| Category | Vendor | Item Number | Item Description | Quantity Per Package | Cost Per Package | Number of Packages | Item Total Cost | Link | Comments | Designation on Mouse 5.0 PCB |
|---|---|---|---|---|---|---|---|---|---|---|
| Power | Amazon | B07PN8WVGT | Hosim [New Vers | 1 | $11.85 | 1 | $11.85 | https://www.ama | - 7.4V Lithium Polymer battery, 800mAh, 38g, 25C<br>- rechargeable, has XH3P JST and some other connector...<br>- contacting customer service for second connector type...<br>- hopefully lasts long enough for testing and multiple runs | 7.4V |
| | Amazon | B073WSDCZM | HTRC LiPo Char | 1 | $11.97 | 1 | $11.97 | https://www.ama | - 7.4V LiPo battery charger<br>- Connects to source via wall outlet<br>- Charges LiPo via JST connector | xx |
| | Amazon | B01MCZE2HM | GeeBat 460pcs 2 | 460 | $10.99 | 1 | $10.99 | https://www.ama | - JST XH connector pack, TH<br>- use for 7.4V LiPo battery to PCB | J1 |
| | Digikey | 296-LMR34215S | IC POWER MAN | 1 | $2.87 | 1 | $2.87 | https://www.digik | - 5V, 1.5A switching regulator<br>- used to power two motors and motor driver IC | U1 |
| | Digikey | 1276-2910-1-ND | CAP CER 22UF | 1 | $0.18 | 2 | $0.36 | https://www.digik | - 22uF ceramic cap needed for 5V 1.5A switching regulator<br>- from Vout to GND (pg 20 pdf of datasheet)- **C6, C7**<br>- 0805 package | **C6, C7, C9, C11** |
| | Digikey | 1276-6478-1-ND | CAP CER 0.22U | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 220nF ceramic caps needed for 5V 1.5A switching regulator<br>- from Vin to GND (pg 20 of datasheet)- **C2,** ~~C3~~<br>- 0805 package | **C2** |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic cap needed for 5V 1.5A switching regulator<br>- from Boot to SW (pg 20 pdf of datasheet)<br>- smaller 0603 package | **C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28** |
| | Digikey | 1276-1102-1-ND | 1 µF ±10% 25V C | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 1uF ceramic cap needed for 5V 1.5A switching regulator<br>- from VCC to GND (pg 20 of datasheet)<br>- smaller 0603 package | **C5** |
| | Digikey | 1276-1044-1-ND | 4.7 µF ±10% 10V | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 4.7uF ceramic cap needed for 5V 1.5A switching regulator<br>- from Vin to GND (pg 20 of datasheet)<br>- smaller 0603 package | **C1** |
| | Digikey | 1276-1111-1-ND | CAP CER 0.22U | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 220nF ceramic caps needed for 5V 1.5A switching regulator<br>- from Vin to GND (pg 20 of datasheet)- C3<br>- smaller 0603 package | **C3** |
| | Digikey | 732-2613-1-ND | FIXED IND 2.2U | 1 | $1.64 | 1 | $1.64 | https://www.digik | - 2.2uH inductor needed for 5V 1.5A switching regulator<br>- from SW to Vout (pg 20 of datasheet) | **L1, L2, L3** |
| | Digikey | 296-39450-1-ND | IC REG BUCK 5 | 1 | $1.36 | 1 | $1.36 | https://www.digik | - 5V, 500mA switching regulator<br>- used to power MCU and Sharp sensors | **U2** |
| | Digikey | 296-39449-1-ND | IC REG BUCK 3. | 1 | $1.36 | 1 | $1.36 | https://www.digik | - 3.3V, 500mA switching regulator<br>- used to power IMU | **U3** |
| | Digikey | 1276-1096-1-ND | CAP CER 10UF | 1 | $0.10 | 2 | $0.20 | https://www.digik | - 10uF ceramic cap needed for 5V and 3.3V switching regulator<br>- between VIN and PGND (pg 21 pdf of datasheet)<br>- 0805 package | **C8, C10** |
| | Digikey | 1276-2910-1-ND | CAP CER 22UF | 1 | $0.18 | 2 | $0.36 | https://www.digik | - 22uF ceramic cap needed for 5V and 3.3V switching regulator<br>- between SW and FB (pg 21 pdf of datasheet) | (C6, C7, C9, C11) |
| | Digikey | RHM100KDCT-N | RES SMD 100K | 1 | $0.13 | 2 | $0.26 | https://www.digik | - 100k Ohm resistor needed for 5V and 3.3V switching regulator<br>- between SW/VOS and PG (pg 21 pdf of datasheet)<br>- smaller 0603 package | **R1, R2** |
| | Digikey | 732-2613-1-ND | FIXED IND 2.2U | 1 | $1.64 | 2 | $3.28 | https://www.digik | - 2.2uH inductor needed for 5V and 3.3V switching regulator<br>- between SW and 100k Ohm resistor (pg 21 pdf of datasheet) | (L1, L2, L3) |
| | Digikey | VS-2ENH01-M3/ | DIODE GEN PUI | 1 | $0.38 | 3 | $1.14 | https://www.digik | - standard rectifier diode to prevent current in reverse direction through regu<br>- prevents up to 100V and allows 2A to pass<br>- one for each regulator, so 3 total | **D1, D2, D3** |
| | Digikey | CKC5107-ND | SWITCH SLIDE | 1 | $2.36 | 1 | $2.36 | https://www.digik | - switch for on/off of entire mouse<br>- needed since lipo batteries don't have on/off switches<br>- rated for 4A, greater than needed 2.5A | **SW3** |
| Motor Related | Digikey | FNGC8ELCT-ND | IC MOTOR DRIV | 1 | $1.58 | 1 | $1.58 | https://www.digik | - H Bridge motor driver IC, 2.7V min supply, 1A output max, SSOP<br>- tiny IC, should be able to drive DC motors w/ PWM<br>- (mouse 4.4 used L293 which output 600mA max) | **U5** |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic capacitor, SMD 0603<br>- needed for supply and vcc pins for H bridge IC<br>- to be placed as close as possible to IC (pg 8 of TB6552 datasheet) | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) |
| | Digikey | 732-6406-1-ND | CAP ALUM POL | 1 | $0.50 | 1 | $0.50 | https://www.digik | - 47uF polymer capacitor, SMD<br>- needed for supply pin for H bridge IC<br>- to be placed as close as possible to IC (pg 8 of TB6552 datasheet) | **C13** |
| | Servocity | 638103 | Gear Motor with | 1 | $19.99 | 2 | $39.98 | https://www.serv | - Gear motors, 900rpm w/ encoders<br>- works well, mouse speed just right w/ adjustment<br>- loose gears, prone to shifting around<br>- used for mouse 4.4 | **Motor 1, Motor 2** |
| | Pololu | 1087 | Black plastic whe | 2 | $4.95 | 1 | $4.95 | https://www.polol | - Wheels, 32mm diameter, 3mm D output shaft<br>- works well, relatively small | **Wheels** |
| | Digikey | 455-1685-1-ND | CONN HEADER | 1 | $0.77 | 2 | $1.54 | https://www.digik | - JST ZH 6 position male (receptacle) SMD connector<br>- 3D models available: HERE | **J6, J7** |

| Category | Vendor | Item Number | Item Description | Quantity Per Package | Cost Per Package | Number of Packages | Item Total Cost | Link | Comments | Designation on Mouse 5.0 PCB | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ball Caster, nuts, screws | Amazon | B0BTYDZVM8 | 1 Oz (23 Grams) | 1 | $6.99 | 1 | $6.99 | https://www.ama | - superglue to attach 3D printed mounts to PCB | xx | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| IR Sensing | Polulu | 2450 | Sharp GP2Y0A5 | 1 | $11.95 | 4 | $47.80 | https://www.polol | - Sharp IR distance sensor 2-15cm<br>- shortest range sharp IR sensor available<br>- connects w/ JST connector<br>- only external component needed is 10uF cap | IR1, IR2, IR3, IR4 | | | |
| | Amazon | B0BZSKBRWD | Keszoox ZH 1.5M | 1 | $25.99 | 1 | $25.99 | https://www.ama | - JST ZH female connector set w/ precrimped 150mm wires<br>- missing receptacle connectors | xx | | | |
| | Amazon | B01IZABHGM | LATTECH JST Z | 1 | $12.99 | 1 | $12.99 | https://www.ama | - JST ZH male (receptacle) connector set | J1 | | | |
| | Digikey | 1276-1119-1-ND | CAP CER 10UF | 1 | $0.19 | 4 | $0.76 | https://www.digik | - 10uF ceramic capacitor, SMD 0603<br>- needed for Sharp IR sensors | C14, C15, C16, C17, C23 | | | |
| | Digikey | MMPQ3904FSC | TRANS 4NPN 40 | 1 | $2.10 | 1 | $2.10 | https://www.digik | - NPN BJT transistor array IC to turn on/off IR sensors w/ MCU pins<br>- contains 4 BJT transistors | U4 | | | |
| | Digikey | RHM180DCT-ND | RES SMD 180 O | 1 | $0.14 | 4 | $0.56 | https://www.digik | - resistor to limit current to base of BJT transistors<br>- 180 Ohms calculated w/ BJT parameters | R11, R12, R13, R14 | | | |
| | Digikey | RHM330DCT-ND | RES SMD 330 O | 1 | $0.13 | 4 | $0.52 | https://www.digik | - R1 resistor to drop 2.5V max from IR sensor output to 1.8V<br>- 330 Ohms chosen arbitrarily | R3, R5, R7, R9, R16, R17, R18 | | | |
| | Digikey | RHM750DCT-ND | RES SMD 750 O | 1 | $0.13 | 4 | $0.52 | https://www.digik | - R2 resistor to drop 2.5V max from IR sensor output to 1.8V<br>- 750 Ohms calculated w/ voltage divider equation | R4, R6, R8, R10 | | | |
| | Digikey | 455-3272-1-ND | CONN HEADER | 1 | $0.80 | 4 | $3.20 | https://www.digik | - JST ZH 3 position male (receptacle) connector, SMD<br>- 3D models available: HERE | J2, J3, J4, J5 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| IMU | Digikey | 497-LSM6DSV16 | INEMO 3D ACCE | 1 | $7.21 | 1 | $7.21 | https://www.digik | - IMU w/ less noise relative to OPS IMU<br>- communicates via SPI and I2C, SPI preferred for speed<br>- has sparkfun devboard w/ pinout and necessary external parts | U6 | | | |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 2 | $0.20 | https://www.digik | - 0.1uF ceramic caps needed for IMU (pg 47 on datasheet)<br>- smaller 0603 package | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| MCU | Digikey | CKN12314-1-ND | TACT 6.0 X 3.5, 5 | 1 | $0.14 | 1 | $0.14 | https://www.digik | - SMD reset switch | SW1 | | | |
| | Digikey | AT32UC3L0256- | IC MCU 32BIT 25 | 1 | $10.19 | 1 | $10.19 | https://www.digik | - AT32UC3L0256 AVR MCU to replace Arduino<br>- 50MHz, faster than controller above, operates on 3.3V<br>- 12b ADC, PWM, programmed via JTAG and aWire<br>- schematic checlist: HERE | U7 | | | |
| | Digikey | 1276-1119-1-ND | CAP CER 10UF | 1 | $0.19 | 1 | $0.19 | https://www.digik | - 10uF capacitor for AT32UC3L0256 VDDin<br>- page 4 of schematic checklist<br>- small 0603 package | (C8, C10, C14, C15, C16, C17, C23) | | | |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 3 | $0.30 | https://www.digik | - 0.1uf ceramic cap for AT32UC3L0256 VDDin, VDDio, and VDDcore<br>- page 4 of schematic checklist<br>- small 0603 package | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) | | | |
| | Digikey | CAP CER 2.2UF | 1276-1085-1-ND | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 2.2uF ceramic cap for AT32UC3L0256 VDDio, and VDDcore<br>- page 4 of schematic checklist<br>- small 0603 package | C24 | | | |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 3 | $0.30 | https://www.digik | - 0.1uF ceramic cap for AT32UC3L0256 VDDana and ADVREF<br>- page 5 of schematic checklist<br>- small 0603 package | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) | | | |
| | Digikey | 490-5216-1-ND | FERRITE BEAD | 1 | $0.19 | 1 | $0.19 | https://www.digik | - ferrite bead for for AT32UC3L0256 VDDana and ADVREF<br>- page 5 of schematic checklist, and page 15 on xplained dev board schema<br>- small 0603 package | L4 | | | |
| | Digikey | RHM10KDCT-ND | RES SMD 10K O | 1 | $0.13 | 1 | $0.13 | https://www.digik | - 10k resistor for reset switch on AT32UC3L0256<br>- small 0603 package | R15 | | | |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 1 | $0.30 | https://www.digik | - 0.1uF ceramic cap for reset switch on AT32UC3L0256<br>- small 0603 package | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) | | | |
| | Digikey | 1276-1006-1-ND | 0.1 µF ±10% 25V | 1 | $0.10 | 1 | $0.30 | https://www.digik | - 0.1uF ceramic cap for JTAG on AT32UC3L0256<br>- small 0603 package | (C4, C12, C18, C19, C20, C21, C22, C25, C26, C27, C28) | | | |
| | Digikey | 609-10129383-9 | CONN HEADER | 1 | $0.48 | 1 | $0.48 | https://www.digik | - 2x5 SMD pin header for JTAG programming AT32UCL0256 | J8 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | Digikey | 2223-DS04-254- | DIP SWITCH, SP | 1 | $0.79 | 1 | $0.79 | https://www.digik | - DIP 3 SMD switch for mode change and debugging | SW2 | | | |
| | Digikey | 3147-B1911UD-- | LED ORANGE C | 1 | $0.10 | 1 | $0.10 | https://www.digik | - orange SMD LED 0603 package for debug | LED2 | | | |
| | Digikey | 3147-B1911USD | LED RED CLEAR | 1 | $0.10 | 1 | $0.10 | https://www.digik | - red SMD LED 0603 package for debug | LED1 | | | |

| Category | Vendor | Item Number | Item Description | Quantity Per Package | Cost Per Package | Number of Packages | Item Total Cost | Link | Comments | Designation on Mouse 5.0 PCB |
|---|---|---|---|---|---|---|---|---|---|---|
| misc | Digikey | 3147-B1911NG-- | LED GREEN CL| | 1 | $0.10 | 1 | $0.10 | https://www.digik | - green SMD LED 0603 package for debug | LED3 |
| | Digikey | 1292-WR06X330 | RES 330 OHM 1 | 1 | $0.10 | 3 | $0.30 | https://www.digik | - 330 Ohm SMD 0603 resistor for LEDs | (R16, R17, R18) |
| | Digikey | | | 1 | $0.38 | 11 | $4.18 | https://www.digik | - TH testpoint to probe mouse | TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12 |
| | | | | | | | | | | |
| PCB | JLC PCB | n/a | PCB prototype:Y | 5 | $2.00 | 1 | $2.00 | https://jlcpcb.com | - solid and cheap PCB vendor<br>- no issues so far, purple nice and deep purple<br>- used in mouse 4.4 | |

total cost: $226.18

| | | |
|---|---|---|
| resistors: | https://www.digikey.com/en/products/filter/chip-resistor-surface-mount/52?s=N4IgjCBcoExaBjKAzAhgGwM4FMA0IB7KAbXADYBWAFgGYQBdfABwBcoQBlFgJwEsA7AOYgAvvjBl4IJJDRY8hEiBoBOGjBUNmbSJx4DhYKDAAMADgpSZcnPiKRSYEwAIA1gHkAFgFtMKWKzsAK | |
| headers: | https://www.digikey.com/en/products/filter/rectangular-connectors/headers-receptacles-female-sockets/315?s=N4IgjCBcoGwJxVAYygMwIYBsDOBTANCAPZQDaIALGGABxwDsIAuoQA4AuUIAyuwE4BLAHYBzEAF9CNGohAplGHAWJkQDAKxgAzMzadIPfsLGSQQAWgBMs%2 | |
| ceramic caps: | https://www.digikey.com/en/products/filter/ceramic-capacitors/60?s=N4IgjCBcpgbFoDGUBmBDANgZwKYBoQB7KAbRAGYBOcgJkpAF0CAHAFyhAGVAWAnASwB2AcxABfAgFoaCEMki8ArviKkQAVkbiQE%2BNFIRFy4pDLlNk%2BnrmGCxshAait0k7Jw80AWz6IABljRmNEQ%2 | |
| electrolytic caps: | https://www.digikey.com/en/products/filter/aluminum-electrolytic-capacitors/58?s=N4IgjCBcoGwJxVAYygMwIYBsDOBTANCAPZQDaIALGGABxwDsIAuoQA4AuUIAyuwE4BLAHYBzEAF9CAWgBMiEckj8ArgWJkQAVmaSQUmPMUq1JSOQDMO6QmgKoxwqfIQm43XLML0rdEg | |
| motor drivers: | https://www.digikey.com/en/products/filter/motor-drivers-controllers/744?s=N4IgjCBcoEwKxyqAxlAZgQwDYGcCmANCAPZQDaIALGGABxzHACwDsIIAukQA4A4uUIAyhwE4BLAHYBzEAF9iAWhhQIQgSAICj8uRlIBs8xSrWlNIBs8xSrWlNIBs8xSrWlNBOQ1NMy5bLvSrWlBOQ1NMy5bLvSrWlBOQ1NMy5bLvSr | |
| linear regulators: | https://www.digikey.com/en/products/filter/voltage-regulators-linear/699?s=N4IgjCBcpgTAnFUBjKAzAhgGwM4FMAaEAeygG1wA2AdgFZ4AWEI2ABjHqZdmrHImYhYDatVaUQAXSIAHAC5QQAZTkAnAJYA7AOYgAvkVrUAzEhCpmXIRLkh8Wh2qDjrWilAcg6g0e1BHqJgXkX | |
| to-220 heatsinks: | https://www.digikey.com/en/products/filter/thermal/heat-sinks/to-220/219?s=N4IgjCBcoMwKwHYqgMZQGYEMA2BnApgDQgBuAdlAC4BOArkSAPZQDaIALGDGAAwBMIALrEADpSggAyjQCWAOzAGaAQvsQC0A6sQWjMQGzTovOvYs0 | |
| screws: | https://www.digikey.com/en/products/filter/screws-bolts/572?s=N4IgjCBcoLQExVAYygFwE4FcCmAaEA9IANogCsIAugL74wBsiIKkGO%2BRkpAzFbSDACcTFmzyES4PtWpA | |
| nuts: | https://www.digikey.com/en/products/filter/nuts/573?s=N4IgjCBcoLQExVAYygFwE4FcCmAaEA9IANogCsIAugL74wBsiIKkGO%2BRkpAzFbSDACcTFmzyES4PtWpA | |
| MCUs: | https://www.digikey.com/en/products/filter/microcontrollers/685?s=N4IgjCBcoGwJxVAYygMwIYBsDOBTANCAPZQDaIALAAxwDMdIh1cFtVIAuoQA4AuUIAMq8ATgEsAdgHMQAX0JhWiECkgYcBYmXABWCgA4qEBTv36DjcIcPGr%2BnfUtg4VWgHZ2hAEyL9Ly15eOnS2QTpgN | |
| more MCUs: | https://www.digikey.com/en/products/filter/microcontrollers/685?s=N4IgjCBcpgbFoDGUBmBDANgZwKYBoQB7KAbRACZyBWATjAAYQDLYGJnzZ6aAOJizmDj8WQgOwjBPKiAC6BAA4AXKCADKSgE4BLAHYBzEAF8CsGghDJI6bPiKkQAFm4BmGi7mKVkdVr2GTcEcPaEtUTFY | |
| IMUs: | https://www.digikey.com/en/products/filter/imus-inertial-measurement-units/567?s=N4IgjCBcoLQExVAYygFwE4FcCmAaEA9IANogCsIAugL74wBsiIKkGO%2BRkpAzFbSDACcTFmzyES4PvwRcQASQCyAVSr4K0EAAcoYfFp2QwABmP9GmgJYATKAJMR9qOyHyoAnlux2AhgG | |
| rectifier diodes: | https://www.digikey.com/en/products/filter/single-diodes/280?s=N4IgjCBcpgnAHLKoDGUBmBDANgZwKYA0IA9IANogAMIAugL7EC0ATMiGpAC4BOArkVIUQAVjqMQTAGztOvAcTKRKAZnHMk0DIHmCllCAAccTFmzyES4Pvwr | |
| inductors: | https://www.digikey.com/en/products/filter/fixed-inductors/71?s=N4IgjCBcoLQExVAYygFwE4FcCmAaEA9IANogCsIAugL74wBsiIKkGO%2BRkpAzFbSDACcTFmzyES4PvwRcQASwB2AE0xJUBdHyA | |
| switching regulat | https://www.digikey.com/en/products/filter/voltage-regulators-dc-dc-switching-regulators/739?s=N4IgjCBcpgnAHLKoDGUBmBDANgZwKYA0IA9IANogAMIAugL7EC0ATMiGpAC4BOArkVIUQAVjqMQTAGztOvAcTKRKAZnHMk0DIHmCllCAwltIIXAHcAllxQALSwDsA5gAIe%2BBJ3 | |

| | Vendor | Item Number | Item Description | Quantity Per Package | Cost Per Package | Number of Packages | Item Total Cost | Link | Comments | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Digikey | S7013-ND | CONN HDR 15P | 1 | $0.98 | 2 | $1.96 | https://www.digik | - 15pin header for Arduino<br>- works well, very tall<br>- allows for components to be placed under arduino<br>- used in mouse 4.4 | |
| | Digikey | 576-4879-1-ND | IC REG LINEAR | 1 | $0.16 | 1 | $0.16 | https://www.digik | - 1.8V linear regulator to supply VDDana, VDDcore, (page 36 on datasheet)<br>- also for ADVREF (page 5 of schematic checklist)<br>- SOT23-5 | |
| | Amazon | B07R9VWD39 | Mini Nano V3.0 A | 1 | $12.99 | 1 | $12.99 | https://www.amaz | - Arduino Nano<br>- works well, comes w/ oxidized pins- required cleaning w/ alcohol<br>- rather large, to be replaced w/ different controller<br>- used in mouse 4.4 | |
| | Digikey | 150-AVR128DA6 | IC MCU 8BIT 12 | 1 | $3.01 | 1 | $3.01 | https://www.digik | - AVR MCU to replace Arduino<br>- faster than ATmega4809 and Arduino, operates on 5V<br>- programmed via UPDI | |
| | Digikey | 1276-1066-1-ND | CAP CER 1UF 2 | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 1uF ceramic cap needed for AVR128DA64 | |
| | Digikey | 1276-1015-1-ND | CAP CER 10000 | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 10nF (or 10000pF) ceramic cap needed for AVR128DA64 | |
| | Digikey | 1276-1003-1-ND | CAP CER 0.1UF | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic cap needed for AVR128DA64's reset switch | |
| | Digikey | 1276-1003-1-ND | CAP CER 0.1UF | 1 | $0.10 | 2 | $0.20 | https://www.digik | - 0.1uF ceramic caps needed for IMU | |
| | Digikey | 1276-1096-1-ND | CAP CER 10UF | 1 | $0.10 | 4 | $0.40 | https://www.digik | - 10uF ceramic capacitor, SMD 0805<br>- needed for Sharp IR sensors | |
| | Servocity | 632282 | M1.6 x 8mm with | 6 | $2.99 | 2 | $5.98 | https://www.serv | - M1.6 screws, bracket to PCB, 8mm<br>- just right size for 3D printed bracket to PCB<br>- used for mouse 4.4 | |

| Category | Vendor | Item Number | Item Description | Quantity Per Package | Cost Per Package | Number of Packages | Item Total Cost | Link | Comments | Designation on Mouse 5.0 PCB | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other parts that were considered | Servocity | 632276 | M1.6 x 4mm with | 6 | $2.99 | 2 | $5.98 | https://www.serv | - M1.6 screws, brackets to motors, 4mm<br>- just right size for ServoCity motors<br>- used for mouse 4.4 | | | | |
| | Pololu | 950 | Ball Caster Plast | 1 | $2.49 | 1 | $2.49 | https://www.polol | - metal ballcaster 3/8"<br>- came w/ rusted ball, otherwise works well<br>- used for mouse 4.4 | | | | |
| | McMaster-Carr | 95610A310 | M2.0 Plastic Was | 100 | $4.73 | 1 | $4.73 | https://www.mcm | - M1.6 washers<br>- needed to prevent screwhead contact w/ PCB traces<br>- unused | | | | |
| | Amazon | B09SWZ2XSF | M1.6 x .35 Hex N | 100 | $9.48 | 1 | $9.48 | https://www.amaz | - Nuts for M1.6 screws<br>- works well, just right size<br>- used for mouse 4.4 | | | | |
| | Servocity | 638102 | Premium N20 Ge | 1 | $19.99 | 2 | $39.98 | https://www.serv | - Gear motors, 460rpm w/ encoders<br>- hopefully sturdier than 900rpm motors | | | | |
| | Digikey | 1276-1003-1-ND | CAP CER 0.1UF | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic capacitor, SMD 0805<br>- needed for supply and vcc pins for H bridge IC<br>- to be placed as close as possible to IC (pg 8 of TB6552 datasheet) | | | | |
| | | | | | | | | | https://www.polol | - Potential small 20mm x 30mm stepper motor | | | | |
| | Digikey | 2019-RK73H2AT | RES 100K OHM | 1 | $0.10 | 2 | $0.20 | https://www.digik | - 100k Ohm resistor needed for 5V and 3.3V switching regulator<br>- between SW/VOS and PG (pg 21 pdf of datasheet) | | | | |
| | Digikey | 1276-1003-1-ND | CAP CER 0.1UF | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic cap needed for 5V 1.5A switching regulator<br>- from Boot to SW (pg 20 pdf of datasheet) | | | | |
| | Digikey | 1276-1066-1-ND | CAP CER 1UF 2 | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 1uF ceramic cap needed for 5V 1.5A switching regulator<br>- from VCC to GND (pg 20 of datasheet) | | | | |
| | Digikey | 1276-1244-1-ND | CAP CER 4.7UF | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 4.7uF ceramic cap needed for 5V 1.5A switching regulator<br>- from Vin to GND (pg 20 of datasheet) | | | | |
| | Digikey | 2129-NJM7806F | IC REG LINEAR | 1 | $0.88 | 1 | $0.88 | https://www.digik | - 6V voltage regulator, 1.5A output max, TH<br>- needed to regulate 7.4V down to 6V<br>- will supply steady 6V to MCU and motor driver IC<br>- pins that needs 5V (IR sensors, motor encoders) will get it from MCU | | | | |
| | Digikey | 1276-1123-1-ND | CAP CER 0.33U | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.33uF ceramic capacitor, SMD 0805<br>- needed for 6V voltage regulator input | | | | |
| | Digikey | 1276-1003-1-ND | CAP CER 0.1UF | 1 | $0.10 | 1 | $0.10 | https://www.digik | - 0.1uF ceramic capacitor, SMD 0805<br>- needed for 6V voltage regulator output | | | | |
| | Digikey | HS105-ND | HEAT SINK TO-2 | 1 | $0.33 | 1 | $0.33 | https://www.digik | - TO-220 heatsink for 6V voltage regulator<br>- screws on to regulator | | | | |
| | Digikey | 335-1148-ND | MACH SCREW F | 1 | $0.71 | 1 | $0.71 | https://www.digik | - TO-220 10mm M3 screw for 6V voltage regulator & heatsink<br>- metal screw | | | | |
| | Digikey | RPC3082-ND | HEX NUT 0.220" | 1 | $0.28 | 1 | $0.28 | https://www.digik | - TO-220 M3 nut for 6V regulator & heatsink<br>- polycarbonate nut | | | | |
| | Amazon | B09QJT6T2N | 10 Pairs HobbyP | 1 | $8.98 | 1 | $8.98 | https://www.amaz | - XT30 male connector (receptacle for LiPo battery plug)<br>- connects battery to PCB<br>- pcb files: HERE | | | | |