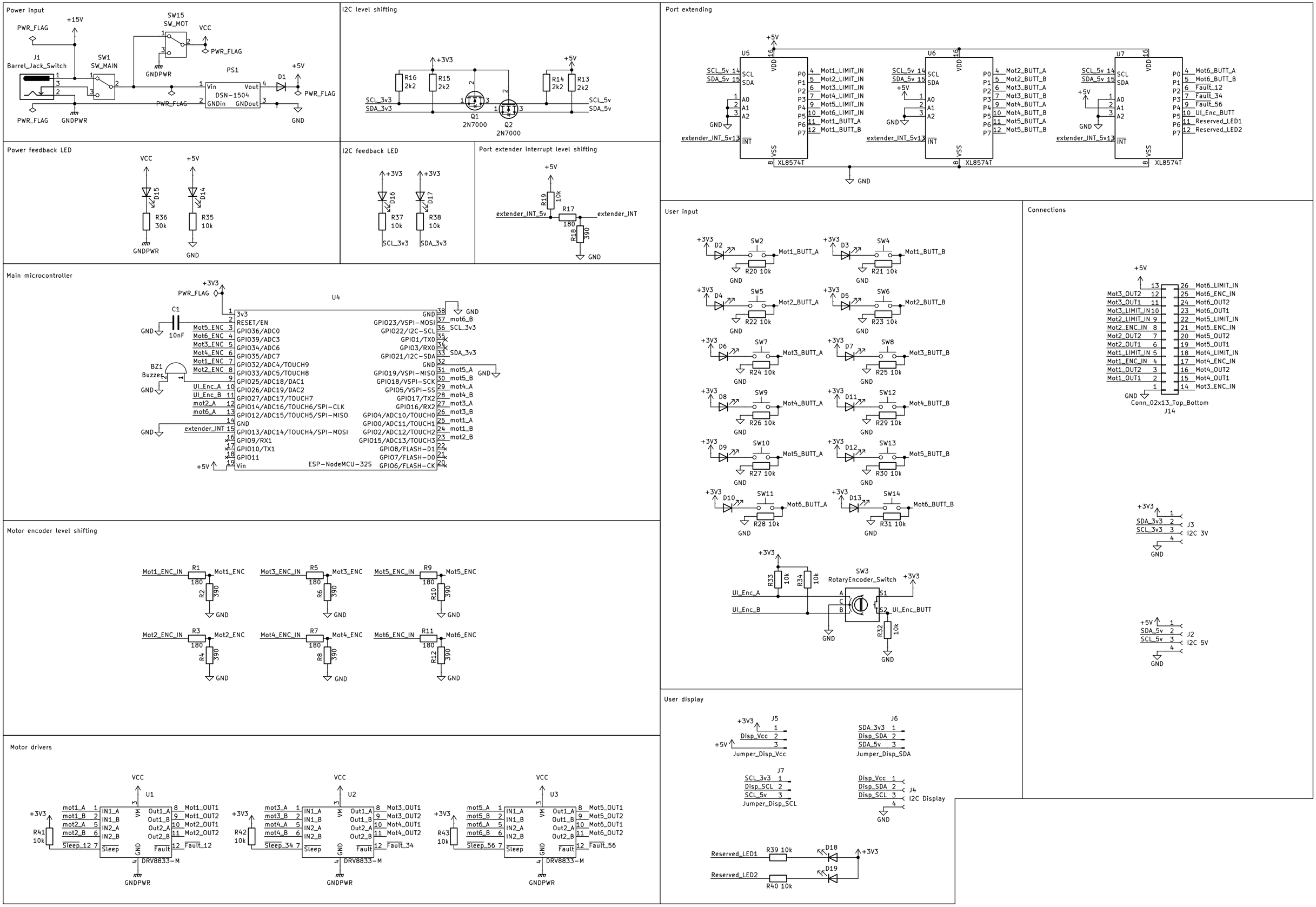
Power input
J1
Barrel_Jack_Switch
SW1
SW_MAIN
SW15
SW_MOT
PS1
DSN-1504
Vin
Vout
GNDin
GNDout
D1
+15V
+5V
VCC
PWR_FLAG
GNDPWR
GND
I2C level shifting
R16 2k2
R15 2k2
R14 2k2
R13 2k2
Q1 2N7000
Q2 2N7000
+3V3
SCL_3v3
SDA_3v3
SCL_5v
SDA_5v
Port extending
U5
U6
U7
XL8574T
SCL_5v 14
SDA_5v 15
extender_INT_5v13
Mot1_LIMIT_IN
Mot2_LIMIT_IN
Mot3_LIMIT_IN
Mot4_LIMIT_IN
Mot5_LIMIT_IN
Mot6_LIMIT_IN
Mot1_BUTT_A
Mot1_BUTT_B
Mot2_BUTT_A
Mot2_BUTT_B
Mot3_BUTT_A
Mot3_BUTT_B
Mot4_BUTT_A
Mot4_BUTT_B
Mot5_BUTT_A
Mot5_BUTT_B
Mot6_BUTT_A
Mot6_BUTT_B
Fault_12
Fault_34
Fault_56
UI_Enc_BUTT
Reserved_LED1
Reserved_LED2
Power feedback LED
D15
D14
R36 30k
R35 10k
I2C feedback LED
D16
D17
R37 10k
R38 10k
Port extender interrupt level shifting
R19 10k
R17 180
R18 390
extender_INT_5v
extender_INT
Main microcontroller
U4
ESP-NodeMCU-32S
C1 10nF
BZ1 Buzzer
3v3
RESET/EN
GPIO36/ADC0
GPIO39/ADC3
GPIO34/ADC6
GPIO35/ADC7
GPIO32/ADC4/TOUCH9
GPIO33/ADC5/TOUCH8
GPIO25/ADC18/DAC1
GPIO26/ADC19/DAC2
GPIO27/ADC17/TOUCH7
GPIO14/ADC16/TOUCH6/SPI-CLK
GPIO12/ADC15/TOUCH5/SPI-MISO
GPIO13/ADC14/TOUCH4/SPI-MOSI
GPIO9/RX1
GPIO10/TX1
GPIO11
Vin
GPIO23/VSPI-MOSI
GPIO22/I2C-SCL
GPIO1/TX0
GPIO3/RX0
GPIO21/I2C-SDA
GPIO19/VSPI-MISO
GPIO18/VSPI-SCK
GPIO5/VSPI-SS
GPIO17/TX2
GPIO16/RX2
GPIO4/ADC10/TOUCH0
GPIO0/ADC11/TOUCH1
GPIO2/ADC12/TOUCH2
GPIO15/ADC13/TOUCH3
GPIO8/FLASH-D1
GPIO7/FLASH-D0
GPIO6/FLASH-CK
Mot5_ENC
Mot6_ENC
Mot3_ENC
Mot4_ENC
Mot1_ENC
Mot2_ENC
UI_Enc_A
UI_Enc_B
mot2_A
mot6_A
extender_INT
mot6_B
mot5_A
mot5_B
mot4_A
mot4_B
mot3_A
mot3_B
SCL_3v3
SDA_3v3
Motor encoder level shifting
Mot1_ENC_IN
Mot1_ENC
Mot2_ENC_IN
Mot2_ENC
Mot3_ENC_IN
Mot3_ENC
Mot4_ENC_IN
Mot4_ENC
Mot5_ENC_IN
Mot5_ENC
Mot6_ENC_IN
Mot6_ENC
R1 180
R2 390
R3 180
R4 390
R5 180
R6 390
R7 180
R8 390
R9 180
R10 390
R11 180
R12 390
Motor drivers
U1
U2
U3
DRV8833-M
mot1_A
mot1_B
mot2_A
mot2_B
Sleep_12
IN1_A
IN1_B
IN2_A
IN2_B
Sleep
VM
GND
Out1_A
Out1_B
Out2_A
Out2_B
Fault
Mot1_OUT1
Mot1_OUT2
Mot2_OUT1
Mot2_OUT2
Fault_12
mot3_A
mot3_B
mot4_A
mot4_B
Sleep_34
Mot3_OUT1
Mot3_OUT2
Mot4_OUT1
Mot4_OUT2
Fault_34
mot5_A
mot5_B
mot6_A
mot6_B
Sleep_56
Mot5_OUT1
Mot5_OUT2
Mot6_OUT1
Mot6_OUT2
Fault_56
R41 10k
R42 10k
R43 10k
User input
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
SW2
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14
R20 10k
R21 10k
R22 10k
R23 10k
R24 10k
R25 10k
R26 10k
R27 10k
R28 10k
R29 10k
R30 10k
R31 10k
Mot1_BUTT_A
Mot1_BUTT_B
Mot2_BUTT_A
Mot2_BUTT_B
Mot3_BUTT_A
Mot3_BUTT_B
Mot4_BUTT_A
Mot4_BUTT_B
Mot5_BUTT_A
Mot5_BUTT_B
Mot6_BUTT_A
Mot6_BUTT_B
R33 10k
R34 10k
SW3
RotaryEncoder_Switch
UI_Enc_A
UI_Enc_B
UI_Enc_BUTT
R32 10k
Connections
Conn_02x13_Top_Bottom
J14
Mot3_OUT2
Mot3_OUT1
Mot3_LIMIT_IN
Mot2_LIMIT_IN
Mot2_ENC_IN
Mot2_OUT2
Mot2_OUT1
Mot1_LIMIT_IN
Mot1_ENC_IN
Mot1_OUT2
Mot1_OUT1
Mot6_LIMIT_IN
Mot6_ENC_IN
Mot6_OUT2
Mot6_OUT1
Mot5_LIMIT_IN
Mot5_ENC_IN
Mot5_OUT2
Mot5_OUT1
Mot4_LIMIT_IN
Mot4_ENC_IN
Mot4_OUT2
Mot4_OUT1
Mot3_ENC_IN
J3
I2C 3V
J2
I2C 5V
User display
J5
Jumper_Disp_Vcc
Disp_Vcc
J6
Jumper_Disp_SDA
SDA_3v3
Disp_SDA
SDA_5v
J7
Jumper_Disp_SCL
SCL_3v3
Disp_SCL
SCL_5v
J4
I2C Display
Reserved_LED1
Reserved_LED2
R39 10k
R40 10k
D18
D19