STFU_v1: Parts List + Cost										
Reference	Value	Manufacturer	Mfr. P/N	Vendor	Vendor P/N	QTY	RATE	AMOUNT		
C1,C2,C4,C5,C7,C8	100n	Kemet	C0805C104K3RACTU	DigiKey	399-1168-1-ND	6	0.07	0.42		
C3	100υ	Nichicon	UCL1E101MCL1GS	DigiKey	493-3937-1-ND	1	0.87	0.87		
D1 to D60	LED	Cree Inc	CLM3C-WKW-CWBYA453	DigiKey	CLM3C-WKW-CWBYA453CT-ND	60	0.25	15.00		
D61	Z15V	ON Semiconductor	MM3Z15VT1G	DigiKey	MM3Z15VT1GOSCT-ND	1	0.16	0.16		
D63	PWR	Cree Inc	CLM3C-WKW-CWBYA453	DigiKey	CLM3C-WKW-CWBYA453CT-ND	1	0.25	0.25		
K1	FTDI	Sullins Connector Solutions	PREC040SAAN-RC	DigiKey	S1012EC-40-ND	1	0.51	0.51		
K2	ISP					1	0.00	0.00		
K3	I2C					1	0.00	0.00		
K4	SERV0					1	0.00	0.00		
K5	V_SEL					1	0.00	0.00		
P1,P2	CONN_1					2	0.00	0.00		
P3,P5	HAND_HI					2	0.00	0.00		
P4,P6	HAND_LO					2	0.00	0.00		
P7	BATT_12V	On Shore Technology Inc	OSTTA024163	DigiKey	ED2580-ND	1	0.45	0.45		
Q1	PNP	NXP Semiconductors	PBSS9110Z,135	DigiKey	568-6798-1-ND	1	0.44	0.44		
R1,R4,R5,R6,R7,R38,R39	10k	Stackpole Electronics Inc	RMCF0805JT10K0	DigiKey	RMCF0805JT10K0CT-ND	7	0.03	0.21		
R2,R30,R31,R32,R33,R34,R35,R36,R37	100E	Stackpole Electronics Inc	RMCF0805JT100R	DigiKey	RMCF0805JT100RCT-ND	9	0.03	0.27		
R3,R40	1k	Stackpole Electronics Inc	RMCF0805JT1K00	DigiKey	RMCF0805JT1K00CT-ND	2	0.03	0.06		
R8 to R29	120E	Stackpole Electronics Inc	RMCF0805JT120R	DigiKey	RMCF0805JT120RCT-ND	22	0.03	0.66		
SW1	RST					1	0.00	0.00		
SW2	RST	TE Connectivity	FSM2JH	DigiKey	450-1649-ND	1	0.20	0.20		
SW3	SW_MODE	TE Connectivity	FSM2JH	DigiKey	450-1649-ND	1	0.20	0.20		
SW4	SW_INC	TE Connectivity	FSM2JH	DigiKey	450-1649-ND	1	0.20	0.20		
	Reference C1,C2,C4,C5,C7,C8 C3 D1 to D60 D61 D63 K1 K2 K3 K4 K5 P1,P2 P3,P5 P4,P6 P7 Q1 R1,R4,R5,R6,R7,R38,R39 R2,R30,R31,R32,R33,R34,R35,R36,R37 R3,R40 R8 to R29 SW1 SW2 SW3	Reference Value C1,C2,C4,C5,C7,C8 100n C3 100u D1 to D60 LED D61 Z15V D63 PWR K1 FTDI K2 ISP K3 I2C K4 SERVO K5 V_SEL P1,P2 CONN_1 P3,P5 HAND_HI P4,P6 HAND_LO P7 BATT_12V Q1 PNP R1,R4,R5,R6,R7,R38,R39 10k R2,R30,R31,R32,R33,R34,R35,R36,R37 100E R3,R40 1k R8 to R29 120E SW1 RST SW2 RST SW3 SW_MODE	Reference Value Manufacturer C1,C2,C4,C5,C7,C8 100n Kemet C3 100u Nichicon D1 to D60 LED Cree Inc D61 Z15V 0N Semiconductor D63 PWR Cree Inc K1 FTDI Sullins Connector Solutions K2 ISP K3 I2C K4 SERVO K5 V_SEL P1,P2 CONNL1 P3,P5 HAND_HI P4,P6 HAND_LO P7 BATT_12V On Shore Technology Inc Q1 PNP NXP Semiconductors R1,R4,R5,R6,R7,R38,R39 10k Stackpole Electronics Inc R2,R30,R31,R32,R33,R34,R35,R36,R37 100E Stackpole Electronics Inc R8 to R29 120E Stackpole Electronics Inc SW1 RST SW2 RST TE Connectivity	Reference Value Manufacturer Mfr. P/N CLC2_C4_CS_C7_C8 100 n Kernet C0806SC104K3RACTU C3 100 u Nichicon UCLEIOMCLIGS D1 to D60 LED Cree Inc CLM3C-WKW-CWBYA453 D61 Z15V DN Semiconductor MM3Z15VT16 D63 PWR Cree Inc CLM3C-WKW-CWBYA453 K1 FTDI Sullins Connector Solutions PREC040SAAN-RC K2 ISP K3 12C K4 SERV0 K5 V.SEL PLP2 CONN.1 P3,P5 HAND_HI P4,P6 HAND_LO P7 BAT_12V On Shore Technology Inc OSTTA024163 01 PNP NXP Semiconductors PBSS910Z.135 R1,R4,R5,R6,R7,R38,R39 10k Stackpole Electronics Inc RMCF080SJT100R	Reference Value Manufacturer Mfr. P/N Vendor C1C.2C,4C,5C,7C,8 100 n Kemet C0805C104K3RACTU DigiKey C3 100 u Nichicon UCLIEI0MICLIGS DigiKey D1 to 080 LED Cree Inc CLM3C-WKW-CWBYA453 DigiKey D61 Z15V ON Semiconductor MM3Z15VT16 DigiKey D63 PWR Cree Inc CLM3C-WKW-CWBYA453 DigiKey K1 FTDI Sullins Connector Solutions PREC040SAAN-RC DigiKey K2 ISP K3 I2C K4 SERV0 K5 V.SEL K5 V.SEL P1P2 CONN_1 P4P6 HAND_LO <t< td=""><td>Reference Value Manufacturer Mfr. P/N Vendor Vendor P/N C1C2CACS.C7.08 100 n Kernet C08095.C104K3RACTU 01g/key 399-1188-1-nD C3 100 u Nichicon UCLIEDIM/CLIGS 01g/key 493-3937-1-ND D1 to D60 LED Cree Inc CLM3C-WKW-CWBYA453 01g/key CLM3C-WKW-CWBYA453 01g/key MM3215VT16 01g/key MM3215VT160SCT-ND D63 PWR Cree Inc CLM3C-WKW-CWBYA453 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3216VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3216VT160SCT-ND 01g/key MM3216VT160SCT-ND</td><td>Reference Value Manufacturer Mfr. P/N Vendor Vendor P/N 0TY CLC2CACSC7C8 100n Kemet C080SC104K3RACTU 0g/key 399-1188-1-ND 6 C3 100u Nichicon UCLIE10IMCLIGS 0g/key 493-3937-1-ND 1 D1k D60 LED Cree Inc CLM3C-WKW-CWBYA4S3 0g/key CLM3C-WKW-CWBYA4S3CT-ND 60 D61 Zi5V ON Semiconductor MM3ZI5VTIG 0g/key MM3ZI5VTIGOSCT-ND 1 D63 PwR Cree Inc CLM3C-WKW-CWBYA4S3 0g/key CLM3C-WKW-CWBYA4S3CT-ND 1 K1 FTD1 Sullins Connector Solutions PREC040SAAN-RC 0g/key CLM3C-WKW-CWBYA4S3CT-ND 1 K2 ISP K3 LEC <td>Reference Value Manufacturer Mfr. P/N vendor P/N Nat P CIC2CACSCTCR3 100 n Kemet 00805C194CSRACTU 0½kcy 399-1861-ND 6 0.07 C3 100 n Nichicon UCILIDIOMCLIGS 0½kcy 389-39371-ND 1 0.87 D16 D60 LED Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CMGC-WKW-CWBYA4S0T-ND 6 0.25 D61 215V ON Semiconductor MM3ZISVT16 0½kcy M3ZISVT160SCT-ND 1 0.66 D63 PWR Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CM3C-WKW-CWBYA4S3CT-ND 1 0.25 K1 FTD1 SUllins Connector Solutions PRECO40SAN-RC 0½kcy SI03CEC-40-ND 1 0.25 K2 LS 1 0.00 K3 LS 1 0.00 K4 LS <td< td=""></td<></td></td></t<>	Reference Value Manufacturer Mfr. P/N Vendor Vendor P/N C1C2CACS.C7.08 100 n Kernet C08095.C104K3RACTU 01g/key 399-1188-1-nD C3 100 u Nichicon UCLIEDIM/CLIGS 01g/key 493-3937-1-ND D1 to D60 LED Cree Inc CLM3C-WKW-CWBYA453 01g/key CLM3C-WKW-CWBYA453 01g/key MM3215VT16 01g/key MM3215VT160SCT-ND D63 PWR Cree Inc CLM3C-WKW-CWBYA453 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3216VT160SCT-ND 01g/key MM3215VT160SCT-ND 01g/key MM3216VT160SCT-ND 01g/key MM3216VT160SCT-ND	Reference Value Manufacturer Mfr. P/N Vendor Vendor P/N 0TY CLC2CACSC7C8 100n Kemet C080SC104K3RACTU 0g/key 399-1188-1-ND 6 C3 100u Nichicon UCLIE10IMCLIGS 0g/key 493-3937-1-ND 1 D1k D60 LED Cree Inc CLM3C-WKW-CWBYA4S3 0g/key CLM3C-WKW-CWBYA4S3CT-ND 60 D61 Zi5V ON Semiconductor MM3ZI5VTIG 0g/key MM3ZI5VTIGOSCT-ND 1 D63 PwR Cree Inc CLM3C-WKW-CWBYA4S3 0g/key CLM3C-WKW-CWBYA4S3CT-ND 1 K1 FTD1 Sullins Connector Solutions PREC040SAAN-RC 0g/key CLM3C-WKW-CWBYA4S3CT-ND 1 K2 ISP K3 LEC <td>Reference Value Manufacturer Mfr. P/N vendor P/N Nat P CIC2CACSCTCR3 100 n Kemet 00805C194CSRACTU 0½kcy 399-1861-ND 6 0.07 C3 100 n Nichicon UCILIDIOMCLIGS 0½kcy 389-39371-ND 1 0.87 D16 D60 LED Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CMGC-WKW-CWBYA4S0T-ND 6 0.25 D61 215V ON Semiconductor MM3ZISVT16 0½kcy M3ZISVT160SCT-ND 1 0.66 D63 PWR Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CM3C-WKW-CWBYA4S3CT-ND 1 0.25 K1 FTD1 SUllins Connector Solutions PRECO40SAN-RC 0½kcy SI03CEC-40-ND 1 0.25 K2 LS 1 0.00 K3 LS 1 0.00 K4 LS <td< td=""></td<></td>	Reference Value Manufacturer Mfr. P/N vendor P/N Nat P CIC2CACSCTCR3 100 n Kemet 00805C194CSRACTU 0½kcy 399-1861-ND 6 0.07 C3 100 n Nichicon UCILIDIOMCLIGS 0½kcy 389-39371-ND 1 0.87 D16 D60 LED Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CMGC-WKW-CWBYA4S0T-ND 6 0.25 D61 215V ON Semiconductor MM3ZISVT16 0½kcy M3ZISVT160SCT-ND 1 0.66 D63 PWR Cree Inc CLM3C-WKW-CWBYA4S3 0½kcy CM3C-WKW-CWBYA4S3CT-ND 1 0.25 K1 FTD1 SUllins Connector Solutions PRECO40SAN-RC 0½kcy SI03CEC-40-ND 1 0.25 K2 LS 1 0.00 K3 LS 1 0.00 K4 LS <td< td=""></td<>		

STF	'U_v1 : Parts List + Cost								
ld	Reference	Value	Manufacturer	Mfr. P/N	Vendor	Vendor P/N	QTY	RATE	AMOUNT
24	SW5	SW_DEC	TE Connectivity	FSM2JH	DigiKey	450-1649-ND	1	0.20	0.20
25	SW6	SW_ENT	TE Connectivity	FSM2JH	DigiKey	450-1649-ND	1	0.20	0.20
26	TP1,TP2,TP3,TP4	CONN_1					4	0.00	0.00
27	U1	ATMEGA328-P	Atmel	ATMEGA328-PU	DigiKey	ATMEGA328-PU-ND	1	2.88	2.88
28	U2	HEF4051B	NXP Semiconductors	HEF4051BT,652	DigiKey	568-3979-5-ND	1	0.49	0.49
29	U3	ULN2803	Texas Instruments	ULN2803ADWR	DigiKey	296-15777-1-ND	1	0.90	0.90
30	U4	7809	STMicroelectronics	L7809CD2T-TR	DigiKey	497-1176-1-ND	1	0.67	0.67
31	U5	7805	ON Semiconductor	NCP1117DT50G	DigiKey	NCP1117DT50GOS-ND	1	0.48	0.48
32	X1	16MHz	ECS Inc	ZTT-16.00MX	DigiKey	X908-ND	1	0.70	0.70
						Shipping			14.00
	OTHER PARTS								
	SV1	SERV0	Vigor	VTS-08B	RoboSoft	Systems	1	9.17	9.17
		Connection Flat (Connection Flat Cable				1	0.83	0.83
		Mounting Bracke	t				1	8.33	8.33
		Hardware					1	1.67	1.67
		Acrylic (Laser cul	.)				1	8.33	8.33
	PCB1	PCB	OSHPark.com	2 layers, 6.02x4.77 in. (1	53x121mm). \$143.	35 for set of three plus Shipping	1	55.00	55.00
						TOTAL, US\$			123.75
						TOTAL,₹,@	60		7425.20