Battery Information

ATmega32U4-MU

* VCC Range = 2.7-5.5 V
* <https://www.mouser.com/datasheet/2/268/Atmel-7766-8-bit-AVR-ATmega16U4-32U4_Datasheet-1315135.pdf>

Battery Management: MCP73831T-2ACI/OT

* V­CC Range = 3.75-6 V
* Datasheet:

<https://ww1.microchip.com/downloads/en/DeviceDoc/MCP73831-Family-Data-Sheet-DS20001984H.pdf>

Battery Candidates

3.8 V Li-On battery

* <https://www.mouser.com/ProductDetail/RRC-Power-Solutions/RRC1130?qs=DJA8%252BIqD56W3Yo8qQ6dPfw%3D%3D>

3.7 V Li-Polymer Battery

* <https://www.mouser.com/ProductDetail/Renata/ICP402025PC-1?qs=WtvvTbtNXq%252BQv7inF4n3oA%3D%3D>

(5V Li-On)

* Could system be powered through USB-C port?
  + <https://www.amazon.com/Anker-PowerCore-Ultra-High-Capacity-Portable/dp/B014ZO46LK>

(~5V Li-Po)

General Info

* Connector basics:

<https://learn.sparkfun.com/tutorials/connector-basics/all>

* How to connect battery to pcb:

<https://electronics.stackexchange.com/questions/418034/lithium-ion-battery-how-to-connect-to-pcb>

From ATmega32u4 Datasheet:

5.3.5 Preventing EEPROM Corruption During periods of low VCC, the EEPROM data can be corrupted because the supply voltage is too low for the CPU and the EEPROM to operate properly. These issues are the same as for board level systems using EEPROM, and the same design solutions should be applied. An EEPROM data corruption can be caused by two situations when the voltage is too low. First, a regular write sequence to the EEPROM requires a minimum voltage to operate correctly. Secondly, the CPU itself can execute instructions incorrectly, if the supply voltage is too low. EEPROM data corruption can easily be avoided by following this design recommendation: Keep the AVR RESET active (low) during periods of insufficient power supply voltage. This can be done by enabling the internal Brown-out Detector (BOD). If the detection level of the internal BOD does not match the needed detection level, an external low VCC reset Protection circuit can be used. If a reset occurs while a write operation is in progress, the write operation will be completed provided that the power supply voltage is sufficient