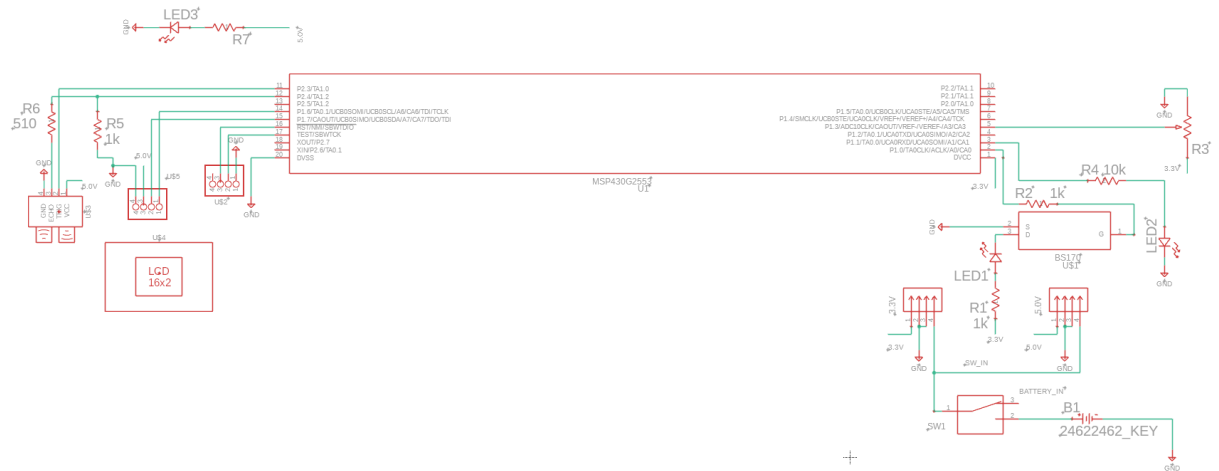


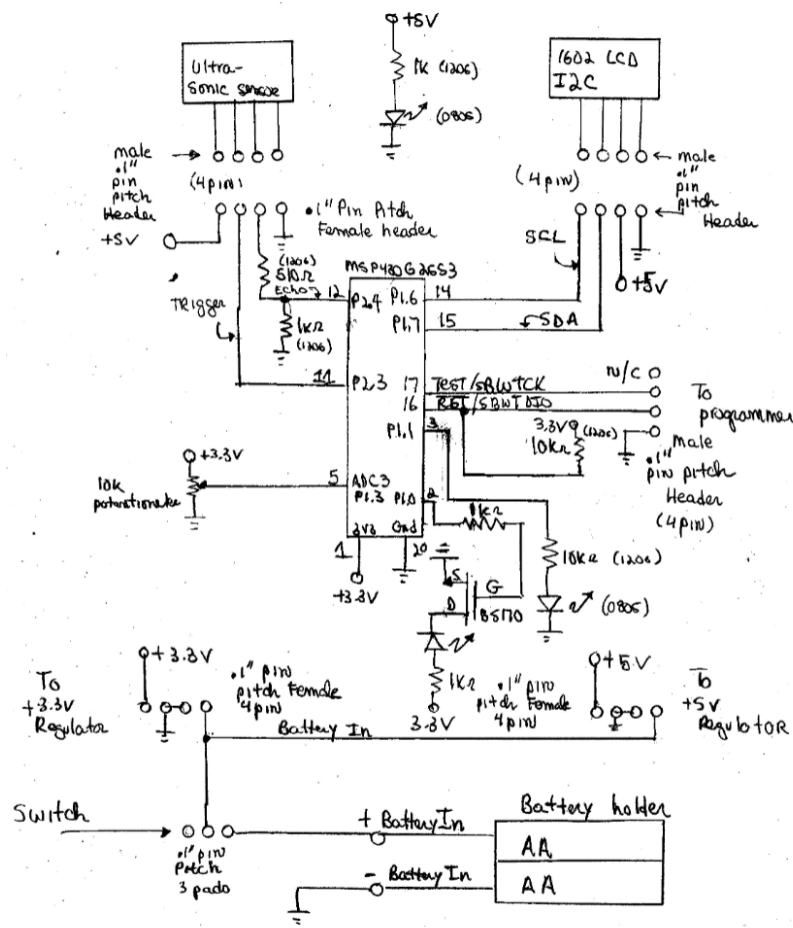
Ultrasonic PCB Design

James Eyler

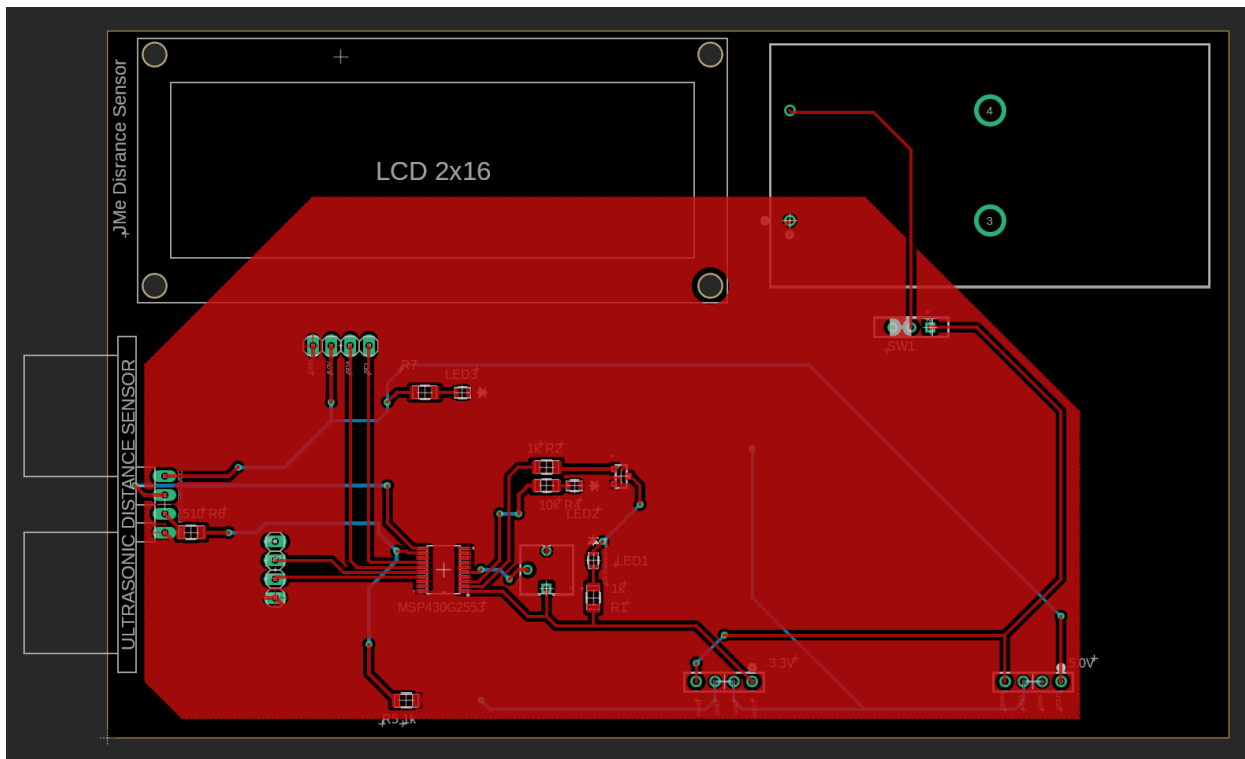
Final Schematic:



My schematic follows the included schematic that was in the project files.



Final PCB:



Bill of Materials:

3.3V	83.82	7.62	180.00	SSW-104-01-T-SCON4_1X4_TU_SSQ	CON4_1X4_TU_SSQ
5.0V	125.73	7.62	180.00	SSW-104-01-T-SCON4_1X4_TU_SSQ	CON4_1X4_TU_SSQ
B1	106.30	77.88	180.00	24622462_KEY	2462_KEY
LED1	66.04	24.13	270.00		LED_BS75000_WRE
LED2	63.50	34.29	180.00		LED_BS75000_WRE
LED3	48.26	46.99	180.00		LED_BS75000_WRE
R1	66.04	19.05	90.00	1k	RES_RC1206_YAG
R2	59.69	36.83	180.00	1k	RES_RC1206_YAG
R3	58.42	22.86	90.00		POT_3362P
R4	59.69	34.29	180.00	10k	RC1206N_YAG
R5	40.64	5.08	0.00	1k	RES_RC1206_YAG
R6	11.43	27.94	180.00	510	STA_RMCF1206_STP
R7	43.18	46.99	0.00		RES_RC1206_YAG
SW1	109.22	55.88	270.00		09.03201_EAO
U\$1	69.85	35.56	270.00	BS170	SOT-23_DIO
U\$2	22.86	22.86	90.00		1X04
U\$3	7.82	31.75	270.00		HC-SR04
U\$5	31.75	53.34	180.00		1X04
U1	45.72	22.86	180.00	MSP430G2553	PW20

What I've learned:

In this project, I feel that my abilities with the Autodesk Fusion software have improved, especially now that I have worked with a bit more of a complex design. In this design I had to learn to use the bottom layer of the board as well as the top to guide my traces so that they would not overlap other traces that they were not supposed to. I was also able to learn about using measurements to allocate space – specifically with the thought of having the regulator chips on top of the board, knowing that they would need space to be seated properly on the board.

Ordering Information - Fee Invoice is below
Ordered from JLCPCB



JiaLiChuang (HongKong) Co., Limited

Unit 21, 28/F, Metropole Square
No.2 On Yiu Street, Shatin, New Territories
HONG KONG, China
support@jlcpcb.com
+86 755 23919769
JLCPCB.COM

Invoice No.: 10267319A2025062406579483
Invoice Date: 25/06/2025
Batch No.: W2025062406579483
Ship Via: DHL Express (DDP)
Type of Trade: DDP

Ship To:

Andrew Koch
4020 Stonefield Dr
Florida ORLANDO 32826
US
Email:an522677@ucf.edu
Tel:+14078679867
VAT No:

Billing To:

Andrew Koch
6617 Winder Oaks Blvd
Florida ORLANDO 32819
UNITED STATES OF AMERICA
Email:an522677@ucf.edu
Tel:+14078679867
VAT No:

	Product	File Name	Order Number	QTY	Unit Price	Ext.Price
1	Solder Paste Stencil	Tyler_Tran_Regulator_Y11	SO12506236673	1	USD \$7.00	USD \$7.00
2	Solder Paste Stencil	Joshua_DSouza_Regulator_Design_Y22	SO12506236686	1	USD \$7.00	USD \$7.00
3	Solder Paste Stencil	Eyler_James_Regulator_Y13	SO12506236676	1	USD \$7.00	USD \$7.00
4	Solder Paste Stencil	Nick_K_Junior_Proj_Purp_v8_2025-06-18_Y20	SO12506236683	1	USD \$7.00	USD \$7.00
5	Solder Paste Stencil	Tyler_Tran_RangeFinder_Y12	SO12506236675	1	USD \$7.00	USD \$7.00
6	Solder Paste Stencil	Eyler_James_PCB_Y14	SO12506236677	1	USD \$7.00	USD \$7.00
7	Solder Paste Stencil	PCB reg - Christian_Y17	SO12506236680	1	USD \$7.00	USD \$7.00
8	Solder Paste Stencil	Nguyen_Tang_RangeFinder (1)_Y25	SO12506236690	1	USD \$7.00	USD \$7.00
9	Solder Paste Stencil	PCB v9_2025-06-16 - Christian_Y18	SO12506236681	1	USD \$7.00	USD \$7.00
10	Solder Paste Stencil	Joshua_DSouza_Board_Design_Y23	SO12506236687	1	USD \$7.00	USD \$7.00
11	Solder Paste Stencil	Nick_K_Junior_reg_Purp_pcb v4_2025-05-28_Y19	SO12506236682	1	USD \$7.00	USD \$7.00
12	Solder Paste Stencil	Nguyen_Tang_Regulator (1)_Y24	SO12506236689	1	USD \$7.00	USD \$7.00
13	Solder Paste Stencil	Andrew_Koch_Regulator_Y27	SO12506246618	1	USD \$7.00	USD \$7.00
14	Solder Paste Stencil	Regulator_Y29	SO12506246620	1	USD \$7.00	USD \$7.00
15	Solder Paste Stencil	Regulator_SR v7_2025-06-02_Y33	SO12506246625	1	USD \$7.00	USD \$7.00
16	Solder Paste Stencil	Josiah_Morales_PCB_Y30	SO12506246621	1	USD \$7.00	USD \$7.00
17	Solder Paste Stencil	Board_Layout_SR v20_final_Y32	SO12506246624	1	USD \$7.00	USD \$7.00
18	Solder Paste Stencil	Big Board v5_2025-06-19_Y28	SO12506246619	1	USD \$7.00	USD \$7.00
19	Solder Paste Stencil	Andrew_Koch_PCB_Y26	SO12506246617	1	USD \$7.00	USD \$7.00
20	Solder Paste Stencil	Josiah_Morales_Regulator_Y31	SO12506246623	1	USD \$7.00	USD \$7.00
21	2-layer Bare Rigid Printed circuit board	Joshua_DSouza_Regulator_Design_Y22	Y22	5	USD \$0.82	USD \$4.10
22	2-layer Bare Rigid Printed circuit board	Tyler_Tran_RangeFinder_Y12	Y12	5	USD \$2.26	USD \$11.30
23	2-layer Bare Rigid Printed circuit board	Nick_K_Junior_reg_Purp_pcb v4_2025-05-28_Y19	Y19	5	USD \$0.82	USD \$4.10
24	2-layer Bare Rigid Printed circuit board	Tyler_Tran_Regulator_Y11	Y11	5	USD \$0.80	USD \$4.00

25	2-layer Bare Rigid Printed circuit board	James_Koch_PCB_Design_Y23	Y23	5	USD \$2.20	USD \$11.00
26	2-layer Bare Rigid Printed circuit board	Nguyen_Tang_RangeFinder (1)_Y25	Y25	5	USD \$1.44	USD \$7.20
27	2-layer Bare Rigid Printed circuit board	PCB v8_2025-06-16 - Christian_Y18	Y18	5	USD \$2.58	USD \$12.90
28	2-layer Bare Rigid Printed circuit board	Nick_K_Junior_Proj_Purp_v8_2025-06-18_Y20	Y20	5	USD \$2.82	USD \$14.10
29	2-layer Bare Rigid Printed circuit board	Eyler_James_PCB_Y14	Y14	5	USD \$1.92	USD \$9.60
30	2-layer Bare Rigid Printed circuit board	Nguyen_Tang_Regulator (1)_Y24	Y24	5	USD \$0.84	USD \$4.20
31	2-layer Bare Rigid Printed circuit board	PCB reg - Christian_Y17	Y17	5	USD \$0.80	USD \$4.00
32	2-layer Bare Rigid Printed circuit board	Eyler_James_Regulator_Y13	Y13	5	USD \$0.80	USD \$4.00
33	2-layer Bare Rigid Printed circuit board	Andrew_Koch_Regulator_Y27	Y27	5	USD \$0.42	USD \$2.10
34	2-layer Bare Rigid Printed circuit board	Regulator_Y29	Y29	5	USD \$0.80	USD \$4.00
35	2-layer Bare Rigid Printed circuit board	Andrew_Koch_PCB_Y26	Y26	5	USD \$2.76	USD \$13.80
36	2-layer Bare Rigid Printed circuit board	Josiah_Morales_PCB_Y30	Y30	5	USD \$2.86	USD \$14.30
37	2-layer Bare Rigid Printed circuit board	Regulator_SR v7_2025-06-02_Y33	Y33	5	USD \$0.82	USD \$4.10
38	2-layer Bare Rigid Printed circuit board	Big Board v5_2025-06-19_Y28	Y28	5	USD \$3.42	USD \$17.10
39	2-layer Bare Rigid Printed circuit board	Board_Layout_SR v20_final_Y32	Y32	5	USD \$2.66	USD \$13.30
40	2-layer Bare Rigid Printed circuit board	Josiah_Morales_Regulator_Y31	Y31	5	USD \$0.80	USD \$4.00

Merchandise Total:	USD \$303.20
Shipping:	USD \$202.87
Shipping Discount:	-USD \$10.00
Subtotal:	USD \$496.07
States Sales&Use Tax:	USD \$32.88
Import Taxes(80.41%):	USD \$243.81
Grand Total:	USD \$772.76