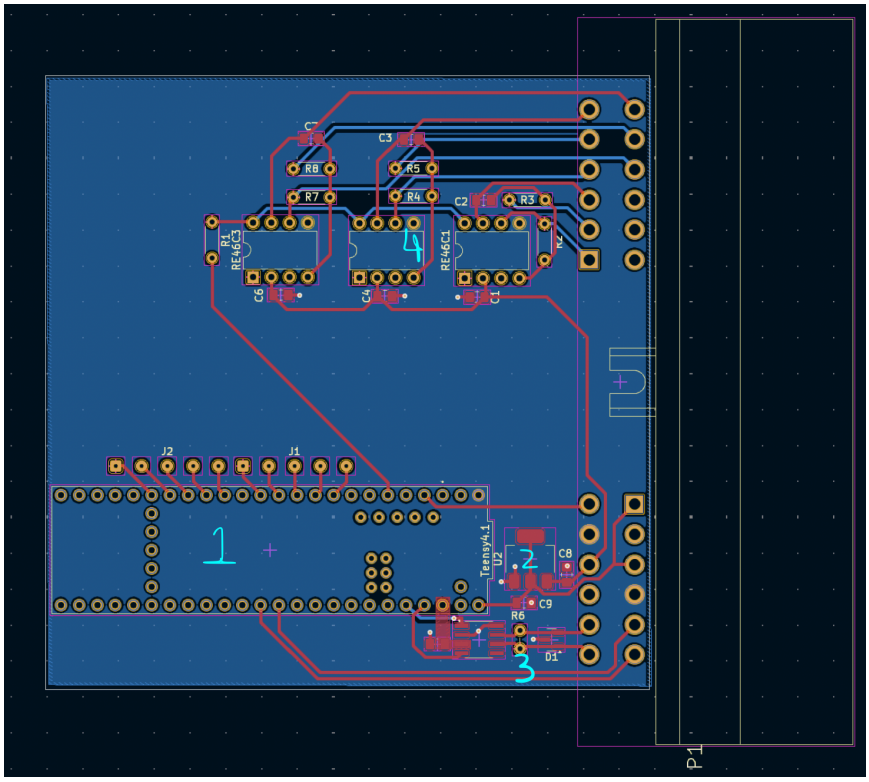
Overview:

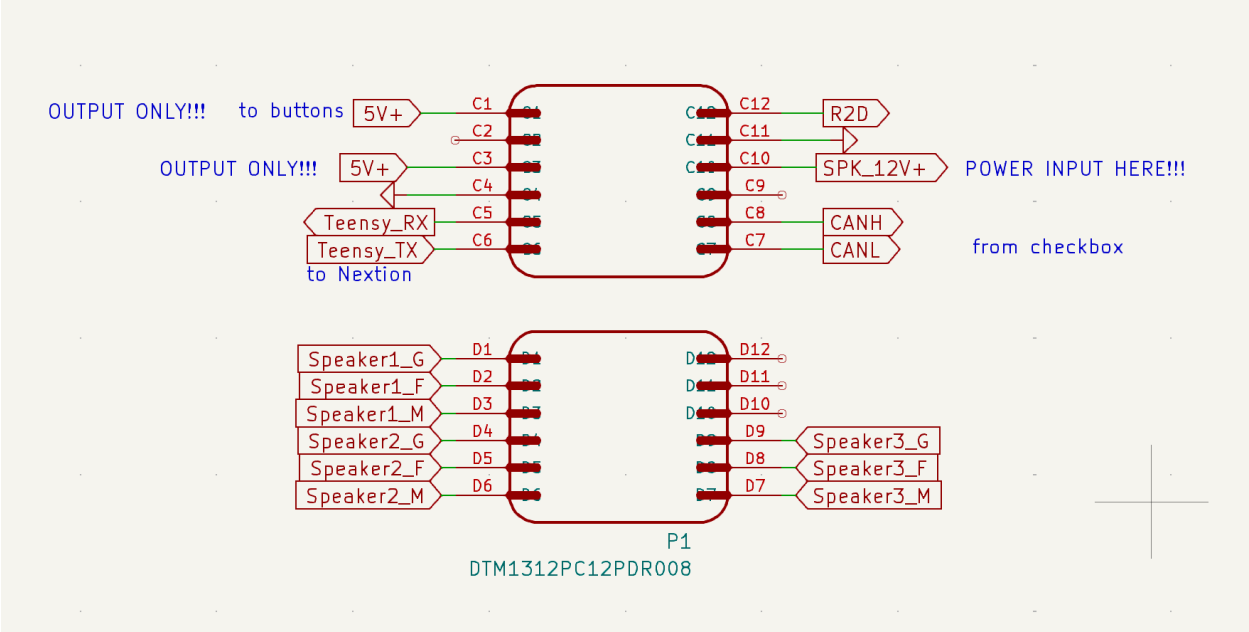
- This board is housing for the dash controller (a Teensy 4.1) and its connections to the peripherals around the dash (some buttons, the screen, speakers…)
- Has a nice deutsch connector + housing for waterproofness

Parts of the board + functionalities:

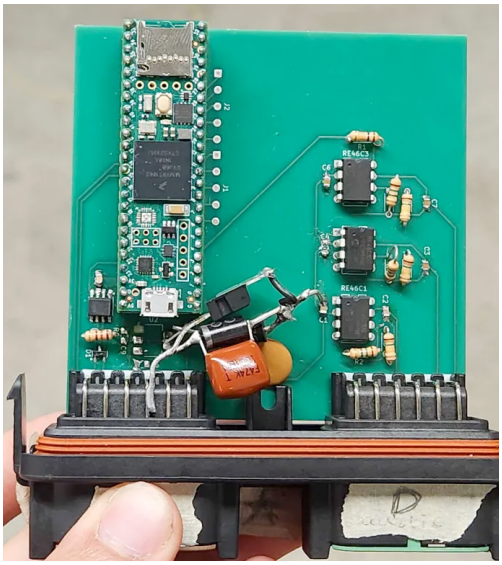


1. Teensy 4.1: directly plugged into soldered on headers
    a. There are extra pins on top of it incase we want access to more I/O or UART pins
2. LDO: to provide a 5V source since the GEVCU 5V source is too current limited to comfortably support the Nextion screen (requires ~750mA)
    a.
3. CAN transceiver circuit:
    a. The chip on the left is a CAN transceiver, connected to UART on the teensy and powered by it's 3.3V source using a plane as suggested in the datasheet
    b. The chip on the right is a CAN ESD diode.
4. Speaker circuit:
    a. Not sure whether we're using 2 or all 3 of them
    b. On one of the physical boards, however, one of the decoupling capacitor's ground pads got ripped off so there are only 2 working circuits on that one.

Pinout:



Note: notice that the 5V pins are outputs only. Applying 5V there may fry the LDO on the board.



Problems faced in bringup:

- LDO
  - We bought a different one from what we originally designed for some reason. Because of this the decoupling capacitors were much too high and it caused the LDO to short and fry some teensies. It has since been fixed, but now the board looks like this due to sad soldering:
  - We may just redo it, but it does work as it is right now
- Getting CAN messages to work
  - We weren't able to read any CAN messages from the Teensy and it was also unable to receive, based on oscilloscope signals
  - The reason was that the serial monitor was not disabled in the uploaded code and since it was not connected to a laptop, it would get stuck trying to find a serial monitor and the onboard led would blink red.