Power

File: power.kicad_sch

Connections

File: connections.kicad_sch

+12V

C1
0.1uF/50V

C2
22uF/65V

U1
DRV8871DDA

GND

IN1 3 IN1   VM 5
IN2 2 IN2 OUT1 6 OUT1
     4 ILIM OUT2 8 OUT2

GND 1   9 PGND
         7 GND

R1
30k

GND   GND

OUT1 1 Conn1
OUT2 2 MotorOutput

+5V 3.3V   PWR_FLAG

U2
ESP32-S3-DEVKITC-1U-N8R2

5V0   J1_21
3V3   J1_2

J1_3   RST

J3_14   GPIO0   GPIO35   J3_13   IN2
J3_4   GPIO1   GPIO36   J3_12
J3_5   GPIO2   GPIO37   J3_11
Conn1   J1_13 GPIO3   GPIO38   J3_10
Conn2   J1_4   GPIO4   GPIO45   J3_15
Conn3   J1_5   GPIO5   GPIO46   J1_14
Conn4   J1_6   GPIO6   GPIO47   J3_17
Sw2   J1_7   GPIO7   GPIO48   J3_16
FlipButton J1_12 GPIO8
SBC_Power   J1_15 GPIO9   MTCK/GPIO39   J3_9
Button3   J1_16 GPIO10   MTDO/GPIO40   J3_8
Button4   J1_17 GPIO11   MTDI/GPIO41   J3_7
Button5   J1_18 GPIO12   MTMS/GPIO42   J3_6
Button6   J1_19 GPIO13
TopLightsLV   J1_20 GPIO14   U0TXD/GPIO43   J3_2
BottomLightsLV J1_8   GPIO15   U0RXD/GPIO44   J3_3
Sw1   J1_9   GPIO16
TxD   J1_10 GPIO17   USB_D-/GPIO19   J3_20
RxD   J1_11 GPIO18   USB_D+/GPIO20   J3_19
CaptureButton J3_18 GPIO21
IN1

GND   J1_22

GND

S1
FlipButton
FlipButton
+3.3V
R4
10k
Conn6
FlipButton
GND

S2
CaptureButton
CaptureButton
+3.3V
R7
10k
Conn8
CaptureButton
GND

S3
Button3
Button3
+3.3V
R12
10k
Conn9
Button3
GND

S4
Button4
Button4
+3.3V
R13
10k
Conn10
Button4
GND

S5
Button5
Button5
+3.3V
R14
10k
Conn11
Button5
GND

S6
Button6
Button6
+3.3V
R15
10k
Conn12
Button6
GND

+3.3V
Sw2
Conn2
Switch 2
R2
10k
GND

+3.3V
Sw1
Conn3
Switch 1
R3
10k
GND

+3.3V
VCC
RxD   RXD   Conn7
TxD   TXD   TTL
GND

J1
Conn_01x01_Pin
1   SBC_Power

J2
Conn_01x04_Pin
1   Conn1
2   Conn2
3   Conn3
4   Conn4

+12V
Conn4
TopLights
TopLightsHV
MOSFET1
IRFZ44NSTRLPBF
R5
1M
GND

+12V
Conn5
BottomLights
BottomLightsHV
MOSFET2
IRFZ44NSTRLPBF
R6
1M
GND

+3.3V   +5V
R8   R9
10k   10k
TopLightsLV   TopLightsHV
Q1
BSS138

+3.3V   +5V
R10   R11
10k   10k
BottomLightsLV   BottomLightsHV
Q2
BSS138

J3
RAPC722X
+12V
PWR_FLAG

1
2
3
GND

+12V
U3
LM2576HVS-5

1 VIN   FB 4
5 ON/OFF OUT 2
GND
3

+5VA

L1
47uH

+
C4
100uF/63V

GND   GND

+
C3
220uF/35V

GND

J4
Screw_Terminal_01x02

1
2
GND

D1
1N5819HW-7-F

GND

+5V

J5   J6
5V   GND

1   1
2   2
3   3
4   4
5   5
6   6
7   7
8   8
9   9
10   10

GND

+12V
U4
LM2576HVS-5

1 VIN   FB 4
5 ON/OFF OUT 2
GND
3

+5V
PWR_FLAG

L2
47uH

+
C6
100uF/63V

GND   GND

+
C5
220uF/35V

GND

D2
1N5819HW-7-F

GND