**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

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| --- | --- | --- |
| **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 |