POWER_SUPPLY

J1
IN_OUT_AC

AC_output
Neutro
AC_input

PS1
IRM-60-12

AC_input — AC/L   +Vout — +12V
Neutro — AC/N   -Vout

+12V   +12V   +12V

C1   C2
10uF   1uF
GND   GND

D1
1N4002

U1
LM1117-3.3
VI   VO — +3.3V
GND
C3
10uF
GND

PS2
IRM-60-24

AC_input — AC/L   +Vout — +24V
Neutro — AC/N   -Vout
GND

+24V   +24V

C5   C6
10uF   1uF
GND   GND

OPTOCOUPLER_AC

U2
MOC3021M

Opto_EN — 1   6 — Sx_2_Opto
2   4 — Sx_1_Opto
GND

R1
R

Sx_2_Opto — R1   R2
33

BT136-500   Q1
Sx_1_Opto

C4
0.01uF
AC_input

AC_output

USB_SERIAL

J2
USB_OTG
+5V
VBUS
D+
D-
ID
Shield
GND
GND

+5V   +5V

C8   C9
10uF   1uF
GND   GND

U3
FT232RL

3V3OUT   VCCIO   VCC — +5V
TXD — 1 TX
RXD — 5 RX
D+ — USBD+   RTS — 3
D- — USBD-   CTS — 11
DTR — 2
+5V   RESET   DCR — 9
R3 10k   DCD — 10
RI — 6
OSCI
OSCO   CBUS0 — 23
CBUS1 — 22
TEST   CBUS2 — 13
AGND   CBUS3 — 14
GND GND GND   CBUS4 — 12
GND
GND

+5V
C7
100nF
GND

LEDS_RGB-CONTROLLER

GND

U4
PCA9685BS
+3.3V

SCL — SCL   VDD   LED0 — 3 LED0
SDA — SDA   LED1 — 4 LED1
EXTCLK   LED2 — 5 LED3
EN_CLed — OE   LED3 — 6
GND   LED4 — 7
LED5 — 8
LED6 — 9
LED7 — 10
LED8 — 11
LED9 — 13
A0   LED10 — 14
A1   LED11 — 15
A2   LED12 — 16
A3   LED13 — 17
A4   LED14 — 18
A5   LED15 — 19
VSS VSS
GND

+3.3V   +3.3V

C10   C11
1uF   10uF
GND   GND

R

LED0 — Q2
2N7000
GND

B

LED1 — Q3
2N7000
GND

G

LED3 — Q4
2N7000
GND

LEDS_RGB_OUTPUT

J3
LEDs_conx
+12V
+24V
R
G
B

MICROCONTROLLER

U5
ESP32-WROOM-32
+3.3V
VDD

EN_uC — EN   IO0 — 25
SENSOR_VP   TXD0/IO1 — 35 TX
SENSOR_VN   IO2 — 24 EN_CLed
RXD0/IO3 — 34 RX
IO4 — 26 Opto_EN
IO5 — 29
IO12 — 14
IO13 — 16
IO14 — 13
IO15 — 23
IO16 — 27
IO17 — 28
SDO/SD0   IO18 — 30
SDI/SD1   IO19 — 31
SHD/SD2   IO21 — 33
SDA — SWP/SD3   IO22 — 36
SCK/CLK   IO23 — 37
SCL — SCS/CMD   IO25 — 10
IO26 — 11
IO27 — 12
IO32 — 8
IO33 — 9
IO34 — 6
IO35 — 7
GND

SW1
SW_Push
R4 1k
R5 1k

+3.3V
R6 10k
EN_uC
C14
1uF
GND

+3.3V   +3.3V

C12   C13
10uF   1uF
GND   GND

GND