

Designator	Component	Number	Cost per unit \$	Minimum purchase quantity	Total cost \$	Source of materials	Material type
<b>Enclosures - Device</b>							
Cooler	10 gal watercooler	1	\$49.89	1	\$49.89	<a href="#">Homedepot</a>	Other
Tube holder	3D printed tube holder	1	\$0.19	1	\$0.19	<a href="#">Zenodo</a>	Polymer
Epoxy	Loctite 1919324 Marine Epoxy	1	\$7.74	1	\$7.74	<a href="#">Amazon</a>	Polymer
Corner Brace	2 in galvanized corner brace with screws	4	\$1.62	4	\$6.46	<a href="#">Home Depot</a>	Metal
Star drive screw	3/4" 18-8 stainless steel screw	8	\$0.42	25	\$10.59	<a href="#">Amazon</a>	Metal
1/2" PVC coupler	1/2" schedule 40 PVC coupler	1	\$0.67	1	\$0.67	<a href="#">Home Depot</a>	Polymer
Buckles	Adjustable Quick Side Release Buckles	2	\$1.05	4	\$4.21	<a href="#">Amazon</a>	Polymer
Webbing	Heavyweight Polypropylene Webbing 2 inch	1	\$1.22	30 ft	\$36.57	<a href="#">Amazon</a>	Polymer
Drawer slides	Heavy Duty Drawer Slides 14 inch	2	\$28.40	2	\$56.80	<a href="#">Amazon</a>	Composite
L bracket	Aluminum 90° Angle - 3.5" height, 1/4" thick	1	\$21.27	1	\$21.27	<a href="#">McMaster Carr</a>	Metal
5 mm washers	5 mm Stainless Steel Washers	8	\$0.31	4	\$2.50	<a href="#">Home Depot</a>	Metal
Flathead bolt	M5, 16 mm long bolt	6	\$0.24	100	\$24.00	<a href="#">McMaster Carr</a>	Metal
Lock nut	M5 lock nut	6	\$0.63	2	\$3.75	<a href="#">Home Depot</a>	Metal
Acrylic Sheet	Acrylic - clear 24" x 24", 1/8"	1	\$26.08	1	\$26.08	<a href="#">McMaster Carr</a>	Polymer
Large ice pack	Reusable Ice Pack, 1 Large	3	\$7.38	4	\$29.52	<a href="#">Amazon</a>	Composite
Medium ice pack	Reusable Ice Pack, 1 Medium	2	\$3.79	4	\$15.16	<a href="#">Amazon</a>	Composite
Cable with carabiner	Stainless Steel Safety Cable Lock	3	\$2.40	4	\$7.19	<a href="#">Amazon</a>	Metal
1/8" wire rope	Stainless steel wire rope, 1/8"	1	\$0.54	33 ft	\$17.88	<a href="#">Amazon</a>	Metal
Battery	12 Volt 7.2 Ah SLA battery	1	\$17.50	1	\$17.50	<a href="#">Amazon</a>	Other
Quick-Disconnect Terminal	Quick-Disconnect Terminal	2	\$1.08	1	\$2.16	<a href="#">McMaster Carr</a>	Composite
Paracord	1/8" x 50 ft paracord	1	\$0.11	50 ft	\$5.48	<a href="#">Home Depot</a>	Polymer
<b>Hydraulics - Pump</b>							
Peristaltic Pump	Peristaltic Pump DC 6Vto 24V	1	\$54.64	1	\$54.64	<a href="#">Aliexpress</a>	Other
Pump tubing	Hi-Temp Silicone Rubber Tubing	1	\$1.39	10 ft	\$13.90	<a href="#">McMaster Carr</a>	Polymer
Tube to hose stem	3/8" to 3/8" Tube To Hose Stem	1	\$2.39	10	\$23.93	<a href="#">Home Depot</a>	Polymer
Cable tie	Cable tie, 0.1" width, 4" length	2	\$0.04	100	\$3.59	<a href="#">McMaster Carr</a>	Polymer
Elbow push-to-connect	3/8 OD x 3/8 OD elbow push-to-connect	1	\$1.30	10	\$12.99	<a href="#">Amazon</a>	Composite

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Elbow barbed	Barbed elbow, 3/8" OD	1	\$1.02	1	\$1.02	<a href="#">McMaster Carr</a>	Polymer
3/8" tubing	Soft ND-100-65 Tygon PVC Tubing	1	\$93.00	25 ft	\$93.00	<a href="#">McMaster Carr</a>	Polymer
Small snap-grip clamps	Snap-Grip Clamp 29/64" to 9/16" Clamp ID	2	\$0.46	25	\$11.40	<a href="#">McMaster-Carr</a>	Polymer
Faraday Fabric	EMF shielding Film	1	\$23.00	44"W x 36"L	\$23.00	<a href="#">Amazon</a>	Other
Electrical tape	Electrical tape	1	\$5.98	66 ft	\$5.98	<a href="#">Home Depot</a>	Polymer
M3 bolt - 16 mm	16mm M3 screw low profile	9	\$0.13	100	\$13.16	<a href="#">McMaster Carr</a>	Metal
M3 washer - 9 mm	18-8 Stainless Steel Oversized Washer M3	13	\$0.05	100	\$4.93	<a href="#">McMaster Carr</a>	Metal
M3 nuts	M3 nuts stainless steel	9	\$0.06	50	\$3.03	<a href="#">McMaster Carr</a>	Metal
Barbed tee fitting	Barbed tee fitting, 3/8" OD	1	\$1.40	10	\$13.95	<a href="#">McMaster Carr</a>	Polymer
Quick-Disconnect Plug to 3/8" barbed	Plug, 1/4 Size, for 3/8" Barbed Tube ID	1	\$4.11	1	\$4.11	<a href="#">McMaster Carr</a>	Polymer
Quick-Disconnect Socket to 3/8" barbed	Socket, 1/4 Size, for 3/8" Barbed Tube ID	1	\$5.58	1	\$5.58	<a href="#">McMaster Carr</a>	Polymer
Polyethylene tubing	Polyethylene Tube, Shore D: 45, 1/4 in ID	1	\$4.10	10 ft	\$4.10	<a href="#">Grainger</a>	Polymer
Tee push-to-connect	3/8" OD Tee push-to-connect	1	\$1.10	10	\$10.99	<a href="#">Amazon</a>	Composite
<b>Hydraulics - Valves</b>							
Motorized Ball valve - normally closed	Motorized Ball valve 1/4" NPT - auto return	2	\$38.29	1	\$76.58	<a href="#">Amazon</a>	Other
PTFE tape	PTFE tape	1	\$0.98	260 in.	\$0.98	<a href="#">Home Depot</a>	Polymer
Straight 3/8" push to connect to 1/4 NPT	3/8"OD push to connect x 1/4 Inch NPT	2	\$1.80	10	\$17.99	<a href="#">Amazon</a>	Composite
Barbed 3/8" elbow to 1/4" NPT Male	Barbed elbow 3/8" ID x 1/4 NPT Male	1	\$2.73	1	\$2.73	<a href="#">McMaster Carr</a>	Polymer
Elbow 3/8" push-to-connect to 1/4" NPT	3/8 OD elbow push-to-connect to 1/4 NPT	1	\$1.88	5	\$9.39	<a href="#">Amazon</a>	Composite
Valve bracket	3D printed valve bracket	2	\$0.41	1	\$0.81	<a href="#">Zenodo</a>	Polymer
Large snap-grip clamps	Snap-Grip Clamp 37/64" to 41/64" Clamp ID	1	\$0.49	25	\$12.17	<a href="#">McMaster Carr</a>	Polymer
PVC tubing	PVC Firm tubing 1/4 ID 3/8 OD	1	\$16.80	25 ft	\$16.80	<a href="#">McMaster Carr</a>	Polymer
Straight 3/8" push to connect fitting	Straight 3/8" push to connect fitting	1	\$3.81	1	\$3.81	<a href="#">McMaster Carr</a>	Composite

<b>Hydraulics - Sample bag</b>							
Mylar Bag	3L Mylar Bag	1	\$0.89	250	\$221.80	<a href="#">IMPAK</a>	Other
Threaded valved coupler	Coupler, Push In, Acetal, White	1	\$6.08	1	\$6.08	<a href="#">CPC</a>	Polymer
Eye bolt and nut	Eye bolt and nuts	1	\$0.69	2	\$1.38	<a href="#">Home Depot</a>	Metal

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Barbed elbow coupling insert	Coupler, Push In, Acetal, White	1	\$1.40	1	\$1.40	<a href="#">CPC</a>	Polymer
1/16" wire rope	1/16" wire rope	1	\$0.98	1 ft	\$0.98	<a href="#">Home Depot</a>	Metal
Compression sleeve	1/16" Wire Rope Compression Sleeve	1	\$0.97	10	\$9.69	<a href="#">McMaster-Carr</a>	Metal
<b>Load Cell Mechanical</b>							
M5 bolt	M5 bolt, 40 mm	1	\$1.38	2	\$1.38	<a href="#">Home Depot</a>	Metal
Large Washer	18 mm OD M5 washer	2	\$0.14	100	\$14.29	<a href="#">McMaster Carr</a>	Metal
Neoprene washer	1/4" thick neoprene washer	2	\$0.69	4	\$2.75	<a href="#">Home Depot</a>	Polymer
Spacer	Spacer - 7 mm	1	\$1.76	1	\$1.76	<a href="#">McMaster Carr</a>	Metal
M5 nut	M5 stainless steel nut	1	\$0.63	2	\$1.25	<a href="#">Home Depot</a>	Metal
<b>Enclosures - Electronics</b>							
Electronic Box	Polycarbonate waterproof box	1	\$5.88	1	\$5.88	<a href="#">Arrow</a>	Polymer
RGB LED	WS2812B LED	1	\$0.16	100	\$15.99	<a href="#">Amazon</a>	Composite
LED box	LED 3D printed box	1	\$0.04	1	\$0.04	<a href="#">OPEnS</a>	Polymer
LED lid	LED 3D printed lid	1	\$0.05	1	\$0.05	<a href="#">OPEnS</a>	Polymer
3 wire cable	3 wire cable	1	\$0.31	100 ft	\$31.10	<a href="#">Amazon</a>	Composite
Super glue	Gorilla Super Glue Gel	1	\$6.84	1	\$6.84	<a href="#">Amazon</a>	Polymer
Push button	Momentary Push button waterproof	2	\$2.20	5	\$10.99	<a href="#">Amazon</a>	Composite
2 pin JST wire pairs	2 pin JST wire pairs	4	\$1.60	5	\$7.99	<a href="#">Amazon</a>	Composite
Small heat shrink	Small heat shrink	4	\$0.01	580	\$6.59	<a href="#">Amazon</a>	Polymer
Solder seal connectors	Solder Seal Wire Connectors 22-18 AWG	4	\$0.20	50	\$9.99	<a href="#">Amazon</a>	Composite
PG7 cable gland	PG7 cable gland	1	\$1.52	1	\$1.52	<a href="#">Mouser</a>	Polymer
PG13.5 cable gland	PG13.5 cable gland	1	\$1.89	1	\$1.89	<a href="#">Mouser</a>	Polymer
Power plug	Right Angle Power Plug Jack to Bare Wire	1	\$1.60	10	\$15.99	<a href="#">Amazon</a>	Composite
microUSB cable	Right angle microUSB cable	1	\$5.58	1	\$5.58	<a href="#">DigiKey</a>	Other
Stranded wire: black, red, white, green	22 AWG Gauge Stranded Wire, 6 colors	1	\$1.25	6 rolls at 5 ft	\$7.50	<a href="#">Amazon</a>	Composite
<b>Power Module PCB Components</b>							
Power module PCB	Power module mini PCB	1	\$2.30	5	\$11.50	<a href="#">Zenodo</a>	Composite
Logic level converter	Sparkfun logic level shifter	1	\$2.95	1	\$2.95	<a href="#">Sparkfun</a>	Composite

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12 pin angle female header	12 pins angle female header	1	\$0.80	1	\$0.80	<a href="#">DigiKey</a>	Composite
32K resistor	Resistor 32K Ohm 3.3mm	1	\$0.10	1	\$0.20	<a href="#">DigiKey</a>	Other
470uF capacitor	Capacitor 470uF SMD 16V	1	\$0.51	1	\$0.51	<a href="#">DigiKey</a>	Other
100 nF capacitor	Capacitor 100nF SMD	4	\$0.12	1	\$0.48	<a href="#">DigiKey</a>	Other
Flyback Diode	Diode Standard 100V 150 mA	2	\$0.15	1	\$0.30	<a href="#">DigiKey</a>	Other
Shift register	IC Power 8-bit shift Register 20-SOIC	1	\$1.42	1	\$5.68	<a href="#">DigiKey</a>	Other
Relay	1 Channel DC 5V Relay Module	1	\$1.75	1	\$6.99	<a href="#">Amazon</a>	Other
Standoff	M3 standoff	1	\$2.17	1	\$2.17	<a href="#">McMaster Carr</a>	Metal
M3 6 mm bolt	M3 6 mm bolt	1	\$0.05	50	\$2.51	<a href="#">Grainger</a>	Metal
Rectifier Diode	Rectifiers Diode, DO-41, 50V, 1A	1	\$0.40	1	\$0.40	<a href="#">Mouser</a>	Other
<b>Logic Module Components</b>							
Logic pcb	Logic Module PCB	1	\$2.30	5	\$11.50	<a href="#">Zenodo</a>	Composite
M0 female header	Feather M0 header female	1	\$0.95	1	\$0.95	<a href="#">Adafruit</a>	Composite
Angle male header	Angle male header 2.54 mm	12	\$0.02	1	\$0.24	<a href="#">DigiKey</a>	Composite
MicroSD mount	MicroSD card mount SMD - Hinged type	1	\$1.16	1	\$1.16	<a href="#">DigiKey</a>	Metal
MicroSD card	16 GB microSD card with adapter	1	\$7.99	1	\$7.99	<a href="#">Amazon</a>	Other
Coin cell battery holder	12mm Battery holder	1	\$1.30	1	\$1.30	<a href="#">DigiKey</a>	Metal
Coin cell battery	CR1220	1	\$0.52	1	\$0.52	<a href="#">Grainger</a>	Other
Barrel jack	Power Barrel Connector Jack Surface Mount	1	\$1.32	1	\$1.32	<a href="#">DigiKey</a>	Composite
Switch	Slide switch DPDT 300MA 6V	1	\$0.55	1	\$0.55	<a href="#">DigiKey</a>	Composite
RTC	RTC I2C 16-SOIC DS3231	1	\$9.78	1	\$9.78	<a href="#">DigiKey</a>	Other
P-channel MOSFET	P-channel MOSFET 130mA	1	\$0.27	1	\$0.27	<a href="#">DigiKey</a>	Other
Not-Gate	Inverter IC 1 Channel - SOT-23-5	1	\$0.34	1	\$0.34	<a href="#">DigiKey</a>	Other
D Flipflop	D Flip Flop SOT23-6	1	\$0.37	1	\$0.37	<a href="#">DigiKey</a>	Other
Zener Diode	Zener Diode 4.3 V 800 mW - Surface Mount	1	\$0.44	1	\$0.44	<a href="#">DigiKey</a>	Other
Diode Schottky	Diode Schottky 1A (DC) Surface Mount	1	\$0.39	1	\$0.39	<a href="#">DigiKey</a>	Other
Inductor	Inductor 10uH 2,7A	1	\$1.69	1	\$1.69	<a href="#">DigiKey</a>	Other
Linear regulator	Buck regulator	1	\$2.77	1	\$2.77	<a href="#">TI</a>	Other

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Red LED	KingBright Red LED low current 0805	1	\$0.51	1	\$0.51	<a href="#">DigiKey</a>	Other
Yellow LED	KingBright Yellow LED low current 0805	1	\$0.51	1	\$0.51	<a href="#">DigiKey</a>	Other
3K resistor	Resistor 3K Ohm resistor 1%	1	\$0.10	1	\$0.10	<a href="#">DigiKey</a>	Other
6.2K resistor	Resistor 6.2K Ohm 1% 1206	1	\$0.10	1	\$0.10	<a href="#">DigiKey</a>	Other
10K resistor	Resistor 10k Ohm 1% 1206	3	\$0.10	1	\$0.30	<a href="#">DigiKey</a>	Other
10K through hole resistor	10k Ohm through hole resistor 1%	2	\$0.10	1	\$0.20	<a href="#">DigiKey</a>	Other
39K resistor	Resistor 39K Ohm 5% 1206	1	\$0.10	1	\$0.10	<a href="#">DigiKey</a>	Other
100K resistor	Resistor 100K Ohm 1% 1206	1	\$0.10	1	\$0.10	<a href="#">DigiKey</a>	Other
300K resistor	Resistor 300K Ohm 0.1% 1206	1	\$0.66	1	\$0.66	<a href="#">DigiKey</a>	Other
1M resistor	Resistor 1M Ohm 0.1% 1206	1	\$0.62	1	\$0.62	<a href="#">DigiKey</a>	Other
0.1uF 1206 capacitor	Capacitor 0.1uF 100V 1206	5	\$0.19	1	\$0.95	<a href="#">DigiKey</a>	Other
10uF 1206 capacitor	Capacitor 10uF 25V 1206	1	\$0.22	1	\$0.22	<a href="#">DigiKey</a>	Other
47uF 1206 capacitor	Capacitor 47uF 10V 1206	1	\$0.69	1	\$0.69	<a href="#">DigiKey</a>	Other
30k ohm resistor	30k ohm resistor 5%	1	\$0.10	1	\$0.10	<a href="#">DigiKey</a>	Other
Load Cell Circuit							
ADS1232	24-bit ADC	1	\$16.99	1	\$16.99	<a href="#">Amazon</a>	Other
ADS1232 interface PCB	ADS1232 interface PCB	1	\$3.83	3	\$11.49	<a href="#">Zenodo</a>	Other
4 position terminal block	Terminal Block 4 Position Top Entry 2.54mm	1	\$1.52	1	\$1.52	<a href="#">DigiKey</a>	Composite
Female Header Set	12-pin and 16-pin Female Header Set	1	\$0.95	1	\$0.95	<a href="#">Adafruit</a>	Composite
Ferrite Bead	Ferrite Bead 300 Ohm 0805 1LN	2	\$0.19	1	\$0.38	<a href="#">DigiKey</a>	Other
47 uF 0805 Capacitor	Capacitor Ceramic 47uF 10V X5R 0805	2	\$1.25	1	\$2.50	<a href="#">DigiKey</a>	Other
0.1 uF 0805 Capacitor	Capacitor Ceramic 0.1uF 10V X7R 0805	2	\$0.18	1	\$0.36	<a href="#">DigiKey</a>	Other
1uF X7R 0805 Capacitor	Capacitor ceramic 1uF 10V X7R 0805	2	\$0.29	1	\$0.58	<a href="#">DigiKey</a>	Other
10 Ohm resistor	Resistor SMD 10 Ohm 0.1% 1/4W 0805	1	\$0.96	1	\$0.96	<a href="#">DigiKey</a>	Other
113 Ohm Resistor	Resistor SMD 113 Ohm 0.1% 1/4W 0805	2	\$0.69	1	\$1.38	<a href="#">DigiKey</a>	Other
Male Jumper Wires 150 mm	Male Jumper Wires 150 mm	1	\$0.10	20	\$1.95	<a href="#">Adafruit</a>	Composite
Load Cell	Micro Load Cell (0-5Kg)	1	\$7.00	1	\$7.00	<a href="#">Phidgets</a>	Other
Pressure Sensor							

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Pressure sensor PCB	Pressure sensor PCB	1	\$0.50	3	\$1.50	<a href="#">Zenodo</a>	Composite
Pressure Sensor	Pressure Sensor MS5803-02BA	1	\$10.72	1	\$10.72	<a href="#">DigiKey</a>	Other
0.1 uF Capacitor	0.1 uF Capacitor 1206	1	\$0.20	1	\$0.20	<a href="#">DigiKey</a>	Other
Pressure sensor box lid	Pressure sensor box lid	1	\$0.07	1	\$0.07	<a href="#">Zenodo</a>	Polymer
Pressure sensor box	Pressure sensor box	1	\$0.18	1	\$0.18	<a href="#">Zenodo</a>	Polymer
4 conductor shielded wire	4 conductor shielded wire	1	\$5.98	1 m	\$5.98	<a href="#">DigiKey</a>	Composite
1/4" OD polyethylene tube	Crack-Resistant Polyethylene Firm Tubing	1	\$3.25	25 ft	\$3.25	<a href="#">McMaster Carr</a>	Polymer
Conformal coating	Conformal coating	1	\$17.00	1	\$17.00	<a href="#">Amazon</a>	Other
<b>Feather M0</b>							
Feather M0	Feather M0 Basic Proto	1	\$19.95	1	\$19.95	<a href="#">Adafruit</a>	Other
M0 stacking header	Feather M0 header stacking	1	\$1.25	1	\$1.25	<a href="#">Adafruit</a>	Composite
M0 female header	Feather M0 header female	1	\$0.95	1	\$0.95	<a href="#">Adafruit</a>	Composite