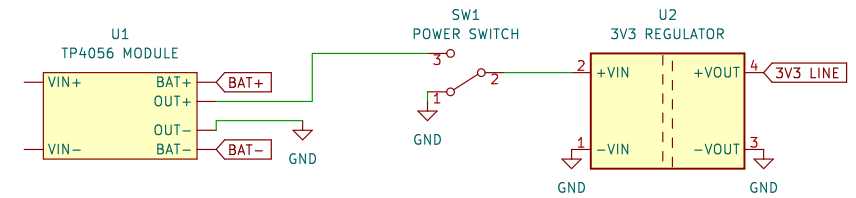# Basic schematic of the ESP-32 Gameboy

POWER INPUT + BATTERY CHARGING CIRCUITRY

U1
TP4056 MODULE
VIN+   BAT+   BAT+
OUT+
OUT−
VIN−   BAT−   BAT−
GND

SW1
POWER SWITCH
3
2
1
GND

U2
3V3 REGULATOR
2 +VIN   +VOUT 4   3V3 LINE
1 −VIN   −VOUT 3
GND   GND

I2S AMP

GPIO4
16 BCLK   Vdd 8
15 GND   Vdd 7   BAT+
14 LRCLK   N.C. 6
GPIO12
13 N.C.   N.C. 5
12 N.C.   SD_MODE 4
GND
11 GND   GND 3   GND
10 OUTN   GAIN 2
9 OUTP   Din 1
PAD 17
U6
Max98357 AMP

LS1
Speaker
2
1

GPIO15

BATT MON.
R1 100k
BAT+
C? 0.1uf
GPIO36
R2 100k
GND

DPAD BUTTONS

SW2 DPAD LEFT
3V3 LINE
SW3 DPAD RIGHT
R3
R4 10k
10k
GND
GPIO35
SW4 DPAD UP
SW5 DPAD DOWN
R5
10k
R6 10k
GPIO34
GND

MISC BUTTONS

MENU SW6
GPIO13
VOLUME SW7
GPIO0 + PULLUP
SELECT SW8
GPIO27
START SW9
R8 10k
3V3 LINE
GPIO39 + PULLUP
B SW10
GPIO33
A SW11
GPIO32
GND

ESP32-DevKitC

5V 19
3V3 1   3V3 LINE
2 CHIP_EN   U0TXD/GPIO1 35
U0RXD/GPIO3 34
7 32K_XP/GPIO32/ADC1_CH4
8 32K_XN/GPIO33/ADC1_CH5   GPIO0/BOOT/ADC2_CH1 25
ADC2_CH2/GPIO2 24
13 MTDI/GPIO12/ADC2_CH5   ADC2_CH0/GPIO4 26
15 MTCK/GPIO13/ADC2_CH4   GPIO5 29
12 MTMS/GPIO14/ADC2_CH6   GPIO18 30
23 MTDO/GPIO15/ADC2_CH3   GPIO19 31
GPIO21 33
5 VDET_1/GPIO34/ADC1_CH6 GPIO22 36
6 VDET_2/GPIO35/ADC1_CH7 GPIO23 37
3 SENSOR_VP/GPIO36/ADC1_CH0   DAC_1/ADC2_CH8/GPIO25 9
4 SENSOR_VN/GPIO39/ADC1_CH3   DAC_2/ADC2_CH9/GPIO26 10
ADC2_CH7/GPIO27 11

SD_CLK/GPIO6 20
SD_DATA0/GPIO7 21
SD_DATA1/GPIO8 22
SD_DATA2/GPIO9 16
ESP32-DevKitC   SD_DATA3/GPIO10 17
CMD 18
GPIO16 27
GPIO17 28

ESP32-DevKitC ?   GND 14   ESP32-DevKitC
U3
GND

ESP32-Wrover with 16MB Flash / 8MB PsRAM NEEDED!

3V3 LINE
R7 10k

U5 SD SLOT

GPIO22 CS
GPIO18 SCK
GPIO19 MISO
GPIO23 MOSI
GND
VCC
GND
3V3 LINE

U4 3.2 INCH LCD

GPIOEN 4 RESET
GPIO14 8 LED
GPIO18 7 SCK
GPIO19 9 MISO
GPIO23 6 MOSI
GPIO5 3   CS
GPIO21 5 D/C

SD Card Slot
SPI Interface
320x240 LCD
ILI9341

FLASH_CD 14
SD_SCK 13
SD_MISO 12
SD_MOSI 11
SD_CS 10

VCC
3V3 LINE
GND

100k Pullups can be added on the CS Pins