

Bill of Materials

Robot Components

#	Name	Component Description	Quantity	MPN	Datasheet	Supplier	Supplier Link	Total Weight (g)	Unit Price	Price	Status	Net Weight (g)	Net Cost
1	Pi Zero	Raspberry Pi Zero	1	Raspberry Pi Zero	pi.org/documentation/hardware/raspberrypi/	Canakit	w.canakit.com/raspberry-pi-zero-wit	9.07	\$10.00	\$10.00	Received - CM	194.24	\$147.00
2	IR sensor	QRD1114 Reflective Object Sensor	4	QRE1114	n.com/datasheets/Components/SMI	Sparkfun	ps://www.sparkfun.com/products/94	0.49	\$2.95	\$11.80	Received - CD		
3	ToF sensor	VL530X Time of Flight Sensor	1	VL53L0X	vw.st.com/resource/en/datasheet/vl53l0x	Adafruit	tps://www.adafruit.com/product/331	2.60	\$14.95	\$14.95	Received - CD		
4	Touch sensor	B3F Tactile Switch	1	B3F	pp.adafruit.com/datasheets/B3F-10	Adafruit	https://www.adafruit.com/product/36	0.36	\$2.50	\$2.50	Received - MH		
5	Motor	DC 12V 100RPM Worm Gear Motor	2	a16101100ux0166	~	Amazon	1MXPNWEO/ref=twister_B07GQ7K	113	\$14.95	\$29.90	Received - CM		
6	Wheels	50mm Aluminum Wheel	2	RB-Gtf-06	~	RobotShop	shop.com/en/50mm-aluminium-whe	22.5	\$5.45	\$10.90	Received - CM		
7	Motor Driver	DC Motor Driver	1	DROK L298	ssl-images-amazon.com/images/I/	Amazon	pn.com/dp/B06XGD5SCB/ref=sspa	1.14	\$16.99	\$16.99	Received - CM		
8	Battery	3s LiPo Batteries	1	N460.3S.25	~	Amazon	v/Turnigy-Nano-tech-460mah-25-40	43.5	\$13.19	\$13.19	Received - MH		
9	GPIO Connector	Female 2x20 pin Connector	1	C25582-40G-M36-0A	~	Adafruit	https://www.adafruit.com/product/2	~	\$1.95	\$1.95	Received - CM		
10	Mount	PCB Standoff Kit	1	NY180	~	Amazon	olliid=11ABEJTLB3Y91C&colid=2KL	~	\$8.90	\$8.90	Received - MH		
11	Screw Connector	Screw Pin connector	1	HZ126	~	Amazon	duino/dp/B0774YRVVX/ref=src_1_9	1.58	\$6.99	\$6.99	Received - MG		
12	IMU sensor	0 Accelerometer + Gyro + Magnetometer	1	LSM9DS0	ds1-accelerometer-plus-gyro-plus-m	Adafruit	tps://www.adafruit.com/product/338	4	\$14.95	\$14.95	Received - MG		
13	Caster	3/8" Metal Ball Caster	2	941	s://www.pololu.com/product/951/sp	Pololu	https://www.pololu.com/product/951	4	\$1.99	\$3.98	Received - CM		

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PCB Components

Part	Value	Device	Package	Description	Vendor	Vendor #	Net Cost
C1	1.0u	1.0UF-0603-16V-10%	603	1uF CERAMIC CAPACITOR	Digikey	1276-1182-1-ND	\$52.79
C2	1.0u	1.0UF-0603-16V-10%	603	1uF CERAMIC CAPACITOR	Digikey	1276-1182-1-ND	
C3	1.0u	1.0UF-0603-16V-10%	603	1uF CERAMIC CAPACITOR	Digikey	1276-1182-1-ND	
C4	1.0u	1.0UF-0603-16V-10%	603	1uF CERAMIC CAPACITOR	Digikey	1276-1182-1-ND	
C5	220u	CPOL-US153CLV-0605	153CLV-0605	220uF POLARIZED CAPACITOR	Digikey	493-2179-1-ND	
C6	510p	C-EUC0603	C0603	510p CERAMIC CAPACITOR	Digikey	478-6201-1-ND	
C7	0.1n	C-EUC0603	C0603	0.1nF CERAMIC CAPACITOR	Digikey	311-4062-1-ND	
C8	330u	CPOL-US175TMP-0808	175TMP-0808	330uF POLARIZED CAPACITOR	Digikey	EEE-FK1E331P	
C9	10u	C-EUC0603	C0603	10uF CERAMIC CAPACITOR	Digikey	587-3238-1-ND	
C10	10u	C-EUC0603	C0603	10uF CERAMIC CAPACITOR	Digikey	587-3238-1-ND	
C11	10u	C-EUC0603	C0603	10uF CERAMIC CAPACITOR	Digikey	587-3238-1-ND	
C12	1.0u	C-EUC0603	C0603	1.0uF CERAMIC CAPACITOR	Digikey	1276-1182-1-ND	
D1	LED	LED-GREEN0603	LED-0603	Green SMD LED	Digikey	SML-D12U1WT86CT-ND	
D2	MBRS340T3	MBRS340T3	SMC	SCHOTTKY BARRIER RECTIFIER 3.0 AMPERES	Digikey	MBRS340T3G0SCT-ND	
D3	13V	ZENER_DIODE	SOD-123_MINI-SMA	13V ZENER DIODE	Digikey	MMSZ4700-TP	
F1	20A	LOW_MINI_FUSE	LP_MINI_FUSE	20A LOW MINI FUSE	Digikey	F4990-ND	
J1	BAT	XT-60RIGHT-SMD	XT-60_SMD	XT-60 SMD BATTERY CONNECTOR	Digikey	1568-1816-ND	
J2	BUTTON_FORWARD	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J3	BUTTON_REAR	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J4	ENC0	B4B-PH-K	B4B-PH-K	4 POSITION THROUGH HOLE HEADER	Digikey	455-1076-ND	
J5	ENC1	B4B-PH-K	B4B-PH-K	4 POSITION THROUGH HOLE HEADER	Digikey	455-1076-ND	
J6	I2C0	B4B-PH-K	B4B-PH-K	4 POSITION THROUGH HOLE HEADER	Digikey	455-1076-ND	
J7	I2C1	B4B-PH-K	B4B-PH-K	4 POSITION THROUGH HOLE HEADER	Digikey	455-1076-ND	
J8	USART0	B2B-PH-K	B2B-PH-K	2 POSITION THROUGH HOLE HEADER	Digikey	455-1074-ND	
J9	ICSP10	AVR_SPI_PROG_5X2LOCK	2X5-SHROUDED_LOCK	10-pin ICSP HEADER	Digikey	ED1543-ND	
J10	MOTOR_CTRL	CONN_05X2SHD_LOCK	2X5-SHROUDED_LOCK	10-pin ISCP HEADER	Digikey	ED1543-ND	
J11	IR0	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J12	IR1	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J13	IR2	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J14	IR3	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J15	MOTOR_PWR0	CONN_025MM	SCREWTERMINAL-5MM-2	5mm SCREW TERMINAL CONNECTOR	Amazon	X001MDGXHJ	
J16	MOTOR_PWR1	CONN_025MM	SCREWTERMINAL-5MM-2	5mm SCREW TERMINAL CONNECTOR	Amazon	X001MDGXHJ	
J17	SW_ON	CONN_025MM	SCREWTERMINAL-5MM-2	5mm SCREW TERMINAL CONNECTOR	Amazon	X001MDGXHJ	
J18	PWR_DIST	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
J19	PWR_PCB	B3B-PH-K	B3B-PH-K	3 POSITION THROUGH HOLE HEADER	Digikey	455-1705-ND	
L1	12u (SRR1260-120M)	INDUCTOR12X12MM	L_12X12MM	12uH SMD INDUCTOR	Digikey	455-1705-ND	
L2	10u	L0603	603	10uH SMD INDUCTOR	Digikey	490-2519-1-ND	
Q2	STN3NF06L	N-MOSFETSOT223	SOT223	NMOS SMD MOSFET	Digikey	497-3177-1-ND	
R1	1k	RESISTOR0603	603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R2	1k	RESISTOR0603	603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R3	1k	RESISTOR0603	603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	

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R4	1k	RESISTOR0603	603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R5	10k	RESISTOR0603	603	1kOhm SMD RESISTOR	Digikey	RMCF0603JT10K0CT-ND	
R6	10k	RESISTOR0603	603	10kOhm SMD RESISTOR	Digikey	RMCF0603JT10K0CT-ND	
R7	10k	RESISTOR0603	603	10kOhm SMD RESISTOR	Digikey	RMCF0603JT10K0CT-ND	
R8	10k	RESISTOR0603	603	10kOhm SMD RESISTOR	Digikey	RMCF0603JT10K0CT-ND	
R9	1k	R-US_R0603	R0603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R10	75m	R-US_R2512	R2512	75MOhm SMD RESISTOR	Digikey	HMC0603JT75M0CT-ND	
R11	1k	R-US_R0603	R0603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R12	5k	R-US_R0603	R0603	5kOhm SMD RESISTOR	Digikey	541-1901-1-ND	
R13	1.2k	R-US_R0603	R0603	1.2kOhm SMD RESISTOR	Digikey	RMCF0603JT1K20-ND	
R14	100k	R-US_R0603	R0603	100kOhm SMD RESISTOR	Digikey	CR0603-JW-104ELFCT-ND	
R15	200k	R-US_R0603	R0603	200kOhm SMD RESISTOR	Digikey	RMCF0603JT200KCT-ND	
R16	1k	R-US_R0603	R0603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R17	1k	R-US_R0603	R0603	1kOhm SMD RESISTOR	Digikey	311-1.0KGRCT-ND	
R18	620	R-US_R0603	R0603	620 Ohm SMD RESISTOR	Digikey	RMCF0603JT680RCT-ND	
R19	620	R-US_R0603	R0603	620 Ohm SMD RESISTOR	Digikey	RMCF0603JT680RCT-ND	
R20	620	R-US_R0603	R0603	620Ohm SMD RESISTOR	Digikey	RMCF0603JT680RCT-ND	
R21	620	R-US_R0603	R0603	620Ohm SMD RESISTOR	Digikey	RMCF0603JT680RCT-ND	
R22	10k	R-US_R0603	R0603	10kOhm SMD RESISTOR	Digikey	RMCF0603JT10K0CT-ND	
R23	4.7k	R-US_R0603	R0603	4.7kOhm SMD RESISTOR	Digikey	311-4.7KGRCT-ND	
R24	4.7k	R-US_R0603	R0603	4.7kOhm SMD RESISTOR	Digikey	311-4.7KGRCT-ND	
U1	SN74HC14	SN74HC14	SOIC14	HEX SCHMITT TRIGGER INVERTERS	Digikey	296-1194-1-ND	
U2	ATMEGA328P	ATMEGA328P-AU	QFP80P900X900X120-32P	8-bit MICROCONTROLLER ATMEGA328P	Digikey	ATMEGA328PB-AURCT-ND	
U3	74HC373DW	74HC373DW	SO20W	EDGE TRIGGERED D LATCH	Digikey	296-1200-1-ND	
VR1	MC33063	MC33063	SOIC8	1.5A BUCK/BOOST REGULATOR	Digikey	MC33063AVDR2G0SCT-ND	
VR2	LD1117S50	LD1117S50	SOT223	5.0V LOW DROPOUT REGULATOR	Digikey	497-1243-1-ND	