

### Color Coordination System

- We have provided a color coordinated map of each component, from different distributors, to help you determine which components you need to purchase for your own system:
  - [Head-plate fixation system design](#)
  - [Locomotion wheel design](#)
  - [Printed circuit board \(PCB\) design](#)
  - [Imaging system design](#)
  - [Additional electrical systems](#)

Part Name	Part / Identification Number	Quantity
McMaster-Carr		
5 mm Linear Motion Shaft	6112K37	1
Clear Impact-Resistant Polycarbonate Film	85585K15	1
Female Threaded Round Standoff	93330A541	10
Socket Head Screw M3 x 0.5 mm Thread, 6 mm Long	91290A111	1 (Pack of 100)
Pololu		
Aluminum Mounting Hub for 5mm Shaft	1203	1 (Pack of 2)
Machine Screw: #4-40, 1/2" Length, Phillips	1962	1 (Pack of 25)
Thorlabs		
0.75 Inch Post	TR075	1
2 Inch Post	TR2	2
3 Inch Post	TR3	2
4 Inch Post	TR4	5
6 Inch Post	TR6	2
8 Inch Post	TR8	2
10 Inch Post	TR10	2
2 Inch Post Holder	PH2	1
3 Inch Post Holder	PH3	4
6 Inch Post Holder	PH6	1
Right Angle End Clamp	RA180	4
Rotating Clamp	SWC	1

Right Angle Post Clamp	RA90TR	1
Mini Optical Post	MS3R	1
Aluminum Breadboard 8" x 10" x 1/2", 1/4"-20 Taps	MB810	1
Aluminum Breadboard 12" x 18" x 1/2", 1/4"-20 Taps	MB1218	1
Breadboard Lifting Handles, Reinforced Polymer	BBH1	1 (Pack of 2)
4-40 Stainless Steel Cap Screw, 3/8" Long	SH4S038	1 (Pack of 50)
Spring-Loaded 3/16" Hex-Locking Thumbscrew, 1/4"-20 Thread	TS25H	2
1/4"-20 Stainless Steel Setscrew, 5/8" Long (Adaptor)	SS25S0625	1 (Pack of 25)
1/4" Washer, M6 Compatible, Stainless Steel	W25S050	1 (Pack of 100)
1/4"-20 Stainless Steel Nut	N25S0440	1 (Pack of 50)
SparkFun		
Rotary Encoder (Resin Coupling Adaptor Included)	E6B2-CWZ3E (E69-C06B)	1
Digikey		
Speaker 80hm 5w top port 104db	2104-SP500208-3-ND	1
2.54mm Pitch Single Row Pin Header Strip	S1012EC-40-ND	1
2N2222 NPN TO-92 Power Transistors	2721-2N2222A-ND	6
Amazon		
5 mm Steel Ball Bearing (Boca Bearing)	SMR115-ZZ #5 LD	2
9-22mm 1/3" F1.4 M12-mount lens with IR filter (Xenocam)	SPM16214000924	1
USB 2.0 Type-A Male to Mini-B 5pin Male Cable (Monoprice)	844660054498	1
0.33-Inch Varifocal lens 2.8-12mm F1.3 Auto Iris (Computar)	TG4Z2813FCS-IR	1
3 mm UV light, 395-400nm (Chanzon)	100F3T-YT-WH-PU	1 (Pack of 100)
5 mm super-bright IR LED, 940nm (Adafruit)	ADA388	1 (Pack of 25)
24 AWG 50 feet Electrical Wire (Fermerry)	Fermerry-39	1
Arduino Mega 2560 Rev3 Microcontroller Board (Arduino)	A000067	1
USB 2.0 Cable Type A/B (Arduino)	M000006	1
PCB Mount Screw Terminal Block Connectors (Tnisesm)	CATN-T03B	1

Real Time Clock Module DS3231 AT24C32 IIC (Adeept)	2pcsDS3231	1 (Pack of 2)
3V Lithium Battery (Junpower)	CR2032	1 (Pack of 10)
Heat Shrink Tubing (Electfun)	ELECFUN	1
Black Adhesive contact paper (Yancorp)	707516138165	1
IPS Weld-On 3 Acrylic Plastic Cement (Weld-On)	TLLPN-21847771	1
12V 5A DC Power Cable Male Female Connector (Centro Power)	DCCORD-MF	1 (Pack of 10)
12V DC Power Connector Barrel Adaptor (Centro Power)	DCPLUG-MF	1 (Pack of 10)
12V Red LED Flexible Strip Ribbon Light (Alitrove)	AL5RWPBK12V	1
Power Strip Surge Protector 10Ft (Mifaso Power)	MFS311T	1
Anti Vibration Pads (Empire of Electronics)	EOEPAD1	1 (Pack of 4)
1" x 12" x 12" Sound Absorption Wall Panels	4348494783	1 (Pack of 24)
4 inch Zip Ties with 18 lb Tensile Strength (TANTTI)	KS-Onlytime-B541	1 (Pack of 200)
3M Scotch Super 33+ Electrical Tape - 3/4 in x 52 ft (Scotch)	33+SUPER-3/4X52FT	1
Hirose 4 Pin Female HR10A-7P-4S to Flying Leads Power Cable (Alvin's Cables)	N/A	1
Custom Parts		
Rotary Encoder Adaptor (Aluminum 304)	CNC Machining (eMachineShop)	1
Head Plate Holder (Aluminum 304)	CNC Machining (eMachineShop)	2
Head Plate (Top Piece) (Aluminum 304)	CNC Machining (eMachineShop)	1
Head Plate (Bottom Piece) (Aluminum 304)	CNC Machining (eMachineShop)	1
Head rings (Aluminum 6061-T6)	CNC Machining (eMachineShop)	X
Rotary Wheel (1/8 Thick Clear Cast Acrylic)	Laser Cutting (Ponoko)	2
Rotary Wheel Curved Surface (Clear Cast Acrylic)	Laser Cutting / Manual Cutting	1
Rotary Wheel Curved Surface (Black Adhesive Contact Paper)	Laser Cutting / Manual Cutting	1
Waste Management Ramp (Resin)	3-D Printing (Craftcloud3d)	1
Arduino Mega 2560 Rev3 Protective Case	3-D Printing (Craftcloud3d)	1
Arduino Mega 2560 Rev3 Shield SMT PCB	PCB Manufacturing (JLC PCB)	1
FLIR		

Firefly S Camera	FFY-U3-16S2M-S	1
Tripod Adapter for Firefly S Camera	ACC-01-0017	1
USB 3.1 Locking Cable	ACC-01-2300	1
GPIO cable w/ 6 pins	ACC-01-3015	1
The Imaging Source		
USB 2.0 CMOS Monochrome Camera	DMK-22BUC03	1
SYSRACKS		
15U 35" Depth Under Desk Sound Proof Server Cabinet	SP15.900	1