

Item	Quantity	Unit Cost	Source	Phase	Status	Notes
Electronics						
Raspberry Pi 5	1	\$115.92	Amazon	1	Own	Main computer
RPi 5 Power Supply	1	\$14.46	Vilros	1	Own	27W USB-C, 5.1V, 5A
M.2 HAT+	1	\$23.99	Amazon	1	Own	Intermediary between RPi 5 and NVMe for SSD
Active Cooler	1	\$11.89	Amazon	1	Own	Thermal management
Raspberry Pi NVMe SSD	1	\$89.99	Vilros	1	Own	Ubuntu boot drive
64 GB SSD	1	\$0.00	Office	1	Own	For practicing booting and Linux environment before NVMe SSD arrives
ELEGOO Sensor Kit	1	\$50.87	Amazon	1	Own	Miscellaneous sensors
RPi Camera Module 3 (Standard)	1	\$40.00	Vilros	1	Own	Camera with 12-megapixel Sony IMX708 image sensor module
Arduino Mega 2560	1	\$0.00	Elegoo Kit	1	Own	Motor controller
Arduino Mega Prototype Shield V3	1	\$0.00	Elegoo Kit	1	Own	For wiring and pass through of the motor controller
Pololu G2 High-Power Motor Driver 18v17	1	\$44.95	Pololu	1	Own	Dual motor driver, 6.5V-30V, 17A
Adafruit 9-DOF Absolute Orientation IMU Fusion Breakout - BNO055 - STEMMA QT / Qwiic	1	\$29.95	Adafruit	1	Own	9-DOF sensor, MEMS accelerometer, magnetometer, and gyroscope, and putting them on a single die with a high-speed ARM Cortex-M0 based processor to digest all the sensor data
DROK DC Buck Converter, 5.3V-32V to 1.2V-32V 12A Adjustable Power Supply	1	\$17.49	Amazon	1	Own	Adjustable voltage buck converter for the RasPi 5. I needed it to be adjustable instead of set at 5V because it is reported the RasPi 5 can brown out when it gets marginally less than 5V.
TBD RPLidar A1M8	1	\$0.00		2		
TBD 18650 Battery Pack (3S)	1	\$0.00		3		
TBD Battery Monitor	1	\$0.00		3		
TBD Emergency Stop Button	1	\$0.00		3		
Mechanical Components						
50:1 Metal Gearmotor 37Dx70L mm 12V with 64 CPR Encoder (Helical Pinion)	2	\$70.95	Pololu	1	Own	12V brushed DC motor with 16mm long, 6mm diameter D-shaped shaft, and encoder
Pololu Wheel 80×10mm Pair - Black	1	\$8.75	Pololu	1	Own	silicone tires and measure 80 mm (3.15") in diameter, and they press-fit onto 3mm D shafts
Pololu Universal Aluminum Mounting Hub for 6mm Shaft, #4-40 Holes (2-Pack)	1	\$12.95	Pololu	1	Own	Universal aluminum mounting hubs allow you to mount custom wheels and mechanisms to 6 mm diameter motor shafts
Pololu Ball Caster with 3/4" Plastic Ball	1	\$5.49	Pololu	1	Own	Light ball caster uses a 3/4" diameter plastic ball. The height of the assembled kit ranges from 0.9" to 1.2", depending on the combination of included spacers

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Mini Panel Mount SPDT Toggle Switch	1	\$0.95	Adafruit	1	Own	Toggle switch that can power on and off the robot. Up to 1A at 24V recommended.
TBD Chassis	1	\$0.00	3D Printed	1		
Wiring and Connectors						
JST SH-Style Cable, 5-Pin, Female-Female, 16cm	3	\$3.06	Pololu	1	Own	This 5-conductor, 16 cm (6.3") cable has 28 AWG wires and 5-pin female JST SH-type connectors (1mm pitch) on both ends
JST SH-Style Cable, 5-Pin, Single-Ended Female, 12cm	3	\$1.77	Pololu	1	Own	This 5-conductor, 12 cm (4.5") cable has 28 AWG wires and a 5-pin female JST SH-type connector (1mm pitch) on one end. The other ends of the wires are unterminated; they can be cut to length to match your application.
2x20 Extra Tall Female 0.1" Pitch Stacking Header	8	\$9.79	Amazon	1	Own	23mm tall header that actually passes through the M.2 HAT+
STEMMA QT / Qwiic JST SH 4-pin Cable - 100mm Long	3	\$0.95	Adafruit	1	Own	fitted with JST-SH female 4-pin connectors on both ends
STEMMA QT / Qwiic JST SH 4-Pin Cable - 200mm Long	2	\$1.25	Adafruit	1	Own	fitted with JST-SH female 4-pin connectors on both ends
ALITOVE 3 Wire Splice Connectors 10pcs	1	\$7.99	Amazon	1	Own	For quick prototyping wire harnesses (avoids soldering and crimping)
Weewooday 10 Pieces 12-Position Dual Row White Screw Terminal Strip	1	\$6.99	Amazon	1	Own	For quick prototyping wire harnesses (avoids soldering and crimping)
Fun Unecessary Pick Ups						
Insulated Silicone Rework Mat - 34cm x 23cm Work Surface - Blue	1	\$9.95	Adafruit	0	Own	Non-slip, ESD safe surface to prevent damaging boards accidentally on my plastic desk surface (in the middle of a dry NYC winter)
INA219 High Side DC Current Sensor Breakout - 26V \pm 3.2A Max - STEMMA QT	1	\$9.95	Adafruit	0	Own	Current measuring chip to use instead of blowing out multimeters
Adafruit APDS9960 Proximity, Light, RGB, and Gesture Sensor - STEMMA QT / Qwiic	1	\$7.50	Adafruit	0	Own	Basic gesture sensing, RGB color sensing, proximity sensing, or ambient light sensing
USB to TTL Serial Cable - Debug / Console Cable for Raspberry Pi	1	\$9.95	Adafruit	0	Own	Easiest way ever to connect to your microcontroller/Raspberry Pi/WiFi router serial console port
GPIO Header for RaspberryPi A+/B+/Pi 2/Pi 3 - Tall 2x20 Female Header	1	\$2.95	Adafruit	1	Own	TOO SHORT This spacer will extend the headers through the M.2 HAT+ on my RasPi 5 so I can actually use them

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GPIO Stacking Header for Pi A+/B+/Pi 2/Pi 3 - Extra-long 2x20 Pins	1	\$2.75	Adafruit	1	Own	TOO SHORT This spacer will extend the headers through the M.2 HAT+ on my RasPi 5 so I can actually use them