



DESIGN NAME		ESP32 ESC															
REVISION		V0.9															
ISSUE DATE		16th JUNE 2024															
DESIGNED BY		ARKAD94															
Component Group	Description	Part	References	Value	Quantity Per PCB	Unit Cost H	Unit Cost L	PCB Cost H	PCB Cost L	Remark	PCB Cost						
1	Resistor	R	R10H1	50	1			0	0								
2	Unpolarized capacitor	C	C8	5.6nF	1			0	0								
3	Unpolarized capacitor	C	C16	47nF	1			0	0								
4	Unpolarized capacitor	C	C14 C15	0.1uF	2			0	0								
5	Unpolarized capacitor	C	C13	0.33uF	1			0	0								
6	Unpolarized capacitor	C	C17	1uF	1			0	0								
7	Unpolarized capacitor	C	C11 C24	3.3uF	2			0	0								
8	Unpolarized capacitor	C	C7 C9	4.7uF	2			0	0								
9	Unpolarized capacitor	C	C4 C10	10 uF	2			0	0								
10	Unpolarized capacitor	C	C12 C25 C26	15u	3			0	0								
11	Unpolarized capacitor	C	C1	C	1			0	0								
Aluminum Electrolytic Capacitors - SMD ESDVC 100uF 20% 10x10.2mm AEC-Q200																	
12	EEF-FN1101L	C5 C6	EE-FN1101	2	70.89	46.2	141.78	92.4	/10								
13	Unpolarized capacitor	C	C2 C3	0.1 uF	2			0	0								
14	Unpolarized capacitor	C	C18 C19 C20 C21	TBD	4			0	0								
15	Slide Switches SLIDE SWITCH 1P2T WITH POST	LSM112-40-P-V-T R	CAN_R1	A12-40-P-V	1	95.08	79.4	95.08	79.4	/50							
USB-C (USB TYPE-C) USB 2.0 Receptacle Connector 24 Position Surface Mount, Through Hole																	
16	UI020-C-V-SMT-TR-68	CNU/SB1	-C-V-SMT-1	1	226.85	195.16	226.85	195.16	/10								
17	AS339MTR-E1	COMP1	S339MTR-I	1	82.57	70.81	82.57	70.81	/10								
18	40V 1A Schottky Barrier Rectifier Diode, DO-41	1N5819	D2	1N5819	1	40.03	28.44	40.03	28.44	/10							
19	+/-6-V, Low IQ ideal diode with input polarity protection	LM66100DCKR_1	D3	A66100DQ	1	34.19	25.35	34.19	25.35	/10							
20	+/-6-V, Low IQ ideal diode with input polarity protection	LM66100DCKR	D4	A66100DQ	1	34.19	25.35	34.19	25.35	/10							
21	Super Low IR, 60V, 40A, TO-263S (D2PAK), Schottky Barrier Diode	R8B238NS-60TL	D5	B238NS-60	1	175.97	146.78	175.97	146.78	/10							
22	ESD Suppressors / TVS Diodes 1.5kW 60V 5% Uni-Directional	SMC60A	D1	SMC60A	1	40.87	36.61	40.87	36.61	/10							
Bi-Direction ESD protect diode,P6S01CAN NXP PESD1CAN,215, Bi-Directional TVS Diode Dual, 70V, 200W, 3-Pin TO-236AB																	
23	PESD1CAN,215	ESD3	ISD1CAN,2	1	33.36	21.93	33.36	21.93	/10								
24	4-Channel ESD Solution for High-Speed Differential Interface	TPD45009DCKR	ESD1 ESD2	D45009DC	2	38.35	29.02	76.7	58.04	/10							
60V Three-Phase Smart Gate Driver With Buck Regulator and Three Current Shunt Amplifiers																	
25	DRV8323RSRQ2R	IC2	V8323RSR	1	267.71	240.19	267.71	240.19	/10								
26	3.3-V CAN Transceivers with CAN FD (Flexible Data Rate)	TCAN1314G0	IC1	TCAN1314G	1	281.06	239.36	281.06	239.36	/10							
27	TPS47401TDRCRQ1	IC3	H4801TDR	1	112.59	100.91	112.59	100.91	/10								
28	Generic screw terminal, single row, 01x02, script generated (kicad-library:uhs/uhb/autogen/connector)	Screw_Terminal_01x02	J3 J5	1R POWER	2	27.52	12.68	55.04	25.36	/10 (All Cost Speculative)							
29	Generic connector, single row, 01x01, script generated	Conn_01x01_Pin	J9	MPWM	1	143.45	125.19	143.45	125.19	/10 (All Cost Speculative) Need Cheaper							
30	Generic screw terminal, single row, 01x03, script generated (kicad-library:uhs/uhb/autogen/connector)	Screw_Terminal_01x03	J4	tpot To Mc	1	50.87	36.28	50.87	36.28	/10 (All Cost Speculative)							
31	Generic screw terminal, single row, 01x06, script generated (kicad-library:uhs/uhb/autogen/connector)	Screw_Terminal_01x06	J1	_Terminal_	1	47.54	38.53	47.54	38.53	/10 (All Cost Speculative)							
32	Generic connector, single row, 01x03, script generated	Conn_01x03_Pin	J7 JB J10	Sensor B	3	50.87	36.28	152.61	108.84	/10 (All Cost Speculative)							
Power inductor SMD shielded 33uH Bourns SMI2360 Series Shielded Wirewound SMD Inductor with a Ferrite Core, 33 uH +/-20% Wire-Wound 3A IdC Q127																	
33	SMI2360-330M	L1	R1260-33K	1	57.55	54.63	57.55	54.63	/100								
Standard LEDs - SMD SMD, AltinGap, 1208, SIDE LOOK, GRN/RED, 470nm/650nm, CLK, 178																	
34	LTST-5326TGKXT	LED1	T-5326TGK	1	40.87	25.35	40.87	25.35	/10								
Standard LEDs - SMD Red Blue 645nm 468nm 115mcd Water Clear																	
35	SMI2048C-R_B	LED2	E12048C-R	1	89.24	61.72	89.24	61.72	/10								
WURTH ELEKTRONIK - 1153018S73100 - LED, Blue, SMD, PLCC-2, 20 mA, 3.2 V, 470 nm																	
36	1553018S73100	LEDIND1	53018S731	1	29.19	23.85	29.19	23.85	/10								
Trans MOSFET N-CH 200V 95A Automotive 3-Pin(2+Tab) D2PAK																	
37	SQM90142E_GE3	Q1 Q2 Q3 Q4 Q5 Q7	V90142E I	6	233.52	195.99	1401.12	1175.94	/10								
38	Resistor	R	R18 RLEDG1	10	2			0	0								
39	Resistor	R	R13	120R	1			0	0								
40	Resistor	R	R8 R9 R12	270R	2			0	0								
41	Resistor	R	R11 R21 R22 R23 R24 R25	330R	6			0	0								
42	Resistor	R	R6	820R	1			0	0								
43	Resistor	R	R2 R26	1k	2			0	0								
44	Resistor	R	R5	1k2	1			0	0								
45	Resistor	R	R10	3k9	1			0	0								
46	Resistor	R	R3 R4	5.1k	2			0	0								
47	Resistor	R	R1 R7 R15 R16 R19 R20 R28 R32 R34 R37	10k	10			0	0								
48	Resistor	R	R9 R75 R141	15k	2			0	0								
49	Resistor	R	R29 R30 R32 R33 R35 R36	47k	6			0	0								
50	Resistor	R	R12	100k TBD	1			0	0								
Current Sense Resistors - SMD SW 1 mOhm 1% 75ppm																	
51	TUR3APDTE1100F75	R14 R17 R27	IAPDTE110	3	88.4	65.55	265.2	196.65	/10								
52	Resistor	R	R9 R101	8k2	1			0	0								
53	Resistor	R	R9 R144	20R	1			0	0								
54	Resistor	R	R9 R143	6k2	1			0	0								
55	Resistor	R	R10 R145	20R	1			0	0								
56	Tactile Switches Side Push Type 2.4 GHz WiFi (802.11 b/g/n) and Bluetooth A+5 (LE) module Built around ESP32S3 Series of SoCs, Xensa A1+ dual-core 32bit LX7 microprocessor Flash up to 16 MB, PSRAM up to 8 MB 36 GPIOs, rich set of peripherals	TBFF21XQR	S1 S2	TBFF21XQR	2	66.72	55.54	133.44	111.08	/10							
Onboard PCB antenna																	
57	ESP32-S3-WROOM-1	U1	2-S3-WROOM	1	325.26	325.26	325.26	325.26	/10								
58	PCB	PCB FR4 4 Layer	PCB1														
								PCBcost (H)									
								PCBcost (L)									
TOTAL UNIT COST												4434.33					
												3177.65					