Category	Vendor	Item Number	Item Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation or Mouse 6.0 PC
	Amazon	B096G4D6ZX	URGENEX 7.4V	2	\$19.99	1	\$19.99	https://www.ama		- 7.4V LiPo battery, 900mAh, 46g, 30C - JST PH 2.0 pitch 2 position for power, 3 position for charging - 53mm x 16mm x 29mm (I x h x w)	not on pcb	
										- JST PH 2.0 pitch 2 position pack both male and female TH		
	Amazon	B09DP9FZTX	CQRobot 50 Sets	50	\$7.99	1	\$7.99	https://www.ama	u .	- 50 male, 50 female	J1	J4
	Digikey	CMS04(TE12LQ	IDIODE SCHOTT	1	\$0.76	4	\$3.04	https://www.digik	o https://app.ultralibraria	- schottky diode for everything except vacuum that needs 5A - prevents up to 30V and allows 5A to pass - for 3.3V, 5V, 12V, and 3.2V regulators - small 370mV forward drop	CR1, CR2, CR3	CR1, CR2, CR3, CR4
	Digikey	296-53563-1-ND	DC DC CONVER	1	\$3.48	1	\$3.48	https://www.digik		- 3.7V 2A regulator for vacuum motor - schematic generated w/ TI tool: HERE HERE	U4	U6
	Digikey	445-7665-1-ND	CAP CER 22UE	1	\$0.39	2	\$0.78	https://www.digik	on/a	- Cin for vacuum fan regulator circuit - 0805 package - 22uF	NEW, we have - dupe H	C27
	Digikey	445-8239-1-ND	CAP CER 47UF	1	\$0.79	3		https://www.digik	⊊n/a	- Cout for vacuum fan regulator circuit - 0805 package - 47uF	NEW, we have - dupe I	C28
	Digikey	300 C0402C331	CAP CER 330PF	1	\$0.24	1	\$0.24	https://www.digik		- Cff for vacuum fan regulator circuit - 0402 package - 330pF	C16	C29
			RES SMD 10K C		\$0.10		\$0.2 1			- Rtht for vacuum fan regulator circuit - 0402 package - 10k Ohm resistor	R3	R4
	Digikey Digikey		RES SMD 1.91K	1	\$0.10	1		https://www.digik		- flot for vacuum fan regulator circuit - 0402 package - 1.91k Ohm resistor	NEW	R8
	Digikey	296-TPS61288R	IC REG BOOST.	1	\$5.89	1	\$5.89	https://www.digik	https://app.ultralibraria	- 12V 3A regulator for wheel motor driver - schematic generated w/Tl tool: https://webench.ti.com/appinfo/webench/scripts/SDP.ogi?	ID=AA120 U3	U5
	Digikey	445-4042-1-ND	CAP CER 10UF	1	\$0.30	1	\$0.30	https://www.digik	⊈n/a	- Cin for wheel motor regulator circuit - 1206 package - 10uF	C5	C18
	Digikey	445-1314-1-ND	CAP CER 0.1UF	1	\$0.10	1	\$0.10	https://www.digik	on/a	- Cinx for wheel motor regulator circuit - 0603 package - 0.1uF	C6- (dupe A)	C19
	Coilcraft		XAL7070-332ME	1	\$3.25	1				- L1 for wheel motor regulator circuit	L3	L3
										- Cbst for wheel motor regulator circuit - 0402 package	C8	
	Digikey	445-4952-1-ND	CAP CER 0.1UF	1	\$0.10	1	\$0.10	https://www.digik		- 0.1uF - Cvcc for wheel motor regulator circuit - 0402 package	- dupe G	C21
	Digikey	445-9097-1-ND	CAP CER 2.2UF	1	\$0.29	1	\$0.29	https://www.digik		- 2.2uF - Rcomp for wheel motor regulator circuit	C9	C22
Power	Digikey	541-34.0KLCT-N	RES SMD 34K C	1	\$0.10	1	\$0.10	https://www.digik	⊈n/a	- 0402 package - 34k Ohms	R5	R5
	Digikey	490-16432-1-ND	CAP CER 0.0391	1	\$0.10	1	\$0.10	https://www.digik	⊈n/a	- Coomp for wheel motor regulator circuit - 0402 package - 39nF	C10	C23
	Digikey	300 11256 1 ND	CAP CER 82PF	1	\$0.49	1	\$0.40	https://www.digik	(n/a	- Ccomp2 for wheel motor regulator circuit - 0402 package - 820F	C11	C24
	Digikey		RES SMD 931K	1	\$0.49	1	\$0.10	https://www.digik		- Ribt for wheel motor regulator circuit - 0402 package - 931k Ohms	R6	R6
	Digikey		RES SMD 48.7K	1	\$0.10	1		https://www.digik		- Ritb for wheel motor regulator circuit - 0402 package - 48,7k Ohms	R7	R7
	Digiticy			,	ψ0.10		\$0.10	nttps://www.digin		- Cout for wheel motor regulator circuit - 1210 package	N.	K
	Digikey	490-16309-1-ND	CAP CER 47UF	1	\$0.52	3	\$1.56	https://www.digik	n/a	- 47uF	C7, C12, C13	C20, C25, C26
	Digikey	EG5554-ND	SWITCH ROCKE	1	\$1.64	1	\$1.64	https://www.digik	o - https://www.mouser.	- switch for on/off of entire mouse - rated for 15A (AC), can hopefully handle 9A DC		S1
	Digikey	296-39450-1-ND	IC REG BUCK 5'	1	\$1.36	1	\$1.36	https://www.digik	https://app.ultralibraria	- 5V, 500mA switching regulator - used to power Sharp sensors	U1	U3
	Digikey	296-39449-1-ND	IC REG BUCK 3.	1	\$1.36	1			https://app.ultralibraria	- 3.3V, 500mA switching regulator	U2	U4
	Digikey	445-6857-1-ND	CAP CER 10UF	1	\$0.31	2	\$0.62	https://www.digik		- 10uF ceramic cap needed for 5V and 3.3V switching regulator - between VIN and PGND (pg 21 pdf of datasheet) - 0805 package	C1, C3	C14, C16
	Digikey	445-7665-1-ND		1	\$0.39	2		https://www.digik		- 22uF ceramic cap needed for 5V and 3.3V switching regulator - between SW and FB (pg 21 pdf of datasheet)	C2, C4 (dupe H)	C15, C17
	Digikey	541-100KHCT N	IRES SMD 100K	1	\$0.10	2	\$0.20	https://www.digik	o n/a	- 100k Ohm resistor needed for 5V and 3.3V switching regulator - between SW/V/OS and PG (pg 21 pdf of datasheet) - smaller 0803 package	R1, R2	R2, R3

Category	Vendor	Item Number	Item Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation on Mouse 6.0 PCB
	Coilcraft	XAL5030-222	XAL5030-222ME	1	\$2.49	2	\$4.98	https://www.coild		 - 2.2uH inductor needed for 5V and 3.3V switching regulator - between SW and 100k Ohm resistor (pg 21 pdf of datasheet) 	L1, L2	L2, L4
	Digikey	296-TLV9301IDE	IC OPAMP GP 1	1	\$0.58	1	\$0.58	https://www.digik	https://app.ultralibraria	- low battery voltage indicator op amp - to be used as comparator to turn on/off regulators	U5	U7
	,									- R2 for low battery voltage comparator circuit - 0402 package		
	Digikey	P118KLCT-ND	RES SMD 118K	1	\$0.10	1	\$0.10	https://www.digil		- 118k Ohms	R9	R10
	Digilov	541-100KLCT-NI	DEC CMD 100K	1	\$0.10	1	£0.10	https://www.digil	(p/o	- R1 for low battery voltage comparator circuit - 0402 package - 100k Ohms	R8	R9
	Digikey	54 I- 100KEC I-NE	RES SIMD TOOK	· ·	\$0.10	·	\$0.10	https://www.digir	liva	- TOOK OTHINS	Ro	Ka
	Digilary	61FG8ELCT-ND	IC MOTOR DRIV	1	\$3.51	1	P2 E4	https://www.digil		- H bridge PWM interface brushed motor driver	U1	U2
	Digikey	0 IFG8ELC I-ND	IC MOTOR DRIV		\$3.51	1	\$3.51	https://www.digir	к пцрs://app.uitraiibrana	- 10-36V supply, 3A output max, 30-BSOP - C2 0.1uF cap for 5V output from motor driver	01	02
	Digikey	445-7456-1-ND	CAP CER 0.1UF	1	\$0.11	1	\$0.11	https://www.digik	<u>∢</u> n/a	- datasheet pg 8: HERE - 0603 package	- dupe F	C12
	Digikey	732-6406-1-ND	CAP ALUM POL	4	\$0.50	4	\$0.50	https://www.digil	https://www.mouser.co		C2 -dupe C	
	Digikey	P121394CT-ND	CAP ALUM HYB	1	\$1.45	1	\$1.45	https://www.digik	https://www.mouser.co	- C1 47uF polymer cap for motor driver supply - datasheet pg 8	NEW C2	C13
	Servocity	638103	Gear Motor with	1	\$19.99	2		https://www.serv		- Gear motors, 4900rpm w/ encoders - 6 position 1.5 pitch ZH JST	not on pcb	
Wheel Motor Related	Pololu		Black plastic whe	2		1	,,,,,	https://www.polo		- Wheels, 32mm diameter, 3mm D output shaft - we'll use just the rubber tire and make a custom wheel		
			·						https://www.jst-mfg.co		not on pcb	
	Amazon		CQRobot 100 Se	100	\$9.58	1				- JST ZH 6 position male (receptacle) TH connector	J1, J2	J2, J3
	Amazon		uxcell 683ZZ Bal	20		1		https://www.ama		- 3mm ball bearings to be embedde into custom wheels	not on pcb	
	Servocity		1500 Series Plas	12		1	\$1.07	https://www.serv		- 3mm plastic spacers to put between wheel and mount	not on pcb	
	Amazon	BUBKRQSMFL	FOLIV 700PCS I	10-50	\$15.29	1	\$15.29	https://www.ama	<u> </u>	- M3 button head screws to serve as wheel axels	not on pcb	CR5, CR6, CR7,
	Digikey	1727-7806-1-ND	DIODE SCHOTT	1	\$0.39	8	\$3.12	https://www.digik	https://app.ultralibraria	- Flyback diodes for EMF protection	NEW (dupe J)	CR8, CR9, CR10, CR11, CR12
		DOODMODOVD	4.05 Mala ar	20	\$18.99	1	640.00	L		- Molex picoblade connector various positions, - includes 3 position 1.26mm pitch male and female connector, 20 of each - includes 10cm precrimped wire		
	Amazon	BUSKWQPOTP	1.25mm Male an	20	\$18.99	1	\$18.99	https://www.ama	u n/a	- to be used to extend HGLRC wire	not on pcb	
	Digikey	BD62130AEFJ-E	BUILT-IN 1 CHAI	4	\$1.78	4	\$1.78	https://www.digil	6			
	Mouser	755-BD62130AE	Motor / Motion / I	1	\$1.78	1	\$1.78	https://www.mou	https://app.ultralibraria	3A 3.7V brushed DC motor driver for vacuum fan	NEW	U9
	Digikey	493-3813-1-ND	RNE1C101MDS	1	\$0.76	1	\$0.76	https://www.digil	https://app.ultralibraria	100uF capacitor for vacuum fan driver	NEW	C31
Vacuum Fan Related	Digikey	4988-NMC0805>	CAP SMT08050.	1	\$0.24	1	\$0.24	https://www.digik	<u>c</u> n/a	- 0.1uF cap for brushless motor driver - 0805 package	NEW, we have - dupe D	C30
	Amazon	B07CFQMF1M	8pcs 8520 Motor	8	\$18.99	1	\$18.99	https://www.ama	n/a	- 15000KV brushed DC motor for vacuum fan - 2p 1.25mm pitch picoblade connector	n/a	
	Digikey		CONN HEADER	1	\$0.23	1			- https://app.ultralibrar	- motor to board connector for vacuum fan - 2p 1.25mm pitch picoblade connector	n/a	19
	Digikey		DIODE SCHOTT	1	\$0.39	4				- Flyback diodes for EMF protection	NEW - dupe J	CR13, CR14, CR15 CR16
	Digikey	1727-7000-1-110	DIODE SCHOTT	'	φ0.39	4	φ1.50	https://www.digir	Tittps://app.uitraiibrane	- Tryback diodes for Livin profession	- dupe 3	CKTO
Ball Caster.	Amazon	B0BTYDZVM8	1 Oz (23 Grams)	1	\$6.99	1	\$6.99	https://www.ama		- superglue to attach 3D printed mounts to PCB		
nuts, screws			. (75.00		75.00					
										- Sharp IR distance sensor 2-15cm - shortest range sharp IR sensor available		
	Digikey	1855-1027-ND	SENSOR OPTIC	1	\$8.45	4	\$33.80	https://www.digik	https://www.mouser.co	- connects w/ 3 position ZH JST connector	(not on schematic)	
	Amazon	B09NC8Y2PK	CQRobot 100 Se	50	\$11.99	1			https://www.jst-mfg.co	- JST ZH 1.5 pitch 3 position pack both male and female TH	J2, J3, J4, J5	J5, J6, J7, J8
IR Sensing	Digikey	445-C1608X5R1		1	\$0.36	4		https://www.digil		- 10uF ceramic capacitor, SMD 0603 - needed for Sharp IR sensors	- (dupe E)	C32, C33, C34, C3
	5,		RES ARRAY 4 R	·	\$3.00	1		https://www.digil		- R1 resistor array to drop 2.5V max from IR sensor output to 1.8V	(sup a sy	,,,

ategory	Vendor	Item Item Number Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation of Mouse 6.0 PC
									- R2 resistor to drop 2.5V max from IR sensor output to 1.8V - 2.2k Ohms calculated w/ voltage divider equation		
	Digikey	CAY16-2201F4LI RES ARRAY 4 R	1	\$0.10	1	\$0.10	https://www.digil	https://app.ultralibraria	¿ - resistor array, 4 resistors	NEW, RN1	RN1
	Digikey	CKN12306-ND TACT 6.0 X 3.5,	1	\$0.11	1	\$0.11	https://www.digik	https://www.mouser.co	- TH reset switch - 10k resistor for reset switch on AT32UC3L0256	SW1	SW1
	Digikey	541-10.0KHCT-N RES SMD 10K C	1	\$0.10	1	\$0.10	https://www.digik		- TM Festion for festi switch of AT 320C5L0256 - small 0605 package - 2x5 TH JTAG programming header	R1	R1
	Digikey	1175-1733-ND CONN HEADER	1	\$0.68	1	\$0.68	https://www.digik	https://www.arrow.com	- small 1.27 pitch w/ key slot and shroud	J1	J1
	Digikey	2151-RT3215-32 CRYSTAL 32.768	1	\$0.42	1	\$0.42	https://www.digil-	https://app.ultralibraria	- 32.768kHz external crystal	XTAL1	XTAL1
									- 22pF caps for external crystal		
	Digikey	478-KGQ15ACG CAP CER 22PF	1	\$0.31	2	\$0.62	https://www.digil-	n/a	- needed on each crystal terminal - small 0603 package	C9. C10	C9. C10
	Amazon	B07BJJC3R6 NOYITO TTL to F	1	\$7.99	1		https://www.ama		- TTL to DB-9 (DE-9) translator for serial out	not on pcb	
	Amazon	B0759HSLP1 OIKWAN USB to	1		1		https://www.ama		- DB-9 (DE-9) to USB A for serial out	not on pcb	
	Digikey	AT32UC3L0256 IC MCU 32BIT 2	1	\$10.19		\$10.10	https://www.digib	, https://app.ultralibrari	- AT32UC31.0256 AVR MCU to replace Arduino - 50MHz, faster than controller above, operates on 3.3V - 12b ADC, PWM, programmed via JTAG and aWire - schematic checklist. HERE		U1
									- 10uF capacitor for AT32UC3L0256 VDDin - page 4 of schematic checklist		
MCU	Digikey	445-C1608X5R1 CAP CER 10UF 445-7456-1-ND CAP CER 0.1UF	1	\$0.36 \$0.11		,,,,,	https://www.digik		- small 0603 package - 0.1uf ceramic cap for AT32UC3L0256 VDDin, VDDio, and VDDcore - page 4 of schematic checklist - small 0603 package	C7- (dupe E) C2- (dupe F)	C7 C3, C4, C5
									- 2.2uF ceramic cap for AT32UC3L0256 VDDio, and VDDcore - page 4 of schematic checklist	oz-(dupe i)	
	Digikey	445-8025-1-ND CAP CER 2.2UF	1	\$0.25	1	\$0.25	https://www.digik	n/a	- small 0603 package - 0.1uF ceramic cap for AT32UC3L0256 VDDana and ADVREF - page 5 of schematic checklist	C1	C1
	Digikey	445-7456-1-ND CAP CER 0.1UF	1	\$0.11	3	\$0.30	https://www.digik	g n/a	- small 0603 package - ferrite bead for for AT32UC3L0256 VDDana and ADVREF	C3, C4, C5- (dupe F	C2, C6
	Digikey	490-5216-1-ND FERRITE BEAD	1	\$0.19	1	\$0.19	https://www.digik		- page 5 of schematic checklist, and page 15 on xplained dev board schematic: HERE 4- small 0603 package - 0.1uF ceramic cap for reset switch on AT32UC3L0256	L1	L1
	Digikey	445-7456-1-ND CAP CER 0.1UF	1	\$0.11	1	\$0.30	https://www.digik	n/a	- small 0603 package - 0.1uF ceramic cap for JTAG on AT32UC3L0256	C8- (dupe F)	C8
	Digikey	445-7456-1-ND CAP CER 0.1UF	1	\$0.11	1	\$0.30	https://www.digil	n/a	- small 0603 package - 10k resistor for pulling down enable signal	C11- (dupe F)	C11
	Digikey	541-10.0KHCT-N RES SMD 10K C	1	\$0.10	1	\$0.10	https://www.digik	g n/a	- rox resistor for puning down enable signal - small 0603 package		R11
									- same switch as reset switch for software configuration		
	Digikey	CKN12306-ND TACT 6.0 X 3.5,	1	\$0.11	1	\$0.11	https://www.digil-	https://www.mouser.o	- same switch as reset switch for software configuration - to go on MCU interrupt pin		SW2
	Digikey	3147-B1911UD LED ORANGE C	1	\$0.10	1	\$0.10	https://www.digik	https://app.ultralibraria	- orange SMD LED 0603 package for debug		D1
	Digikey	3147-B1911USD LED RED CLEAF	1	\$0.10	1	\$0.10	https://www.digil-	https://app.ultralibraria	- red SMD LED 0603 package for error indication		ERR
	Digikey	3147-B1911NG LED GREEN CLI	1	\$0.10	1				- green SMD LED 0603 package for debug		D2
/lisc	Digikey	3147-B1931NB LED BLUE CLEA	1	44					- blue SMD LED 0603 package for debug		D3
	Digikey	CAY16-3300F4LI RES ARRAY 4 R	4	\$0.10	4	\$0.10	https://www.digik	https://app.ultralibraria	= 330 Ohm resistor array, 4 resistors	NEW	
	Digikey	CAY16-1001F4LI RES ARRAY 4 R	1	\$0.10		ψ0.10			- 1k Ohm resistor array, 4 resistors	- dupe K	RN3
	Digikey	952-2664-1-ND PC TEST POINT	1	\$0.31		\$0.00	https://www.digik	https://www.mouser.c	- TH testpoint to probe mouse		
РСВ	JLC PCB	n/a PCB prototype:Y	5	\$2.00	4	\$2.00	https://jlcpcb.com		- solid and cheap PCB vendor - no issues so far, purple nice and deep purple		
	JEC F CB	Transplace Personal P	3	φ2.00		φ2.00	парял/персысог		The issues so iai, pulpie filice and deep pulpie		
					total cost:	#REF!					
					113	3					

egory	Vendor	Item Item Number Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation Mouse 6.0 F
	resistors:	https://www.digikey.com/en/product	ts/filter/chip-resist	or-surface-mount/	/52?s=N4IgjCBc	oExaBjKAzAhgGw	M4FMA0IB7KAb	XADYBWAFgGYQBdf/	⊣ ABwBcoQBIFgJwEsA7AOYgAvvjBl4IJJDRY8hEiBoBOGjBUNmbSJx4DhYkDAAMADgpSZcnPik	RSYEwAIA1gHkAFgFtMWk	KzsAKr8vCzuyA
	headers:								DBTANCAPZQDalALGGABxwDslAuoQA4AuUlAyuwE4BLAHYBzEAF9CNGohAplGHAWJkQDA		
	ceramic caps:	https://www.digikev.com/en/product	ts/filter/ceramic-ca	apacitors/60?s=N4	4laiCBcpabFoD0	GUBmBDANaZwK	YBoQB7KAbRAG	SYBOcaJkpAF0CAHAF	FyhAGVWAnASwB2AcxABfAqFoaCEMki8ArviKkQAVkbiQE%2BNFIRFy4pDLINk%2BnrmGCxsh	Aait0k7Jw80AWz6IABIiRmN	IEQ%2BVkleTS
						-			wDsIAuoQA4AuUIAyuwE4BLAHYBzEAF9CAWgBMiECkj8ArgWJkQAVmaSQUmPMUq1JSOQD	•	
	motor drivers:								ukQA4AuUIAyhwE4BLAHYBzEAF8iAWhhIQqSAICuhEuRCJmUkNIBs8xSrWIIFJtpkBOQ1GNF		
					-						
									2ABjHqZdmrHlmYhYDatVaUQAXSIAHAC5QQAZTkAnAJYA7AOYgAvkVrUAzEhCplmXIRLkh8\		
									APZQDaIALGDGAAwBMIALrEADpSggAyjQCWZAOYgAvsQC0A6CDSQa9Ys0hs4QISFUA2ZFq	p0GBtjBNqAnFe267rcCdOX	NMgBMJVV4I
	screws:	https://www.digikey.com/en/product	ts/filter/screws-bo	lts/572?s=N4lgjCl	BcoLQExVAYygF	FwE4FcCmAaEA9	IANogCsIAugL74	wBsilKkGO%2BRkpA	zFbSDACcTFmzyES4PtWpA		
	nuts:	https://www.digikey.com/en/product	ts/filter/nuts/573?s	s=N4lgjCBcoLQE:	xVAYygFwE4Fc0	CmAaEA9IANogC	slAugL74wBsilKk	GO%2BRkpAzFbSDA	<u>CcTFmzyES4PtWpA</u>		
	MCUs:	https://www.digikey.com/en/product	ts/filter/microcontr	rollers/685?s=N4I	gjCBcoGwJxVAY	ygMwlYBsDOBT/	ANCAPZQDalALA	AxwDMdlh1cFtVIAuo	QA4AuUIAMq8ATgEsAdgHMQAX0JhWiECkgYcBYmXABWCgA4qEBTv36DjclcPGr%2BnfUtg4	VWgHZ2hAEyL9Ly15eOnS2	QTpgNAE6br
	more MCUs:	https://www.digikey.com/en/product	ts/filter/microcontr	rollers/685?s=N4I	gjCBcpgbFoDGL	JBmBDANgZwKYI	BoQB7KAbRACZ	yBWATjAAYQDLYGJn	zZ6aAOJizmDj8WQgOwjBPKiAC6BAA4AXKCADKSgE4BLAHYBzEAF8CsGghDJI6bPiKkQAFr	n4BmGi7mKVkdVr2GTcEcPa	aEtUTFwCYkg
	IMUs:	https://www.digikey.com/en/product	ts/filter/imus-inerti	ial-measurement-ı	units/567?s=N4le	giCBcoLQExVAYy	gFwE4FcCmAaE/	A9IANogCsIAugL74wE		JYATKAJMR9qOyHyoAnlux	2AhgGcUamo
	rectifier diodes:						-		4BOArkVIUQAVjgMQTAGztOvAcTKRKAZnHMk0DIHmCllCA2ZitnLHj3C2xFgBY1xMAHYQxGQ		
	inductors:								NZFbSDACcTFmzyES4PvwRcQASwB2AE0xJUBdHyA	MAINTAIN TO ACCOUNT DITCH TO TO	gomoo mago.
											0/00/100/1/ 1/
	switching regulat	nttps://www.digikey.com/en/produc	ts/filter/voltage-re	guiators-dc-dc-sw	itching-regulator	s//39?s=N4IgjCB0	pgnAHLKoDGUE	SMBDANGZWK YAUIA9I	ANogAM AugL7EC0ATM GpAC4B0ArkV UQAV aMQTAGztOvAcTKRKAZnHMk0D HmC CAwlt	IIXAHCAIIXQALSWDSA5gAIe	%2BJ32yYuJi
									- 15pin header for Arduino - works well, very fall		
									- allows for components to be placed under arduino		
	Digikey	S7013-ND CONN HDR 15P	1	\$0.98	2	\$1.96	https://www.digik	<u>c</u>	- used in mouse 4.4		
									- 1.8V linear regulator to supply VDDana, VDDcore, (page 36 on datasheet)		
									- also for ADVREF (page 5 of schematic checklist)		
	Digikey	576-4879-1-ND IC REG LINEAR	1	\$0.16	1	\$0.16	https://www.digik	<u>C</u>	- SOT23-5		
									- Arduino Nano		
									- works well, comes w/ oxidized pins- required cleaning w/ alcohol - rather large, to be replaced w/ different controller		
	Amazon	B07R9VWD39 Mini Nano V3.0 A	1	\$12.99	1	\$12.99	https://www.ama	15	- used in mouse 4.4		
				*			,		- AVR MCU to replace Arduino		
									- faster than ATmega4809 and Arduino, operates on 5V		
	Digikey	150-AVR128DA6 IC MCU 8BIT 128	1	\$3.01	1	\$3.01	https://www.digik	(- programmed via ÜPDI		
	Digikey	1276-1066-1-ND CAP CER 1UF 2	1	\$0.10	1	\$0.10	https://www.digik	C	- 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		
1	Digikey	1276-1003-1-ND CAP CER 0.1UF	1	\$0.10	1		https://www.digik		- 0.1uF ceramic cap needed for AVR128DA64's reset switch		
- 1	Digikey	1276-1003-1-ND CAP CER 0.1UF	1	\$0.10	2		https://www.digik		- 0.1uF ceramic caps needed for IMU		
	Diginoy	1270 1000 1112 074 021(0.101		ψ0.10	_		napominag		- 10uF ceramic capacitor, SMD 0805		
	Digikey	1276-1096-1-ND CAP CER 10UF	1	\$0.10	4	\$0.40	https://www.digik	(- needed for Sharp IR sensors		
	5 -,						.,		- M1.6 screws, bracket to PCB, 8mm		
									- just right size for 3D printed bracket to PCB		
	Servocity	632282 M1.6 x 8mm with	6	\$2.99	2	\$5.98	https://www.serv	rc .	- used for mouse 4.4		
									- M1.6 screws, brackets to motors, 4mm		
	0	C20070 MA C 4:		60.00	2		L. M		- just right size for ServoCity motors		
	Servocity	632276 M1.6 x 4mm with	6	\$2.99	2	L \$5.98	https://www.serv		- used for mouse 4.4		
									- metal ballcaster 3/8" - came w/ rusted ball, otherwise works well		
	Pololu	950 Ball Caster Plast	1	\$2.49	1	\$2.49	https://www.polo	ı	- used for mouse 4.4		
	-								- M1.6 washers		
									- needed to prevent screwhead contact w/ PCB traces		
	McMaster-Carr	95610A310 M2.0 Plastic Was	100	\$4.73	1	\$4.73	https://www.mcm	n	- unused		
									- Nuts for M1.6 screws		
ts that	Amazan	DODGW73VSE M4.6 v. 35 U	400	ec 40		eo 40	https://www		- works well, just right size		
e ered	Amazon	B09SWZ2XSF M1.6 x .35 Hex N	100	\$9.48	,	\$9.48	https://www.ama	u	- used for mouse 4.4		
ا ۱۵	Servocity	638102 Premium N20 Ge	1	\$19.99	2	\$30 08	https://www.serv		- Gear motors, 460rpm w/ encoders - hopefully sturdier than 900rpm motors		
	20.700ity	000102 1 101110111 1420 Ge		ψ13.99		ψ03.30	po.// ******.5CI V		- 0.1uF ceramic capacitor, SMD 0805		
									- needed for supply and vcc pins for H bridge IC		
	Digikey	1276-1003-1-ND CAP CER 0.1UF	1	\$0.10	1	\$0.10	https://www.digik	C	- to be placed as close as possible to IC (pg 8 of TB6552 datasheet)		
							https://www.polo		- Potential small 20mm x 30mm stepper motor		
									- 100k Ohm resistor needed for 5V and 3.3V switching regulator		
	Digikey	2019-RK73H2AT RES 100K OHM	1	\$0.10	2	\$0.20	https://www.digik	C	- between SW/VOS and PG (pg 21 pdf of datasheet)		
									- 0.1uF ceramic cap needed for 5V 1.5A switching regulator		
	Digikey	1276-1003-1-ND CAP CER 0.1UF	1	\$0.10	1	\$0.10	https://www.digik	0	- from Boot to SW (pg 20 pdf of datasheet)		
									- 1uF ceramic cap needed for 5V 1.5A switching regulator		
	Digikey	1276-1066-1-ND CAP CER 1UF 2	1	\$0.10	1	\$0.10	https://www.digik	(- from VCC to GND (pg 20 of datasheet)		
									- 4.7uF ceramic cap needed for 5V 1.5A switching regulator		

ategory	Vendor	Item Number Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation of Mouse 6.0 PC
	Digikey	2129-NJM7806F,IC REG LINEAR	1	\$0.88	1	\$0.88	https://www.digik		- 6V voltage regulator, 1.5A output max, TH - needed to regulate 7.4V down to 6V - will supply steady 6V to MCU and motor driver IC - pins that needs 5V (IR sensors, motor encoders) will get it from MCU		
		1276-1123-1-ND CAP CER 0.33U			1				- 0.33uF ceramic capacitor, SMD 0805		
	Digikey			\$0.10		Q 0.10	https://www.digil		- needed for 6V voltage regulator input - 0.1uF ceramic capacitor, SMD 0805		
	Digikey	1276-1003-1-ND CAP CER 0.1UF		\$0.10	1	\$0.10	https://www.digik		- needed for 6V voltage regulator output - TO-220 heatsink for 6V voltage regulator		
	Digikey	HS105-ND HEAT SINK TO-2	1	\$0.33	1	\$0.33	https://www.digil		- screws on to regulator - TO-220 10mm M3 screw for 6V voltage regulator & heatsink		
	Digikey	335-1148-ND MACH SCREW I	1	\$0.71	1	\$0.71	https://www.digil	(- metal screw		
	Digikey	RPC3082-ND HEX NUT 0.220"	1	\$0.28	1	\$0.28	https://www.digil	(- TO-220 M3 nut for 6V regulator & heatsink - polycarbonate nut		
									 - XT30 male connector (receptacle for LiPo battery plug) - connects battery to PCB 		
	Amazon	B09QJT6T2N 10 Pairs HobbyP	1	\$8.98	1	\$8.98	https://www.ama	12	- pcb files: HERE		
	Digikey	296-TPS565242[IC REG BUCK A	4	\$0.68	4	\$0.68	https://www.digil	-https://app.ultralibra	-3.7V-5A regulator for vacuum motor -schematic generated w/ TI tool: https://webench.ti.com/appinfo/webench/scripts/SDP.cgi?ID=	1938B(U4	
									-Cin for vacuum fan regulator circuit -0805 package		
	Digikey	445-14428-1-ND CAP CER 22UF	4	\$0.82	4	\$0.82	https://www.digil	e n/a	-22uF	C14	
	Digikey	445-1314-1-ND CAP CER 0.1UF	4	\$ 0.10	4	\$ 0.10	https://www.digil	e n/a	Cinx for vacuum fan regulator circuit 0603 package 0-1-uF	C15 -dupe A	
									-Rent for vacuum fan regulator eircuit -0402-package	R8	
	Digikey	541-100KLCT-NE RES-SMD 100K	4	\$0.10	4	\$0.10	https://www.digil	e n/a	-100k Ohms - -Renb for vacuum fan regulator circuit	- dupe B	
	Digikey	541-2115-1-ND RES 32K OHM 0	1	\$ 0.57	4	\$0.57	https://www.digil	e n/a	-0402 package -32k Ohms	R9	
	Coilcraft	XAL5030-222 XAL5030-222ME			4				-L1 for vacuum fan regulator circuit	L4	
	Digikey	399-CBR04C560J5GACAUTOCT	4	\$ 0.26	4	\$0.26	https://www.digil	e pla	-Cff-for-vacuum-fan-regulator-circuit -Q402-package -R60F	C16	
	Digiticy	333-0BR04030030A0A01001-		\$0.20		ψ0.20	nups.//www.uigii	· iii d	- Rftb-for-vacuum fan regulator-circuit - 0402 package		
	Digikey	541-154KLCT-NE RES SMD 154K	4	\$0.10	4	\$0.10	https://www.digil	e n/a	-154k Ohms	R10	
	Digikey	311-30.0KHRCT- RES 30K OHM 1	. 4	\$ 0.10	4	\$0.10	https://www.digil	e n/a	-Ribb for vacuum fan regulator-circuit 	R11	
	Digikey	445-8239-1-ND CAP CER 47UF	4	\$ 0.79	3	\$2.37	https://www.digil	e n/a	-Cout for vacuum fan regulater circuit -0805 package -47uF	C17, C18, C19 (dupe I)	
	Diginoy	110 0200 1 NB 0/4 0ER 1101	•	90.70		ψ2.στ	mapo	Tru	-Coutx for vacuum fan regulator circuit	(dapo i)	
	Digikey	445-1314-1-ND CAP CER 0.1UF	4	\$0.10	4	\$0.10	https://www.digil	e n/a	- 	C20-(dupe A)	
	Digikey	296-DRV8311HR 24V ABS MAX, 3	4	\$2.29	4	\$2.29	https://www.digil	https://app.ultralibraria	-5A 20V 3-phase brushless motor driver for vacuum fan	U1	
									-Cvm1 for brushless motor driver -0805 package	СЗ	
	Digikey	4988-NMC0805X CAP SMT08050 732-6406-1-ND CAP ALUM POL			4	***	https://www.digil		-0.1uF -Cvm2 for brushless motor driver	- dupe D C1- (dupe C)	
	Digikey	732 0400 T ND GAP ALOW POL	*	\$0.00	-	90.00	Hups.//www.uigii	Hups://www.mouser.o	- Cvin_avdd1 for brushless motor driver	C1- (dupe C)	
	Digikey	4988 NMC0805X CAP SMT08050	4	\$0.24	4	\$0.24	https://www.digil	e n/a	-0805 package -0.1uF	C2- (dupe D)	
									-Cvin_avdd2 for brushless motor driver -0603 package	C4	
	Digikey	445 C1608X5R1 CAP CER 10UF	4	\$0.36	4	\$0.36	https://www.digil	e n/a	-10uF -Cep for brushless motor driver	- dupe E	
	Digikey	1276-1005-1-ND CAP CER 0.1UF	4	\$0.10	4	\$ 0.10	https://www.digil	e n/a	-0603 package -0.1uF	C5	
									-Cavdd for brushless motor driver -0603 package		
	Digikey	4988 NMC0603X CAP SMT06031I	4	\$0.13	4	\$0.13	https://www.digil	e n/a	-1uF -Rnfault for brushless motor driver	C6	
	Digikey	541-5.10KSCT-N RES SMD 5.1K (4	\$0.15	4	\$0.15	https://www.digil	e n/a	-0603 package -5.1k Ohms	R1	
	Digileo								-Cesaref for brushless motor driver -0603-package -0.1-11F	C7. (dura-A)	
	Digikey	445-1314-1-ND GAP GER 0.1UF	4	\$0.10	4	\$0.10	https://www.digil	und	-0.1ur	C7- (dupe A)	
	HGLRC	SPECTER 0802 HGLRC SPECTE	4	\$9.59	4	\$9.59	https://www.hgln		-5A brushless-motor -uses 3-position 1,25-pitch JST-connector-confirmed w/-purchase	not on pcb	
	Digikey	530470310 CONN HEADER	. 4	\$0.27	4	<u>\$0.</u> 27	https://www.digil	https://www.molex.com	-Molex picoblade connector wire to board 3 position TH connector- -connects extended wire to pob	.11	

tegory	Vendor	Item Number	Item Description	Quantity Per Package	Cost Per Package	Number of Packages	Item Total Cost	Part Link	Symbol, Layout, & 3D Model Link	Comments	Designation on Mouse 6.0 Test	Designation o Mouse 6.0 PC
	Digikey	SMLJ60S6 TPM(DIODE GEN PUI	4	\$0.93	4	\$0.93	https://www.digil	https://app.ultralibrari https://www.mouser.c	-estandard rectifier diode to prevent current in reverse direction through regulators into other ICs -prevents up to 600V and allows 6A to pass -Just for vacuum fan motor driver - Vy fenward drep	CR4	
	Digikey	R1966IBLKBLKE	SWITCH ROCKE	4	\$ 2.5 5	4	\$2.55	https://www.digil	https://www.mouser.c https://app.ultralibrarie https://www.snapeda.	= witch for on/off of entire mouse = rated for 15A (AC), can hopefully handle 9A DC	SW4	
	Digikey	445-9050-1-ND	CAP CER 4.7UF	4	\$ 0.32	4	\$0.32	https://www.digil	← n/a	-Cin for vacuum fan regulator circuit -0803 package -4.7uF	C14	
	Digikey	445-8238-1-ND	CAP CER 33UF	4	\$0.88	4	\$0.88	https://www.digil	← n/a	-Cout for vacuum fan regulator circuit -0805 package -33uF	C15	
	Digikey	541-2.26KLCT-N	RES-SMD-2.26K	4	\$ 0.10	4	\$0.10	https://www.digil	← n/a	-Rfbb for vacuum fan regulator circuit -0402 package -2-26k-Ohm recistor	R4	
	Digikey	296 DRV8210DS	11V, 1A BRUSHE	4	\$0.91	4	\$0.91	https://www.digil	https://app.ultralibrari	-1A 3.2V brushed DC motor driver for vacuum fan		
	Digikey	445-4952-1-ND		2	\$ 0.10	ź		https://www.digil		-Cvcc/Cvm1 for vacuum brushed motor driver -0402 package -0.1uF	C2, C3 (dupe G)	
	Digikey	732-6406-1-ND	CAP ALUM POL	1	\$0.50		\$0.50	https://www.digil	https://www.mouser.c	-Cvm2 for vacuum brushed motor driver	C1 (dupe C)	
	Digikey	CAY16-3300F4LI	RES ARRAY 4 R	1	\$0.10	4	\$0.10	https://www.digil	https://app.ultralibrari	-R1 resistor array to drop 2.5V max from IR sensor output to 1.8V	RN2	
	Digikey	118-CAY16-7500		4	\$0.17	4		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Spr. Spp. State	-R2 resistor to drop 2.5V max from IR sensor output to 1.8V -750 Ohme calculated w/ voltage divider equation -resistor array.4 resistors	RN1	
	Digikey	541-115KLCT-NE	RES SMD 115K	4	\$0.10	4	\$0.10	https://www.digil	« n/a	-Rent for wheel motor regulator-circuit -0402-package -115k-Ohms	R3	
	Digikey	541-100KLCT-NE	RES SMD 100K	4	\$ 0.10	4	\$0.10	https://www.digil	← n/a	-Renb for wheel motor regulator circuit -0402 package -100k Ohme	R4- (dupe-B)	