VENATO Personal Protection System Schematic

https://github.com/SentinelsORG/Venato.git

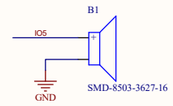
IMPORTANT

D8 and D9 LED are used to indicate SIM808 status and network state. These are used for developing purposes. Please remove these LEDs before releasing as a product to reduce unnecessary power consumption.

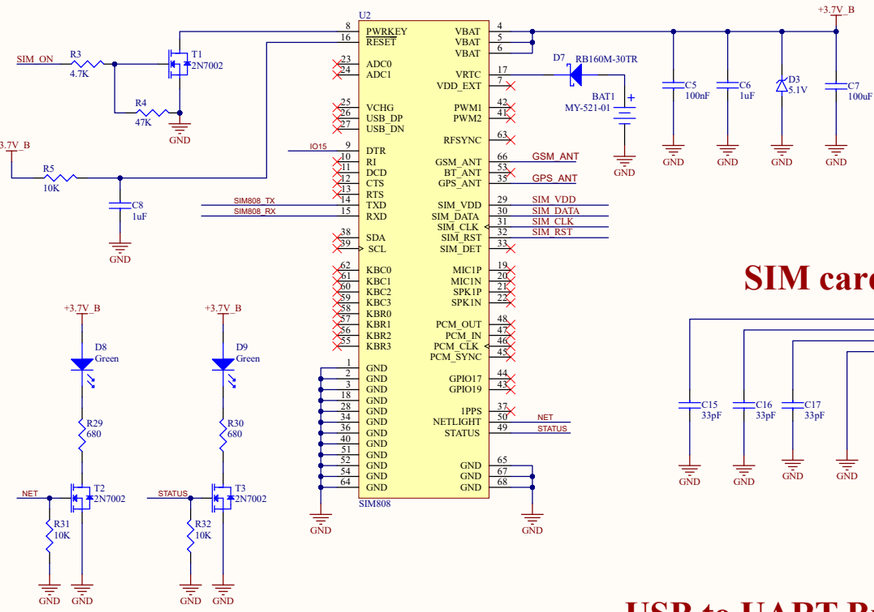
Many of the calculations for the circuit design is done using the open-source desmos graphing calculator. The calculations are done by the whole team and verified. The other set of calculations is pushed to the Github repository. Please visit the given Github link to view the remaining calculations and further information about the schematic diagram. The links for the necessary calculations are given below.

https://www.desmos.com/calculator/93ntxb0axe
https://www.desmos.com/calculator/zjyuuzehi2

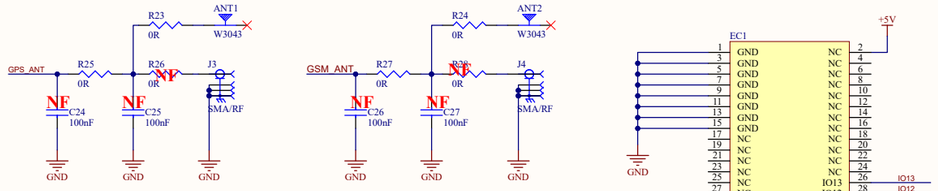
BUZZER



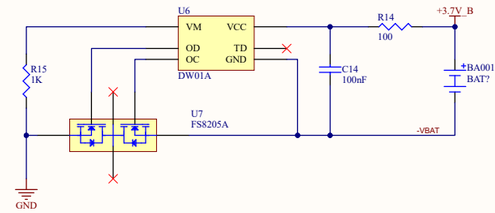
SIM808 GSM/GPRS/GPS Module



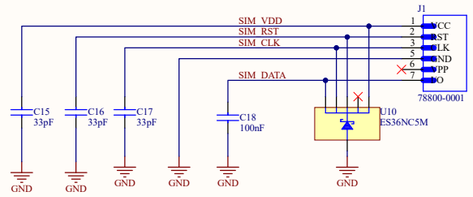
ANTENNA Connection



OC/OV Battery Protection



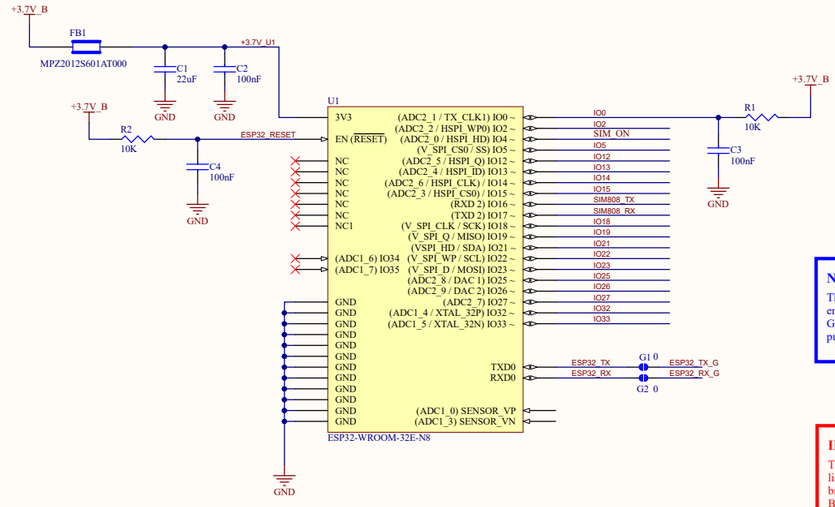
SIM card connection



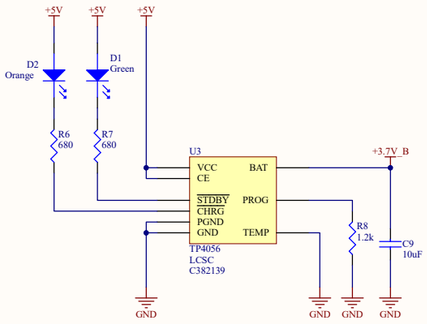
NOTE

The above antenna connections have two possible options. The user can use IPEX external antenna connection or an onboard chip antenna. The default selection is the onboard chip antenna. Change the direction of the 0 Ohm resistor to select another option.

ESP32-WROOM-32E CONNECTIONS



CV/CC Battery Charger



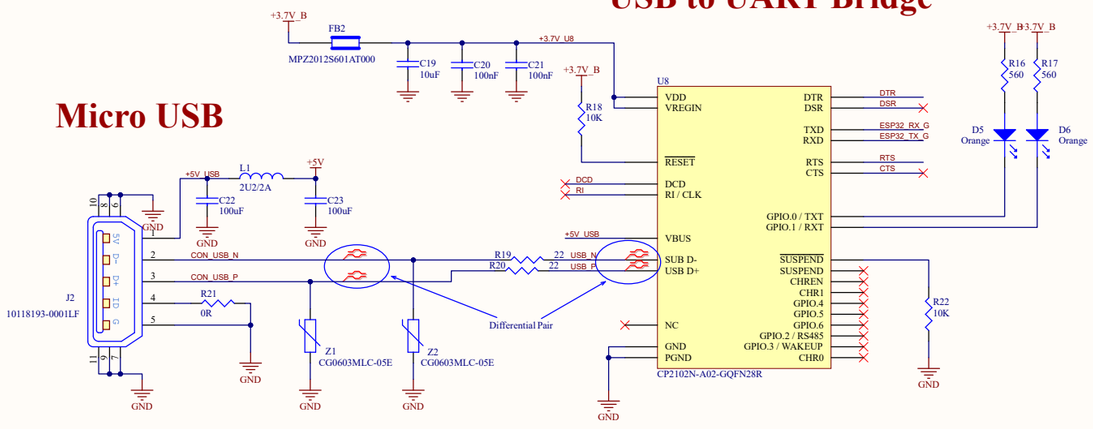
NOTE

This module variant does not have an embedded QSPI PSRAM. Therefore GPIO16 can be used for other pusposes

IMPORTANT

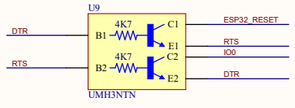
The 0 Ohm Gap is used to create a link between the USB to UART bridge to the ESP32 microcontroller. But the user can unlink the connection to prevent reprogramming the microcontroller. Connect it for programming.

USB to UART Bridge

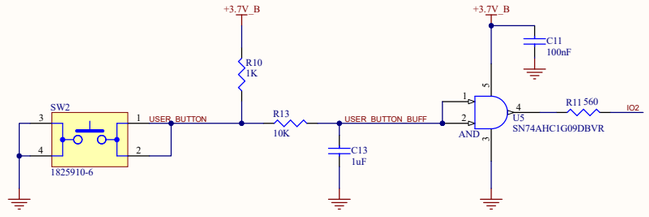


Micro USB

AUTO RST PRGRM



USER BUTTON

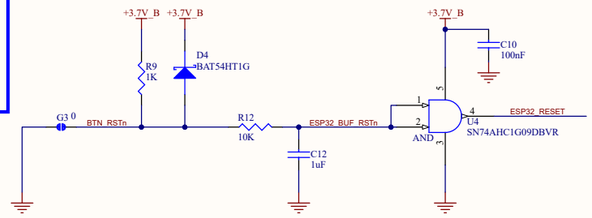


NOTE

There will be a high frequency switch bounce when pressing the button. We will use a lowpass filter with a BUFFER to filter the oscillations. For the buffer we will use a AND gate chip.

$\tau = 10ms$, Fc 16Hz

RESET BUTTON



FIDUCIALS

FID1 FID2 FID3 FID4

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