Practicum Homework #7 – Peer Design Review

ECE 411 - Industry Design Processes

Team 6: Kai Boldt, Ryan Nand, Ranvir Sandhu, Elijah Penn

November 3rd, 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 120Ω to 330Ω 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 to 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 mills 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