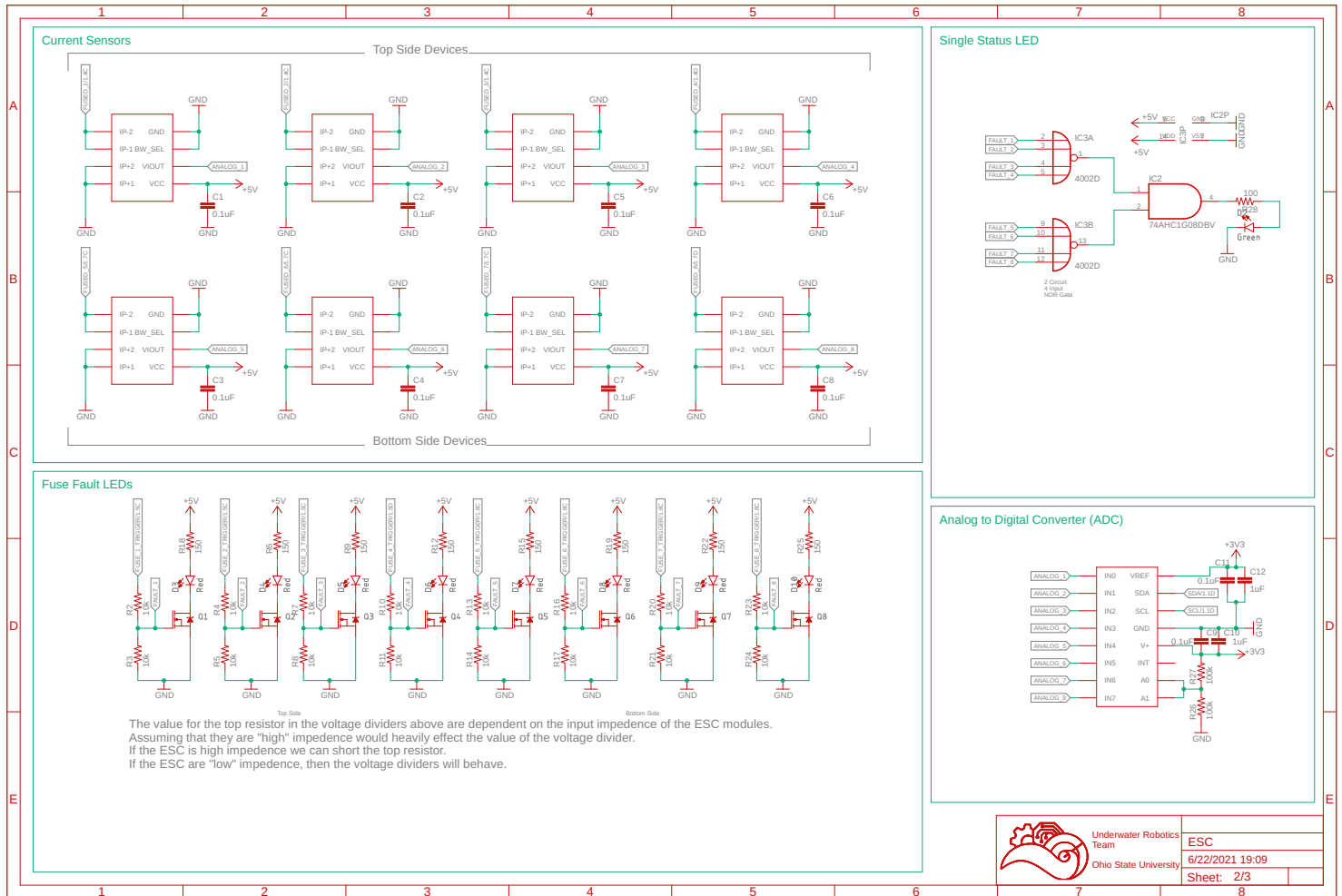



Underwater Robotics  
Team  
Ohio State University

Electrical Team  
ESC  
6/22/2021 19:09

Sheet: 1/3



	1	2	3	4	5	6	7	8
A	<b>Datasheets:</b>  24-Pin Connector: Molex Minifit 0430452400 <a href="https://www.digikey.com/products/en?keywords=0430452400%20">https://www.digikey.com/products/en?keywords=0430452400%20</a> <a href="https://www.molex.com/pdm_docs/sd/430452400_sd.pdf">https://www.molex.com/pdm_docs/sd/430452400_sd.pdf</a>  3-Pin Terminal Block: Phoenix Contact 1755749 <a href="https://www.digikey.com/en/products/detail/phoenix-contact/1755749/2605197">https://www.digikey.com/en/products/detail/phoenix-contact/1755749/2605197</a> s=N4lgTCBcDallwHYCsSEBYCclC6BfIA <a href="https://media.digikey.com/pdf/Data%20Sheets/Phoenix%20Contact%20PDFs/1755749.pdf">https://media.digikey.com/pdf/Data%20Sheets/Phoenix%20Contact%20PDFs/1755749.pdf</a>  2-Pin Terminal Block: Phoenix Contact 1755736 <a href="https://www.digikey.com/en/products/detail/phoenix-contact/1755736/260518">https://www.digikey.com/en/products/detail/phoenix-contact/1755736/260518</a> <a href="https://media.digikey.com/pdf/Data%20Sheets/Phoenix%20Contact%20PDFs/1755736.pdf">https://media.digikey.com/pdf/Data%20Sheets/Phoenix%20Contact%20PDFs/1755736.pdf</a>  14 Position Vertical Power Input Connector <a href="https://www.digikey.com/products/en?keywords=WM23806-ND%20">https://www.digikey.com/products/en?keywords=WM23806-ND%20</a> <a href="https://www.molex.com/pdm_docs/sd/039288140_sd.pdf">https://www.molex.com/pdm_docs/sd/039288140_sd.pdf</a>  PWM Connectors: 1x4 Pin Male Breakaway Header Pins <a href="https://www.digikey.com/en/products/detail/molex/0901200124/760789">https://www.digikey.com/en/products/detail/molex/0901200124/760789</a> <a href="https://www.molex.com/pdm_docs/sd/901200124_sd.pdf">https://www.molex.com/pdm_docs/sd/901200124_sd.pdf</a>  Analog to Digital Converter: TI ADC128D818 <a href="https://www.digikey.com/products/en?keywords=296-41182-1-ND%20">https://www.digikey.com/products/en?keywords=296-41182-1-ND%20</a> <a href="https://www.ti.com/lit/ds/symlink/adc128d818.pdf?HQS=TI-null-null-digikeymode-df-pf-null-ww&amp;ts=1597276469956">https://www.ti.com/lit/ds/symlink/adc128d818.pdf?HQS=TI-null-null-digikeymode-df-pf-null-ww&amp;ts=1597276469956</a>  Fuses: Eaton 3216FF 10A 24V <a href="https://www.digikey.com/en/products/detail/littelfuse-inc/0451010-MRL/700832">https://www.digikey.com/en/products/detail/littelfuse-inc/0451010-MRL/700832</a> <a href="https://www.littelfuse.com/~media/electronics/datasheets/fuses/littelfuse_fuse_451_453_datasheet.pdf.pdf">https://www.littelfuse.com/~media/electronics/datasheets/fuses/littelfuse_fuse_451_453_datasheet.pdf.pdf</a>  Current Sensors: Allegro Micro ACS722 40A <a href="https://www.digikey.com/product-detail/en/allegro-microsystems/ACS722LLCTR-40AU-T/620-1640-1-ND/4948876">https://www.digikey.com/product-detail/en/allegro-microsystems/ACS722LLCTR-40AU-T/620-1640-1-ND/4948876</a> file:///C:/Users/Flip/AppData/Local/Temp/ACS722-Datasheet.pdf  Fault LED MOSFET: N-Channel Enh. BSS138 <a href="https://www.digikey.com/product-detail/en/on-semiconductor/BSS138/BSS138CT-ND/244294">https://www.digikey.com/product-detail/en/on-semiconductor/BSS138/BSS138CT-ND/244294</a> <a href="https://www.onsemi.com/pub/Collateral/BSS138-D.PDF">https://www.onsemi.com/pub/Collateral/BSS138-D.PDF</a>  Fuse Holders: Littelfuse 154010 <a href="https://www.digikey.com/product-detail/en/littelfuse-inc/0154010-DR/F1251TR-ND/552684">https://www.digikey.com/product-detail/en/littelfuse-inc/0154010-DR/F1251TR-ND/552684</a> <a href="https://www.littelfuse.com/~media/electronics/datasheets/fuses/littelfuse_fuse_154_154t_154l_154tl_datasheet.pdf.pdf">https://www.littelfuse.com/~media/electronics/datasheets/fuses/littelfuse_fuse_154_154t_154l_154tl_datasheet.pdf.pdf</a>  NOR Gate: CD74HC4002M <a href="https://www.digikey.com/en/products/detail/texas-instruments/CD74HC4002M/1507041">https://www.digikey.com/en/products/detail/texas-instruments/CD74HC4002M/1507041</a> <a href="https://www.ti.com/lit/ds/symlink/cd74hc4002.pdf?HQS=dis-dk-null-digikeymode-dsf-pf-null-ww&amp;ts=1611114244711">https://www.ti.com/lit/ds/symlink/cd74hc4002.pdf?HQS=dis-dk-null-digikeymode-dsf-pf-null-ww&amp;ts=1611114244711</a>  2-input AND gate: SN74LVC1G08 <a href="https://www.digikey.com/en/products/detail/texas-instruments/SN74LVC1G08DBVR/385718">https://www.digikey.com/en/products/detail/texas-instruments/SN74LVC1G08DBVR/385718</a> <a href="https://www.ti.com/lit/ds/symlink/sn74lvc1g08.pdf?HQS=dis-dk-null-digikeymode-dsf-pf-null-ww&amp;ts=1611067529349">https://www.ti.com/lit/ds/symlink/sn74lvc1g08.pdf?HQS=dis-dk-null-digikeymode-dsf-pf-null-ww&amp;ts=1611067529349</a>			<b>General Notes:</b>  R1 and R38 are 1210 size resistors due to wattage concerns Calculated wattage at 21V is 0.1864W each. 1210 size can dissipate 0.25W. 0603 (UWRT standard size) are 0.063W tolerant.  Fuse Fault Circuit simulated in Multisim to ensure functionality.  All devices labeled 1-4 are top side. All devices labeled 5-8 are bottom side.			<b>Administrative Notes:</b>  Board Name: ESC Carrier Schematic Creation: 08/2020 Schematic Designer: Flip Barker Electrical Lead: Flip Barker	
B								
C								
D								
E							 <div> Underwater Robotics Team  6/22/2021 19:09  Ohio State University </div>	
	1	2	3	4	5	6	7	8