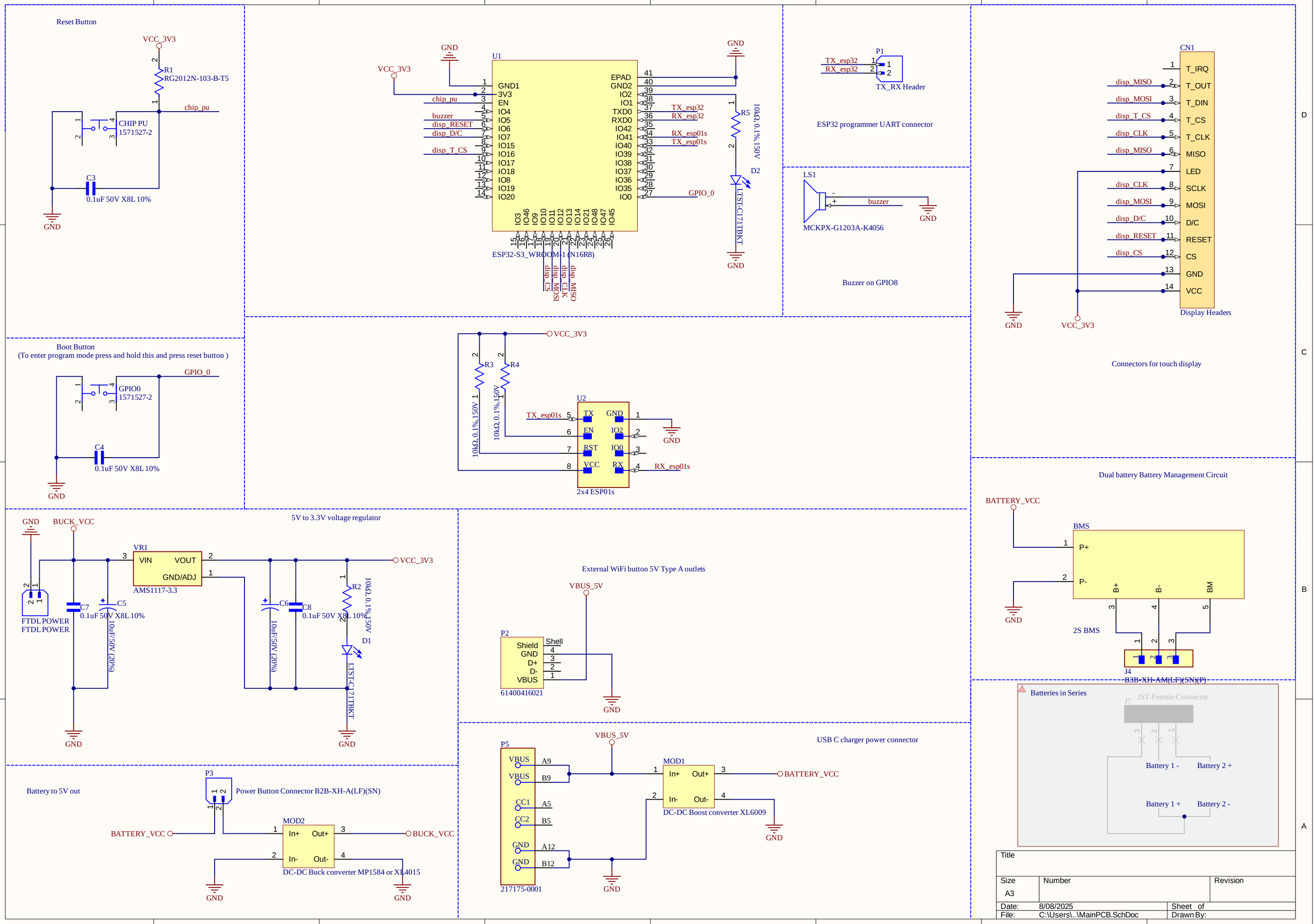
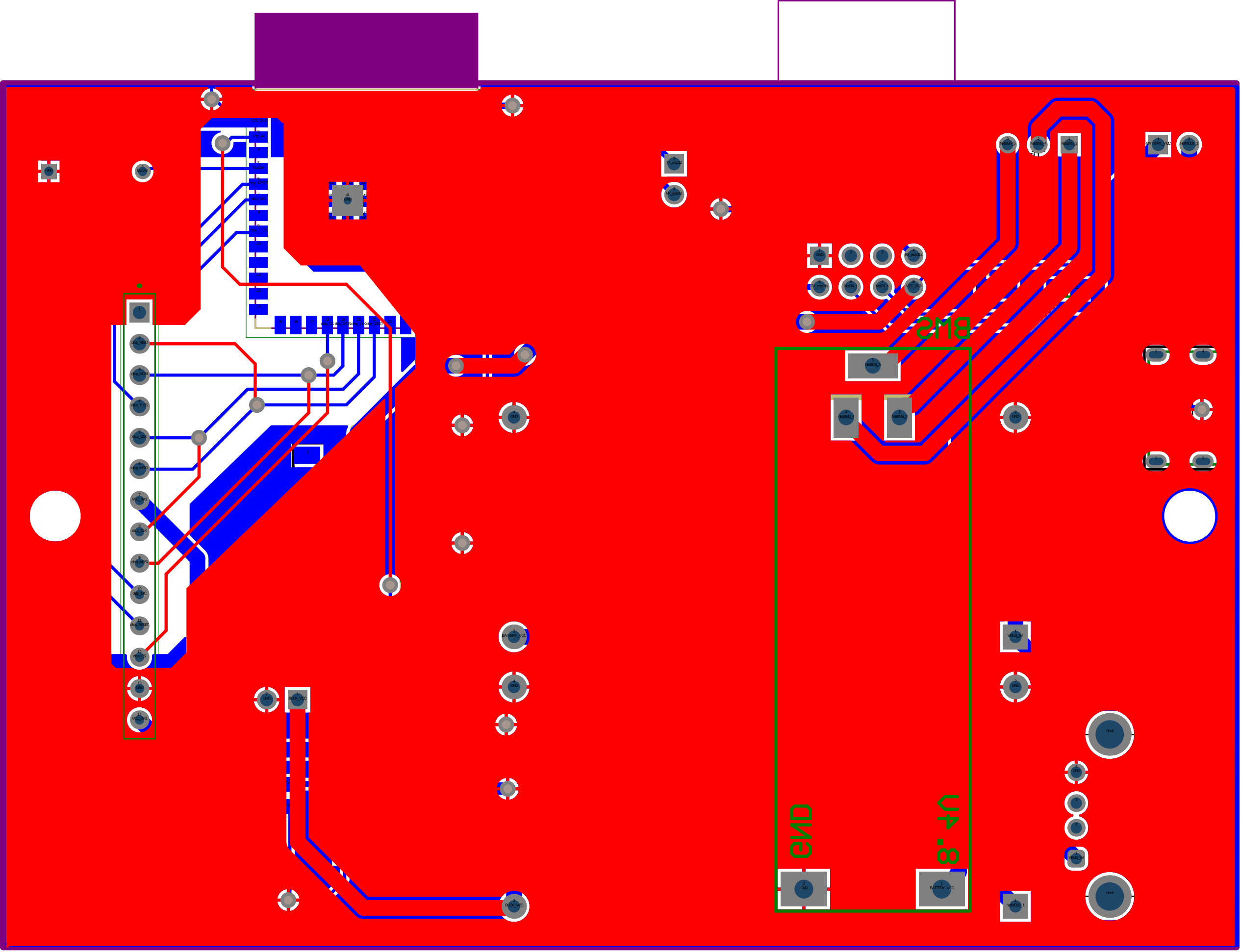
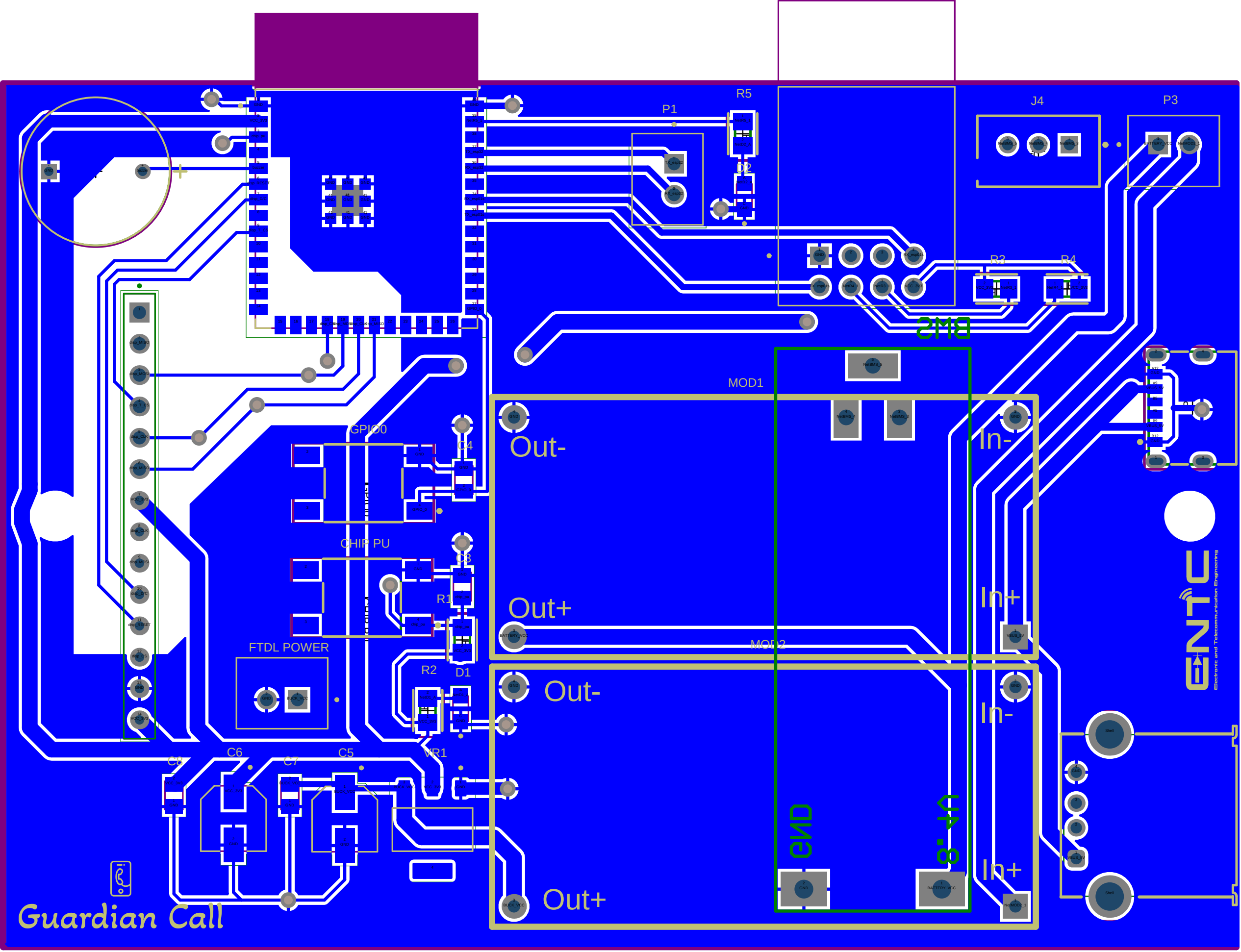
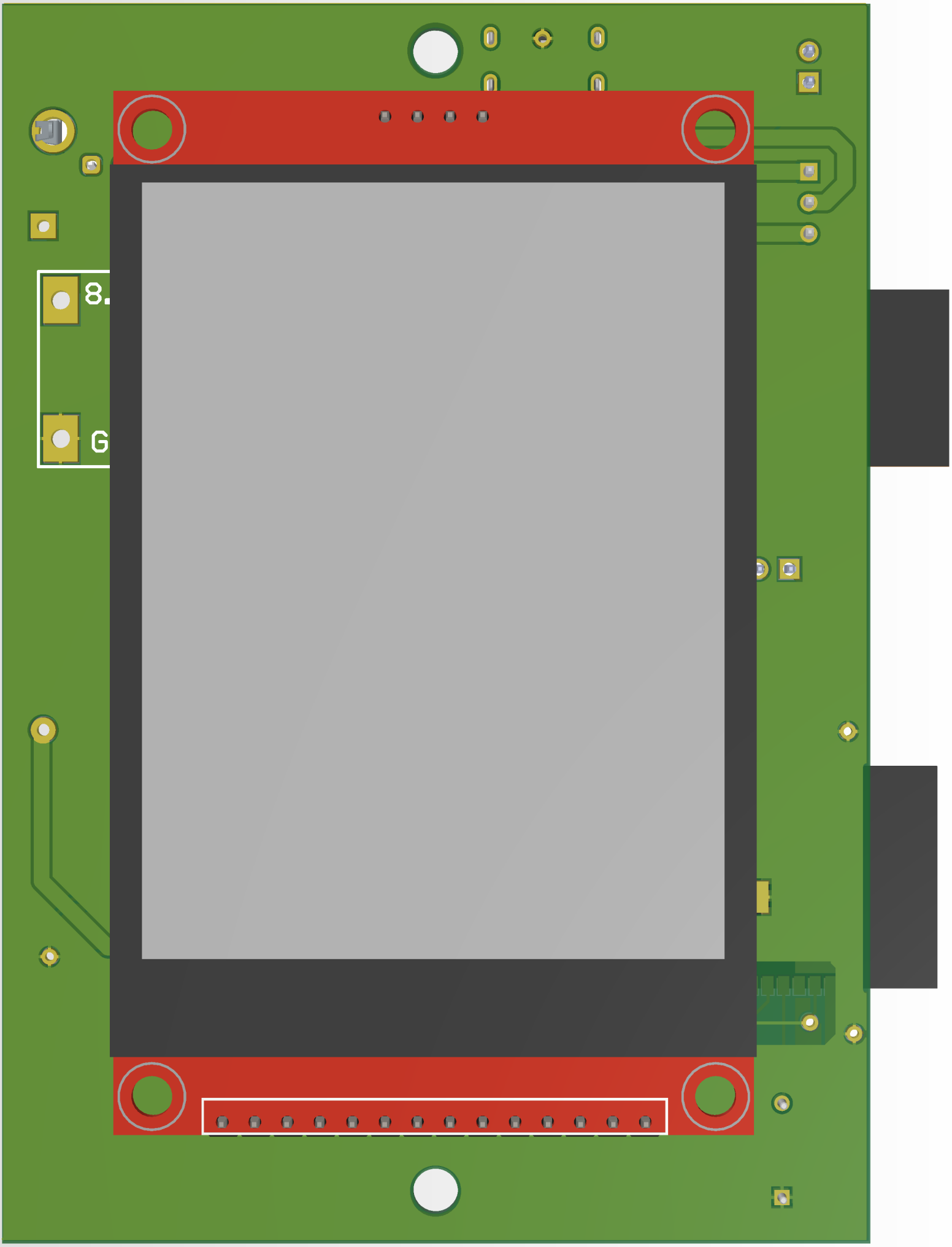
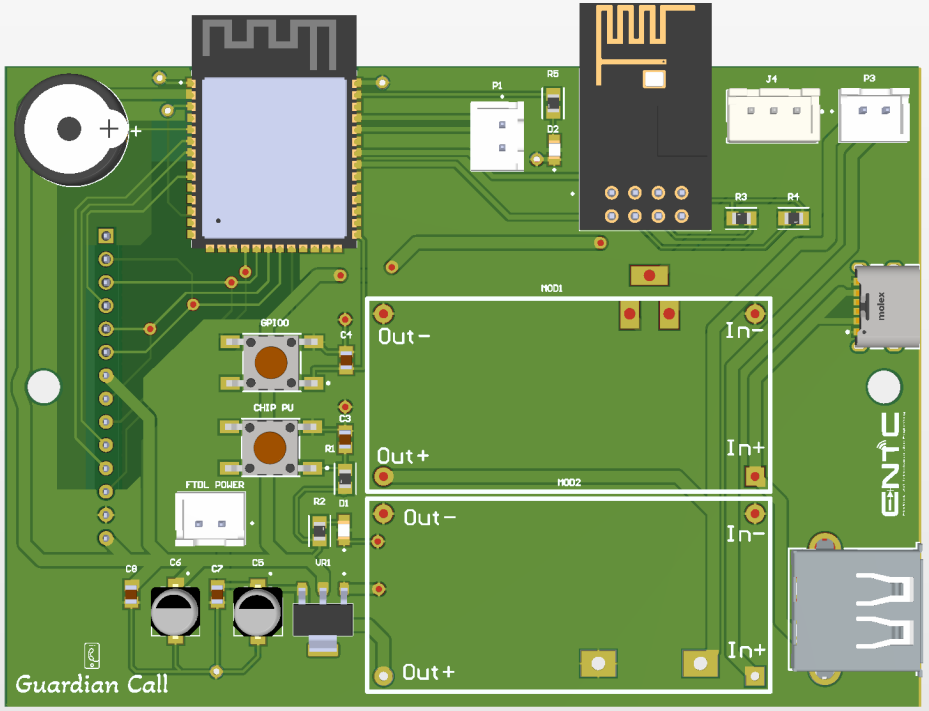
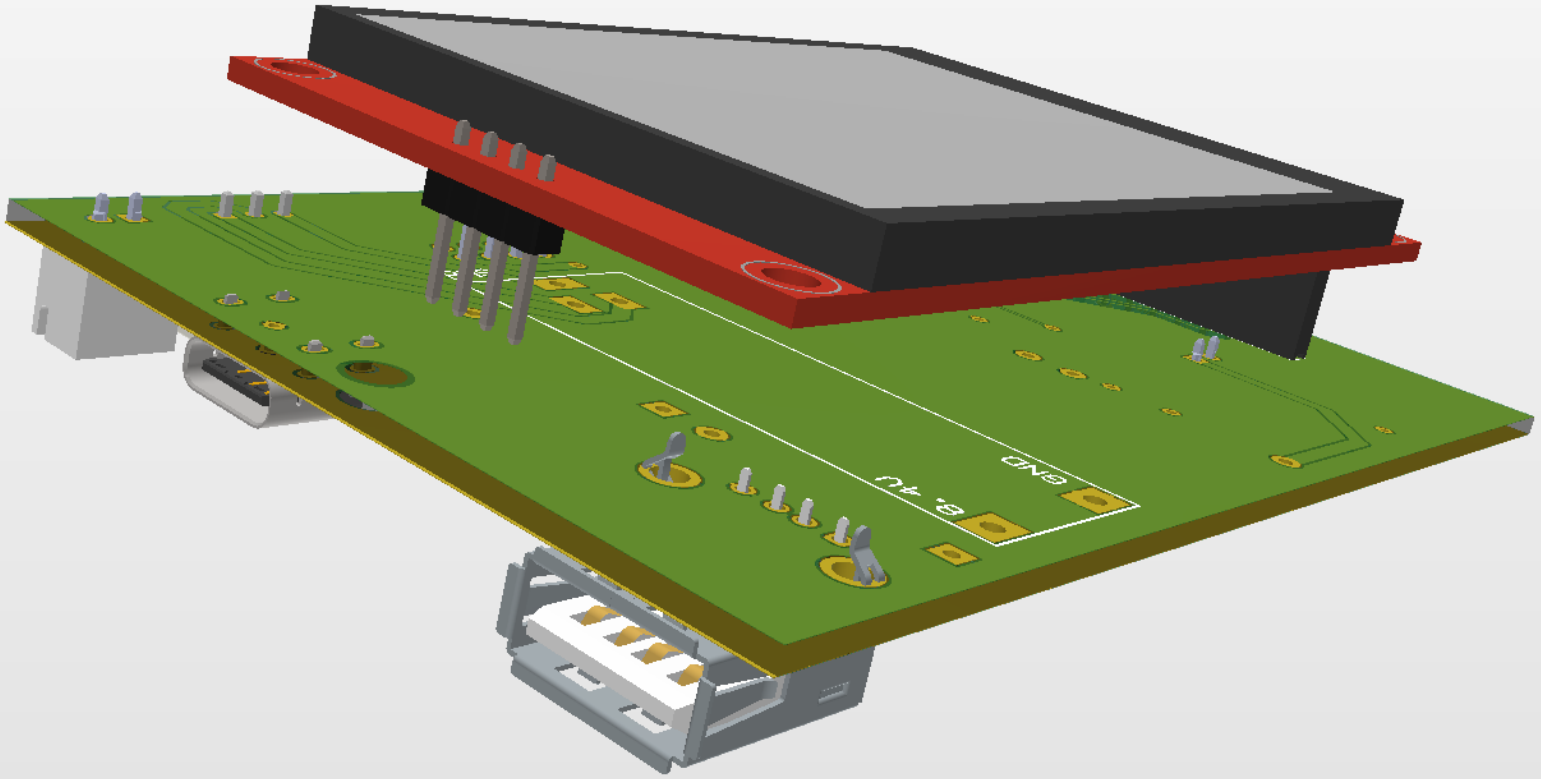

Reset Button
VCC_3V3
R1
RG2012N-103-B-T5
chip_pu
CHIP PU
1571527-2
C3
0.1uF 50V X8L 10%
GND
Boot Button
(To enter program mode press and hold this and press reset button)
GPIO_0
GPIO0
1571527-2
C4
0.1uF 50V X8L 10%
GND
U1
GND1
3V3
EN
IO4
IO5
IO6
IO7
IO15
IO16
IO17
IO18
IO8
IO19
IO20
EPAD
GND2
IO2
IO1
TXD0
RXD0
IO42
IO41
IO40
IO39
IO38
IO37
IO36
IO35
IO0
chip_pu
buzzer
disp_RESET
disp_D/C
disp_T_CS
TX_esp32
RX_esp32
RX_esp01s
TX_esp01s
GPIO_0
disp_CS
disp_MOSI
disp_CLK
disp_MISO
ESP32-S3_WROOM-1 (N16R8)
R5
10kΩ,0.1%,150V
D2
LTST-C171TBKT
P1
TX_esp32
RX_esp32
TX_RX Header
ESP32 programmer UART connector
LS1
buzzer
MCKPX-G1203A-K4056
Buzzer on GPIO8
CN1
T_IRQ
T_OUT
T_DIN
T_CS
T_CLK
MISO
LED
SCLK
MOSI
D/C
RESET
CS
GND
VCC
disp_MISO
disp_MOSI
disp_T_CS
disp_CLK
disp_MISO
disp_CLK
disp_MOSI
disp_D/C
disp_RESET
disp_CS
Display Headers
Connectors for touch display
R3
R4
10kΩ,0.1%,150V
U2
TX
EN
RST
VCC
GND
IO2
IO0
RX
2x4 ESP01s
Dual battery Battery Management Circuit
BATTERY_VCC
BMS
P+
P-
B+
B-
BM
2S BMS
J4
B3B-XH-AM(LF)(SN)(P)
5V to 3.3V voltage regulator
BUCK_VCC
VR1
VIN
VOUT
GND/ADJ
AMS1117-3.3
FTDL POWER
FTDL POWER
C7
0.1uF 50V X8L 10%
C5
10uF/50V (20%)
C6
10uF/50V (20%)
C8
0.1uF 50V X8L 10%
R2
10kΩ,0.1%,150V
D1
LTST-C171TBKT
External WiFi button 5V Type A outlets
VBUS_5V
P2
Shield
GND
D+
D-
VBUS
Shell
61400416021
Battery to 5V out
P3
Power Button Connector B2B-XH-A(LF)(SN)
MOD2
In+
Out+
In-
Out-
DC-DC Buck converter MP1584 or XL4015
P5
VBUS
CC1
CC2
A9
B9
A5
B5
A12
B12
217175-0001
MOD1
DC-DC Boost converter XL6009
USB C charger power connector
Batteries in Series
JST-Female Connector
J7
Battery 1 -
Battery 2 +
Battery 1 +
Battery 2 -
Title
Size
A3
Number
Revision
Date:
8/08/2025
Sheet of
File:
C:\Users\..\MainPCB.SchDoc
Drawn By:


VCC-3V3
buzzer
esp_RSSI
esp_SDC
esp_T_CS
esp_RS
esp_GPIO_A
esp_CLK
esp_MISO
disp_MOSI
disp_T_CS
disp_CLK
disp_MISO
VCC-3V3
disp_CLK
disp_MOSI
disp_DC
disp_RESET
disp_CS
GND
VCC-3V3
GND
BUCK_VCC
BUCK_VCC
TX_esp32
RX_esp32
GND
RX_esp01s
TX_esp01s
NetR4_1
NetR3_1
VCC_3V3
NetMS_5
NetMS_4
NetMS_3
GND
BATTERY_VCC
NetMOD_1
VBUS_5V
GND
Shell
GND
VBUS_5V
Shell
GND
4.8 V
BATTERY_VCC
2MB


P1
R5
D2
J4
P3
R3
R4
BMS
MOD1
Out-
In-
GPIO0
C4
Out+
In+
CHIP PU
C3
R1
MOD2
FTDL POWER
R2
D1
Out-
In-
C8
C6
C7
C5
VR1
GND
5V-8
Out+
In+
Guardian Call
ENTU
Electronic and Telecommunication Engineering


8.
G


P1
R5
D2
J4
P3
R3
R4
MOD1
Out−
In−
Out+
In+
MOD2
Out−
In−
Out+
In+
GP100
C1
CHIP PU
C3
R1
FTDI POWER
R2
D1
C8
C6
C7
C5
VR1
Guardian Call


GND
B. 4U