**Apogeeniuses**

**Decision Matrix:**

Needs: Lightweight, Small, power consumption, data storage, ease of use, affordability, connectivity, reliability, accuracy, efficiency.

**Requirements Table:**

ID 1.0, Output Voltage and Current:

ID 2.0, Weight: Maximum 1 lb

ID 3.0, Size: Maximum 3 in width, 4 in length

ID 4.0, Cost: $200 or less

ID 5.0, Minimize Power Use: Design Goal: The longer we can power the board the better. Minimum of 2 hours of battery life. Would like 3-4 hours.

**Microcontrollers:**

ESP32-C6:

Pros: User friendly (more detail), wireless connectivity, imbedded flash module built in

Cons: Higher Power Consumption, takes up more board space.

STM32F042F6:

Pros: Lower Power Consumption, Takes up small board space

Cons: Slower Clock Rate, lower number of GPIO

ATMMEGA328P:

Pros: Takes up small board space, lower power consumption, literally is ardunio uno

Cons: 8-bit Processor, Ok number of GPIO

**Different Chips Alternatives**

Microcontrollers:

Pros: Easy to use, lower power consumption

Cons: Serial execution, internal peripherals can limit scope.

FPGA:

Pros: Can be programmed at logic level (parallel processing).

Cons: More complex coding, no control of power consumption.