

Part Number	Part ID	Schematic Name	Part Description	Quantity	Vendor	Notes	Source
1	STM32F411RET6TR	MCU	Microcontroller Chip	1	Digikey	IC MCU 32BIT 512KB FLASH 64LQFP	https://www
2	AP62200WU-7	IC1	Buck Converter Voltage Regulator	1	Digikey	12V to 5V Voltage Regulator	https://www
2.1	RMCF0603FT52K3	R_BC1	RES 52.3K OHM 1% 1/10W 0603	1	Digikey	1 or 2	https://www
2.2	RMCF0603JT10K0	R_BC2	RES 10K OHM 5% 1/10W 0603	1	Digikey		https://www
2.3	CL21A106K0QNNNE	C_BC1	CAP CER 10UF 16V X5R 0805	2	Digikey		https://www
2.4	CC0805KRX7R9BB104	C_BC6	CAP CER 0.1UF 50V X7R 0805	1	Digikey		https://www
2.5	CL21A226MQQNNNE	C_BC2	CAP CER 22UF 6.3V X5R 0805	2	Digikey		https://www
2.6	MAKK2016T4R7M	L1	4.7 microH Inductor	1	Digikey		https://www
3	NCP164CSN330T1G	IC2	Linear Voltage Regulator	1	Digikey	5V to 3V3 Voltage Regulator	https://www
3.1	CC0603KRX7R7BB105	C_IN/OUT	CAP CER 1UF 16V X7R 0603	2	Digikey	5V to 3V3 Voltage Regulator	https://www
3.2	RMCF0603JT10K0	R_LR	RES 10K OHM 5% 1/10W 0603	1	Digikey		https://www
4	ECS-80-18-30-JGN-TR	Y1	8 MHz 18 pF Crystal Oscillator	1	Digikey	8 MHz HS Crystal Oscillator	https://www
4.1	CC0402JRNPO9BN160	CL1/2	CAP CER 16PF 50V C0G/NPO 0402	2	Digikey	CL1/2 = (18-10)*2	https://www
6	PJ-202BH	J1	24V 5A Power Jack 2.5X5.5MM	1	Digikey	Make sure dimensions match description	https://www
6.1	2920L500/16MR	F1	PTC RESET FUSE 16V 5A 2920	1	Digikey	FIND 5A POWER JACK	https://www
6.2	SI2333DDS-T1-GE3	P-MOSFET	MOSFET P-CH 12V 6A SOT23-3	1	Digikey	Check if this will work	https://www
6.3	RMCF0603JT10K0	R_REV	RES 10K OHM 5% 1/10W 0603	1	Digikey	Check if this will work	https://www
6.4	CC0805KRX7R9BB104	C_RIP	CAP CER 0.1UF 50V X7R 0805	1	Digikey		https://www
7	TL3365AF180QG	SW_RESET	SWITCH TACTILE SPST-NO 0.05A 12V	1	Digikey		https://www
7.1	CC0805KRX7R9BB104	C_NSRT	CAP CER 0.1UF 50V X7R 0805	1	Digikey		https://www
8	68016-204HLF	J2	CONN HEADER R/A 4POS 2.54MM	1	Digikey	For encoder pins For photoresistor ADC pins For Radio control pins For extra pins For extra power and gnd pins	https://www
8.1	61300411121	J7	4 Position Male IMU Pin	1	Digikey		https://www
8.2	61300411121	J8	4 Position Male Photoresistor Pin	1	Digikey		https://www
8.3	61300411121	J11	4 Position Male Radio Pin	1	Digikey		https://www
8.4	PPPC042LFBN-RC	J9	CONN HDR 8POS 0.1 GOLD PCB	1	Digikey		https://www
8.5	PPPC022LFBN-RC	J10	CONN HDR 4POS 0.1 GOLD PCB	1	Digikey		https://www
13	690-005-299-043	J12	CONN RCPT USB2.0 MINI B SMD R/A	1	Digikey	USB mini b	https://www
13.1	RMCF0603FT10R0	R_DP/DN	RES 10 OHM 1% 1/10W 0603	2	Digikey		https://www
9.1	RMCF0603JT10K0	R_BOOT	RES 10K OHM 5% 1/10W 0603	1	Digikey	Green LED Red LED	https://www
9.2	CC0603KRX7R7BB105	C_DECOUPLE1	CAP CER 1UF 16V X7R 0603	2	Digikey		https://www
9.3	CC0603KRX7R9BB103	C_DECOUPLE2	CAP CER 10000PF 50V X7R 0603	2	Digikey		https://www
9.4	CC0805KRX7R9BB104	C_VDD	CAP CER 0.1UF 50V X7R 0805	4	Digikey		https://www
9.5	CC0402MRX5R6BB475	C_CAP1	4.7 microF Capacitor	1	Digikey		https://www
9.6	150060GS75000	LED1	LED GREEN CLEAR 0603 SMD	1	Digikey		https://www
9.7	150060RS75000	LED2	LED RED CLEAR 0603 SMD	1	Digikey		https://www
9.8	RMCF0603FT4K70	R1	RES 4.7K OHM 1% 1/10W 0603	2	Digikey		https://www
10	BD6231F-E2	IC3	IC MOTOR DRIVER 6V-32V 8SOP	1	Digikey	Dedicated Power For encoder pins Blocking Capacitor on input voltage line	https://www
10.1	282837-2	J3	2 Position Terminal Wire to PCB	1	Digikey		https://www
10.2	61300411121	J4	4 Position Male Encoder Pin	1	Digikey		https://www
10.3	CC0805KRX7R9BB104	C_MD_RIP	CAP CER 0.1UF 50V X7R 0805	2	Digikey		https://www
10.4	8.6002E+11	C_BLOCK	CAP ALUM 22UF 20% 16V RADIAL	1	Digikey		https://www
11	ICM-42605	IMU	6 DOF IMU w/ I2C Comm	1	Digikey	QFN Package :(. Also, only 6 dof. Should be fine, but less accurate than 9 dof	https://www
11.1	CC0603KRX7R9BB103	C_RIP_IMU1	CAP CER 10000PF 50V X7R 0603	1	Digikey		https://www
11.2	CC0805KRX7R9BB104	C_RIP_IMU2	CAP CER 0.1UF 50V X7R 0805	1	Digikey		https://www
11.4	GRM188R61E225KA12D	C_RIP_IMU3	CAP CER 2.2UF 25V X5R 0603	1	Digikey		https://www
11.5	RMCF0603FT4K70	R_PULLUP/DOWN	RES 4.7K OHM 1% 1/10W 0603	3	Digikey		https://www
11.6	68016-204HLF	J5	CONN HEADER R/A 4POS 2.54MM	1	Digikey		https://www
12	NSL-19M51	R_PHOTO	20k-100k Illum, 20Mohm Dark Photoresistor	4	Digikey	Probs get 4 in case	https://www

12.1	CC0805KRX7R9BB104	C_PHOTO_RIP	CAP CER 0.1UF 50V X7R 0805	2	Digikey	For VCCs (3V3)	https://www
12.2	ERA-6AEB104V	R_CMP	100kohm Voltage Divider Resistor	4	Digikey	Probs get 4 in case	https://www
12.3	61300411121	J4	4 Position Male Encoder Pin	1	Digikey	For 4 output cmp voltages	https://www