

**Practicum Homework #7 - Decision Making**  
ECE 411 - Industry Design Processes  
Team 6: Kai Boldt, Ryan Nand, Ranvir Sandhu, Elijah Penn  
November 3<sup>rd</sup>, 2020

## Board Review with Andrew

11/14/2020 2:00-2:20pm

### Schematic:

1. Use the supplying library VCC tag instead of tags.
2. 4.7k pullup resistor to VCC on I2C lines SDA and SCL, update Ultrasonic sensor to say TOF.
3. 100nF capacitor- VCC to Ground on modules (ToF and Temperature).
4. Connect GPIO1, XSHUT, i2c to test points.
5. Don't have VCC going into the FTDI sensor's VCC pin.
6. Use one LED for the display instead of two. Try using 120 $\Omega$  to 330 $\Omega$  resistor to limit current into LED's.
7. Audio Amp: change C11 to 1uF and C6 10uf. In general, lower all capacitor values on Audio Amp. Could potentially be drawing too much current into the speaker.
8. Double Check the TX to RX and RX to TX Connections

### PCB:

1. Minimize trace length throughout layout.
2. Change all traces to at least 10 mils thick.
3. Change VCC traces to 50 mils thick.
4. Stitching vias- labeled ground that connects ground planes- command via 'GND'.

### Useful Eagle Commands:

dis -top  
dis -dim/ dis dim

### Other:

1. Download Oshpark design rules for DRC check and review.
2. Trace over the hole, fix trace over the hole of TOF sensor.
3. ISP header to program bootloader to the ATmega328

## Board Review with Team 10

11/17/2020 9:00-11:00pm

Regan Garner, Leo Garcia, Yousef Alkhelaifi, Robert Fogg

### Schematic:

1. Float the lead (Open Circuit) at the slide switch to avoid a short or drainage of battery.
2. 4.7k pull up resistor on I2C SDA and SCL lines to VCC.

### PCB:

1. Change TP9 and TP8 labels to SDA and SCL for clarity
2. A lot of open space, make the board smaller to save potential cost to manufacture
3. Have traces go west to east on the bottom layer and north to south on the top layer.
4. Could maybe go even thicker on trace lines