



Weather Balloon PCB Design

Twyla Borck

Microprocessor
Systems I

Executive summary

Old Design

New Design

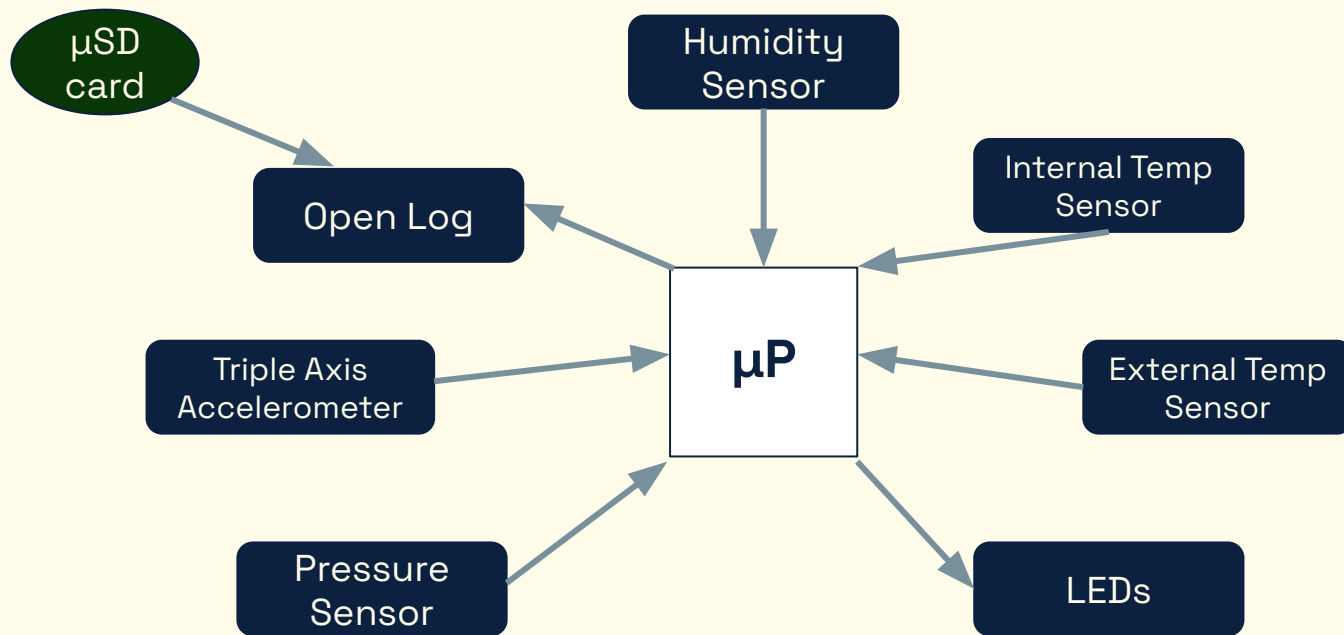
Comparison

Old Design

01



Block Diagram



Power, Cost, and Weight Analysis

Cost

Sensors

\$69.82

Miscellaneous Hardware

\$55.16

\$124.98

Run time: 2.67 Hours

Power and Weight

Power of Sensors

0.0588 W

Weight of Sensors

6.843 g

Power of other hardware

1.818 W

Weight of other hardware

79.32 g

Total
Power

1.907 W

Total
Weight

86.163 g

Components

DEV-13955

Open Logger

SEN - 10988

Temperature
Sensor

Arduino Uno

SEN - 09269

Accelerometer

D01 - 9923246

Pin Headers

64 GB micro SD
card

SEN - 09569

Humidity Sensor

151051RS11000

LEDs

SD card adapter

ELVH - 015A
-HAND - I - PSA4

Pressure Sensor

CF14JT330R

330 Ω Resistors

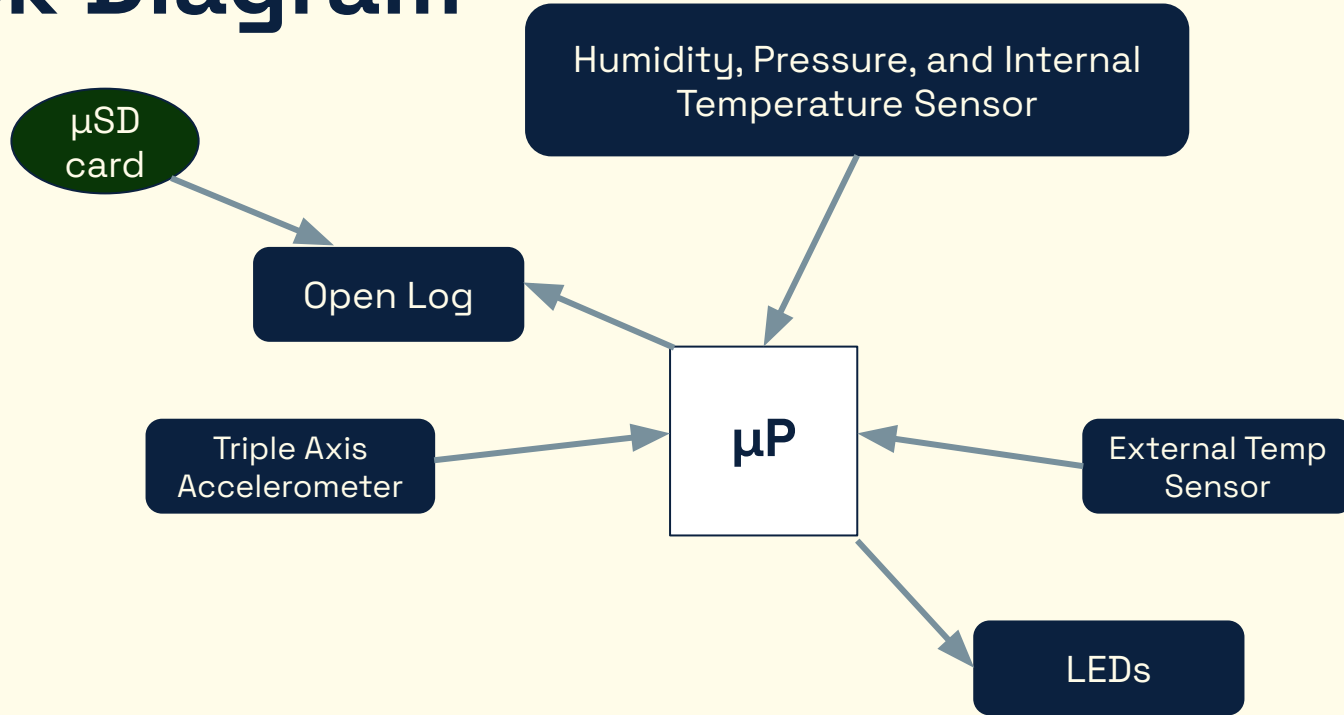
9V Battery

New Design

02



Block Diagram



Power, Cost, and Weight Analysis

Cost

Sensors

\$27.67

Miscellaneous Hardware

\$55.56

\$83.23

Run time: 2.33 Hours

Power and Weight

Power of Sensors

0.03001 W

Weight of Sensors

6.266 g

Power of other hardware

2.15 W

Weight of other hardware

80.92 g

Total
Power

2.18 W

Total
Weight

87.186 g

Components

DEV-13955

Open Logger

AD117-AXIAL

100 nF capacitor

Arduino Uno

Adafruit 2809

Accelerometer

D01 - 9923246

Pin Headers

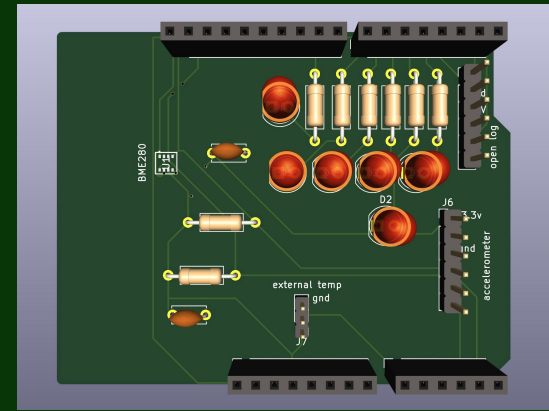
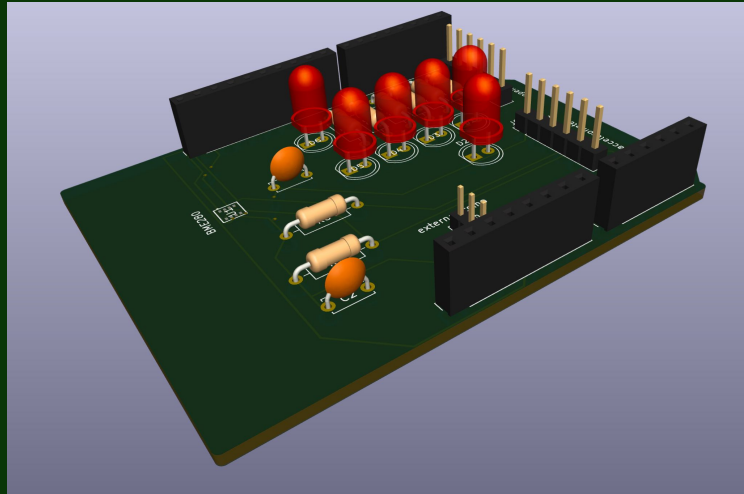
64 GB micro SD
card

BME280Humidity, Internal
Temperature, and
Pressure Sensor151051RS11000

LEDs

SD card adapter

SEN - 10988External Temp
SensorCF14JT330R
CFR-12JT-52-4K7330 Ω Resistors
4.7k Ω Resistors9V Battery



Comparison

03



Improvements



Price

New PCB design is 41.75 cheaper



Weight

New PCB design is roughly the same weight



Power

New PCB draws more power, look into additional power sources

Fits all design requirements 

A scenic landscape featuring a calm lake reflecting the surrounding forest and distant mountains. In the foreground, a wooden bench sits on a grassy bank. The scene is framed by large green shapes on the left and top right, which contain the text 'You' and 'Thank' respectively.

Thank

You