**PROJECT DESCRIPTION**

A black background with a black square

Description automatically generated with medium confidence

|  |  |  |
| --- | --- | --- |
| **Component** | **P/N** | **Supplier** |
| MCU | STM32L476VG | STMicroelectronics |
| SD Card | DM3CS-SF | Hirose Electric Co Ltd |
| USB-C | Your choice | Your choice |
| Mag Encoder | AS5145B | ams-OSRAM USA INC. |
| Motor Driver | G\_SOLTWI25/100SE8S  ODRIVE S1 | Elmo Motion Control  ODrive |
| IMU  Attached to breakout board | BNO085  [Link](https://www.adafruit.com/product/4754) | CEVA Technologies, Inc.  Adafruit |
| Load Cell | AD22151 | Analog Devices Inc. |
| CAN Transceiver | MCP2551 | Microchip Technology |
| Battery | ??? | ??? |

**Questions**

1. Did you have a particular battery in mind?

**Notes**

1. The connectors we use are 44055-x by TE Connectivity.
2. LED indicator.
   1. Solid = power on
   2. Blinking = low power
   3. Anything else, have fun with it
3. Get quotes for populated and unpopulated boards.
4. SD Card and LED(s) should be on top side of board.
5. I will provide desired board outline with mounting holes, connector locations, etc.
6. Let MCU access all INT pins.
7. Include headers for unused pins.
8. Include switch for on/off power. We use [this](https://www.digikey.com/en/products/detail/e-switch/EG1218/101726).
9. Include test point for a dedicated GPIO pin used to measure on oscilloscope.
10. Include test point for GND.
11. Board thickness 1.6 mm.

Greg TODOs

1. IMU connector pin spec
   1. What signals, how many pins?
      1. VDD
      2. GND
      3. I2C or SPI or whichever its motion processor uses
      4. INT
2. Load Cell connector pin spec
   1. VCC
   2. GND
   3. Analog 1
   4. Analog 2
3. PWM pin spec
   1. What signals, how many pins
      1. PWM
      2. GND
4. Mag encoder pin spec
   1. What signals, how many pins
      1. Data out
      2. Clock
      3. Chip select
      4. VDD
      5. VSS (I think this is just GND?)
      6. INT if it is available?
5. LEDs
   1. Preference on top mount, or right angle?
      1. Top mount
   2. Full color RGB?
      1. Up to you
   3. Multiple?
      1. Up to you
6. Battery
   1. Runtime needed?
      1. An hour would be great
   2. Where, how much space to mount? Bottom/top?
      1. Top side on the right
      2. The space depends on the size of the battery, you would have to tell me. We can discuss more on including a printed holder
   3. Connector vs direct solder?
      1. I would probably say connector but we can discuss
   4. Reverse protection is doable, reverse operation not worth it.
      1. Direct solder no reverse issue
         1. Understood, protection only is good