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**AsTeRICS Foundation**

Sheet: /

File: HM\_mainboard.kicad\_sch

**Title: HeadMouse Mainboard**

Size: A4 Date: 2023-11-9

KiCad E.D.A. kicad 7.0.8

**Rev: 1**

Id: 1/5

## A



## C

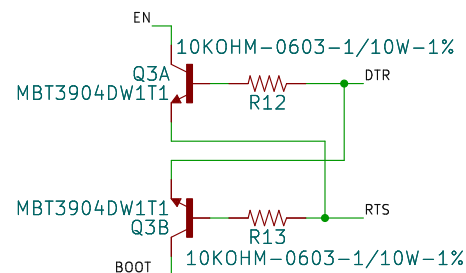


Id: 2/5

[illegible]

| Boot Mode Configuration |         |      |          |
|-------------------------|---------|------|----------|
| Pin                     | Default | Boot | Download |
| GPIO0                   | 1       | 1    | 0        |
| U0TXD                   | 1       | 1    | x        |
| GPIO2                   | 0       | x    | 0        |
| GPIO4                   | 0       | x    | x        |
| MTDO                    | 1       | x    | x        |
| GPIO5                   | 1       | 1    | x        |

If U0TXD, GPIO2, GPIO5 are floating,  
GPIO0 determines boot mode



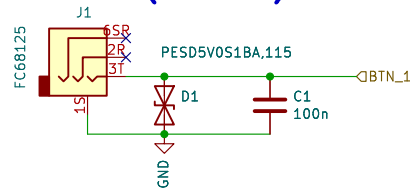
If DTR is LOW, toggling RTS from HIGH to LOW resets to run mode.  
If RTS is HIGH, toggling DTR from LOW to HIGH resets to bootloader.

The diagram illustrates the electrical connections for the ESP32-WROOM-E module. The module is represented by a yellow box with various pins and internal components labeled. The connections are as follows:

- Power Supply:** A 3.3V supply is connected to the VCC pin (pin 39) and the EN pin (pin 8). The GND pin (pin 35) is connected to ground.
- Crystal Oscillator:** A 32.768 kHz crystal (Y1) is connected to pins 8 and 9. Two 10PF-0603-50V-5% capacitors (C15 and C16) are connected to pins 8 and 9 to ground.
- GPIO Connections:**
  - GPIO12 (pin 14) is connected to MTDI/GPIO12/ADC2\_CH5.
  - GPIO13 (pin 16) is connected to MTCK/GPIO13/ADC2\_CH4.
  - GPIO14 (pin 13) is connected to MTMS/GPIO14/ADC2\_CH6.
  - GPIO15 (pin 23) is connected to MTD0/GPIO15/ADC2\_CH3.
  - GPIO34 (pin 6) is connected to GPIO34/ADC1\_CH6.
  - GPIO35 (pin 7) is connected to GPIO35/ADC1\_CH7.
  - GPIO36 (pin 4) is connected to SENSOR\_VP/GPIO36/ADC1\_CH0.
  - GPIO39 (pin 5) is connected to SENSOR\_VN/GPIO39/ADC1\_CH3.
- UART Connections:**
  - U0TXD/GPIO1 (pin 35) is connected to U0TXD.
  - U0RXD/GPIO3 (pin 34) is connected to U0RXD.
- Other Connections:**
  - BOOT (pin 25) is connected to BOOT.
  - GPIO0 (pin 24) is connected to GPIO0\_2.
  - GPIO2 (pin 26) is connected to GPIO0\_4.
  - GPIO5 (pin 29) is connected to GPIO0\_5.
  - GPIO16 (pin 27) is connected to GPIO0\_16.
  - GPIO17 (pin 28) is connected to GPIO0\_17.
  - GPIO18 (pin 30) is connected to GPIO0\_18.
  - GPIO19 (pin 31) is connected to GPIO0\_19.
  - GPIO21 (pin 33) is connected to GPIO0\_21.
  - GPIO22 (pin 36) is connected to GPIO0\_22.
  - GPIO23 (pin 37) is connected to GPIO0\_23.
  - GPIO25 (pin 10) is connected to GPIO0\_25.
  - GPIO26 (pin 11) is connected to GPIO0\_26.
  - GPIO27 (pin 12) is connected to GPIO0\_27.

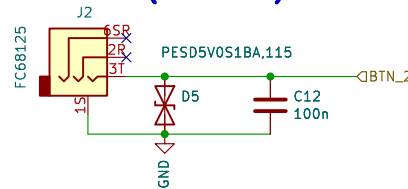
|                          |         |
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| KiCad E.D.A. kicad 7.0.8 | Id: 3/5 |
|--------------------------|---------|

### Button 1 (external)



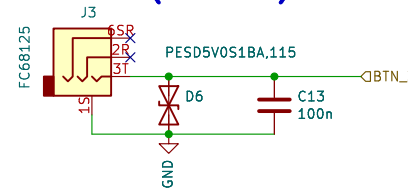
Jacks (same as on FABI)  
Cliff FC68125  
RS Pro 805-1655  
Lumberg 1503 19  
Aliexpress: "PJ321C" hard to find, here is a link:  
[www.aliexpress.com/item/32665420060.html](http://www.aliexpress.com/item/32665420060.html)  
Note: might not fit that well!

### Button 2 (external)



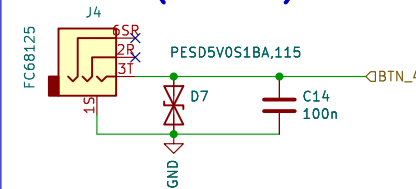
Jacks (same as on FABI)  
Cliff FC68125  
RS Pro 805-1655  
Lumberg 1503 19  
Aliexpress: "PJ321C" hard to find, here is a link:  
[www.aliexpress.com/item/32665420060.html](http://www.aliexpress.com/item/32665420060.html)  
Note: might not fit that well!

### Button 3 (external)



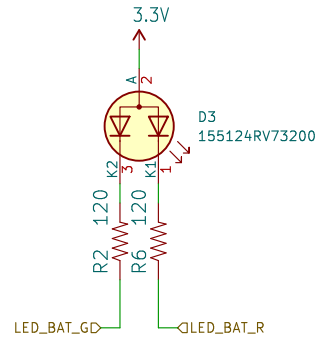
Jacks (same as on FABI)  
Cliff FC68125  
RS Pro 805-1655  
Lumberg 1503 19  
Aliexpress: "PJ321C" hard to find, here is a link:  
[www.aliexpress.com/item/32665420060.html](http://www.aliexpress.com/item/32665420060.html)  
Note: might not fit that well!

### Button 4 (external)

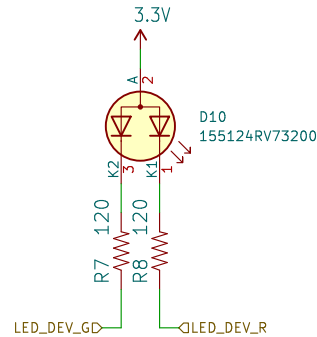


Jacks (same as on FABI)  
Cliff FC68125  
RS Pro 805-1655  
Lumberg 1503 19  
Aliexpress: "PJ321C" hard to find, here is a link:  
[www.aliexpress.com/item/32665420060.html](http://www.aliexpress.com/item/32665420060.html)  
Note: might not fit that well!

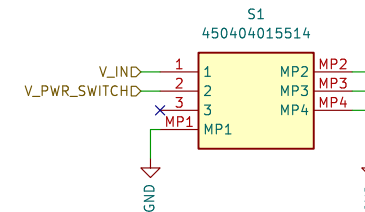
### Battery Status LED (bi-color red-green)



### Device Status LED (bi-color red-green)



### Power Switch



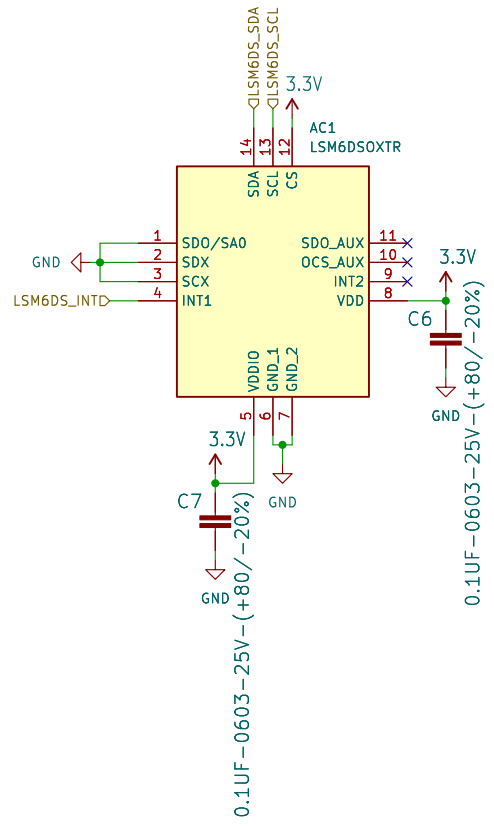
Sheet: /UI\_Peripherals/  
File: UI\_Peripherals.kicad\_sch

**Title: User\_Interface\_Peripherals**

Size: A4  
KiCad E.D.A. kicad 7.0.8

Date:  
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# 6-Axis IMU



|  |       |         |
|--|-------|---------|
| Sheet: /IMU/                                   |       |         |
| File: IMU.kicad_sch                            |       |         |
| Title: <b><i>Intertia_Measurement_Unit</i></b> |       |         |
| Size: A4                                       | Date: | Rev:    |
| KiCad E.D.A. kicad 7.0.8                       |       | Id: 5/5 |