Power

U1 LM1117-5.0

12v — VI / GND / VO — 5v

C2 10u C3 100u

GND

ESP-DEVKITC

U3 ESP-DEVKITC

Pin	Signal		Signal	Pin
1	3V3	3v3	GND3	38	GND
2	EN		IO23	37	GND
3	IO36/SVP	ES_A/X	IO22	36	SERVO
4	IO39/VN	ES_B/Y	TXD0	35	RENC_SW
5	IO35	ES_C/Z	RXD0	34	RX
6	IO34	PCFA_INT	IO21	33	TX
7	IO32	SDA1	GND	32	C/Z_DIR
8	IO33	SCL1	IO19	31	C/Z_STEP
9	IO25	STEP_M0	IO18	30	B/Y_DIR
10	IO26	STEP_M1	IO5	29	B/Y_STEP
11	IO27	STEP_M2	IO17	28	A/X_DIR
12	IO14	SD_SCK	IO16	27	A/X_STEP
13	IO12	RENC_DT	IO4	26	STEP_EN
14	GND2	GND	IO0	25	IO0
15	IO13	RENC_CLK	IO2	24	SD_MOSI
16	IO9/SD2		IO15	23	SD_MISO
17	IO10/SD3		IO8/SD1	22	
18	IO11/CMD		IO7/SD0	21	
19	5V	5v	IO6/CLK	20	

SD Card

3v3 C1 100n R1 10k R2 10k R3 10k

J1 Micro_SD_Card

Pin	Signal
1	DAT2
2	DAT3/CD
3	CMD
4	VDD
5	CLK
6	VSS
7	DAT0
8	DAT1

SD_MOSI, 3v3, SD_SCK, GND, SD_MISO

SHIELD 9 — GND

Stepper Drivers

STEPSTICK U2

Pin	Signal		Signal	Pin
1	GND	GND	ENABLE	9	STEP_EN
2	FAULT		M0	10	STEP_M0
3	A2	A/X_A2	M1	11	STEP_M1
4	A1	A/X_A1	M2	12	STEP_M2
5	B1	A/X_B1	RESET	13	3v3
6	B2	A/X_B2	SLEEP	14	3v3
7	GND	GND	STEP	15	A/X_STEP
8	Vstepper	12v	DIR	16	A/X_DIR

STEPSTICK U4

Pin	Signal		Signal	Pin
1	GND	GND	ENABLE	9	STEP_EN
2	FAULT		M0	10	STEP_M0
3	A2	B/Y_A2	M1	11	STEP_M1
4	A1	B/Y_A1	M2	12	STEP_M2
5	B1	B/Y_B1	RESET	13	3v3
6	B2	B/Y_B2	SLEEP	14	3v3
7	GND	GND	STEP	15	B/Y_STEP
8	Vstepper	12v	DIR	16	B/Y_DIR

STEPSTICK U5

Pin	Signal		Signal	Pin
1	GND	GND	ENABLE	9	STEP_EN
2	FAULT		M0	10	STEP_M0
3	A2	C/Z_A2	M1	11	STEP_M1
4	A1	C/Z_A1	M2	12	STEP_M2
5	B1	C/Z_B1	RESET	13	3v3
6	B2	C/Z_B2	SLEEP	14	3v3
7	GND	GND	STEP	15	C/Z_STEP
8	Vstepper	12v	DIR	16	C/Z_DIR

12v C4 100u C5 100u C6 100u GND

I2C GPIO Expander (PCF8574)

3v3 C7 100n GND 3v3

U7 PCF8574

Pin	Signal		Signal	Pin
14	SCL	SDA1	P0	4	GPIO_EX0
15	SDA	SCL1	P1	5	GPIO_EX1
1	A0	GND	P2	6	GPIO_EX2
2	A1		P3	7	GPIO_EX3
3	A2		P4	9	GPIO_EX4
13	INT	PCFA_INT	P5	10	GPIO_EX5
			P6	11	GPIO_EX6
			P7	12	GPIO_EX7

VDD 16 — 3v3   VSS 8 — GND

OLED Display and Rotary Encoder

U6 OLED_I2C

Pin	Signal
4	SDA	SDA1
3	SCL	SCL1
2	VDD	3v3
1	GND	GND

3v3 R4 10k R5 10k R6 10k

SW1 Rotary_Encoder_Switch

A 1, C 2, B 3, 4, 5

RENC_CLK, RENC_DT, GND, RENC_SW

I2C Pull-up

3v3 3v3 R7 4.7k R8 4.7k

SDA1 SCL1

Connectors

J4 Servo — GND, 5v, SERVO (3 2 1)
J5 Stepper A/X — A/X_A2, A/X_A1, A/X_B1, A/X_B2 (4 3 2 1)
J6 Stepper B/Y — B/Y_A2, B/Y_A1, B/Y_B1, B/Y_B2 (4 3 2 1)
J7 Stepper C/Y — C/Z_A2, C/Z_A1, C/Z_B1, C/Z_B2 (4 3 2 1)
J8 Endstop A/X — 3v3, GND, ES_A/X (3 2 1)
J9 Endstop B/Y — 3v3, GND, ES_B/Y (3 2 1)
J10 Endstop C/Z — 3v3, GND, ES_C/Z (3 2 1)
J11 Aux1_I2C — SCL1, 3v3, SDA1, GND (4 3 2 1)

J2 Aux2_GPIO
GPIO_EX0	1	2	GPIO_EX1
GPIO_EX2	3	4	GPIO_EX3
5v	5	6	GND
GND	7	8	3v3
GPIO_EX4	9	10	GPIO_EX5
GPIO_EX6	11	12	GPIO_EX7

J3 DC_PWR — 12v, GND (1 2)

J12 IO0_IO2_JP — IO0, SD_MOSI (1 2)

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