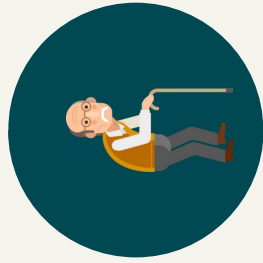


Weather Balloon

Jeremy Trafas



Methodology



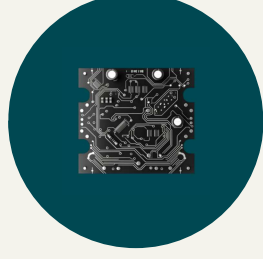
Review Old
Design



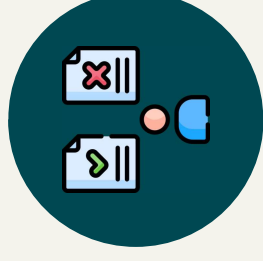
Identify
Improvements



Research
Improvements















Realize
Improvements



Compare
Designs

Old Design Review

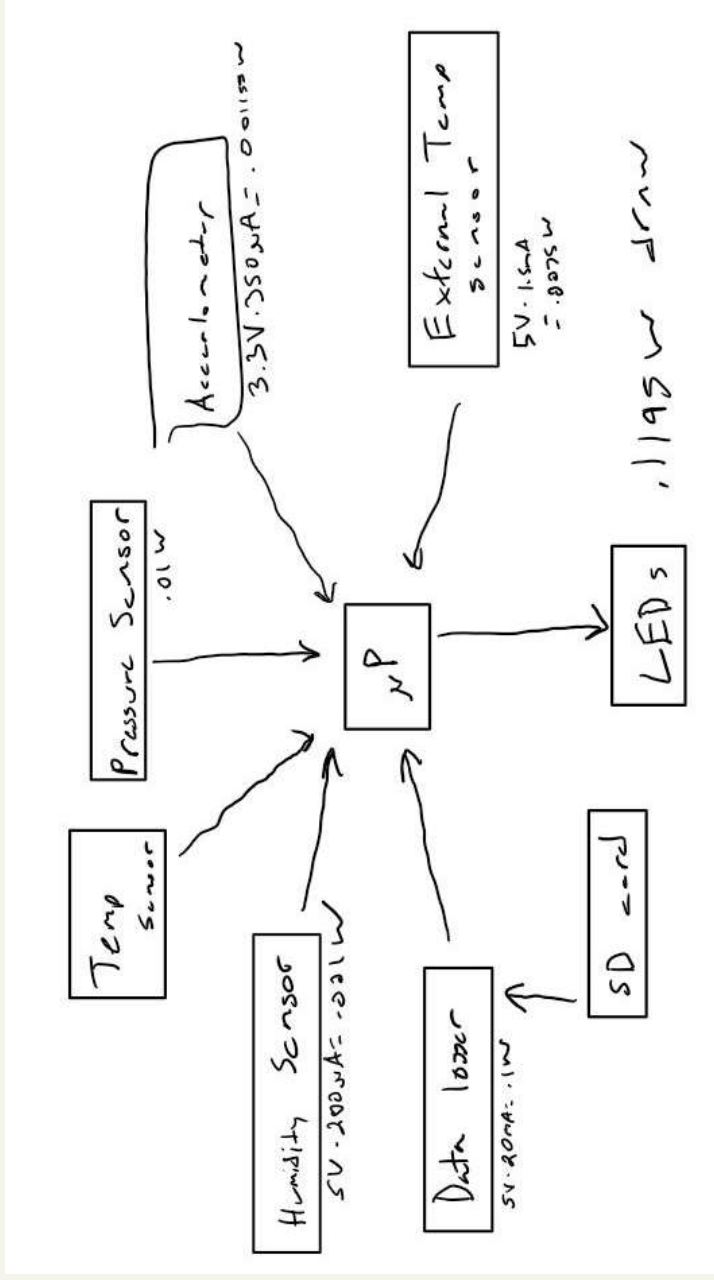
Components

1	 DEV-13955  EVAL BOARD FOR ATMEGA328 SparkFun Electronics
2	 SEN-09269  ADXL335 3AXIS ACCELEROMETER 3G SparkFun Electronics
3	 SEN-09569  HUMIDITY SENSOR BREAKOUT SparkFun Electronics
4	 SSCDANN060PAAAS  SENSOR 60PSIA 0.19\" 4.5V 8DIP Honeywell Sensing and Productivity Solutions
5	 SEN-11050  TEMP SENSOR WTRPRF DS18B20 11050 SparkFun Electronics
6	 ABX00080  ARDUINO UNO R4 MINIMA Arduino

Total













* \$142.11

* Estimates ⓘ

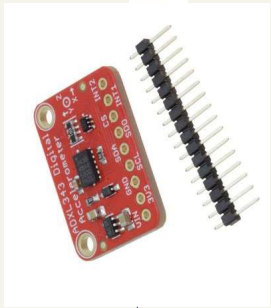


Old Design Improvements

Components

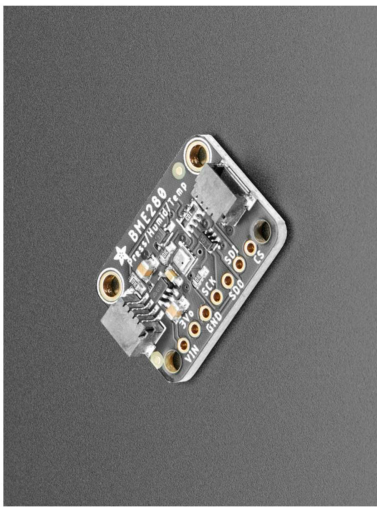
1	 DEV-13955  EVAL BOARD FOR ATMEGA328 SparkFun Electronics	\$17.50
2	 SEN-09269  ADXL335 3AXIS ACCELEROMETER 3G SparkFun Electronics	\$16.95
3	 SEN-09569  HUMIDITY SENSOR BREAKOUT SparkFun Electronics	\$20.50
4	 SSCDANN060PAAAS  SENSOR 60PSIA 0.19" 4.5V 8DIP Honeywell Sensing and Productivity Solutions	\$40.31
5	 SEN-11050  TEMP SENSOR WTRPRF DS18B20 11050 SparkFun Electronics	
6	 ABX00080  ARDUINO UNO R4 MINIMA Arduino	

Total	* \$142.11 <small>* Estimates ⓘ</small>
--------------	---



\$5.95

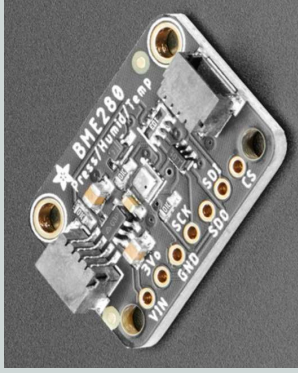
Adafruit BME280 Humidity + Barometric Pressure + Temperature Sensor Breakout
Created by lady_ada



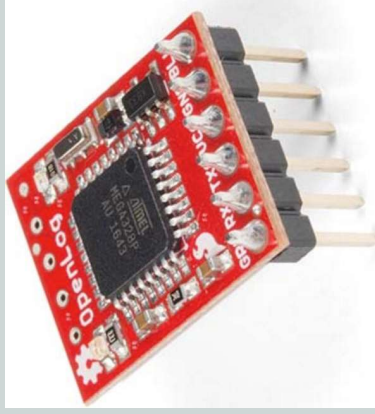
\$14.95

**My Design
Big Savings!**

New Design Components



BME280
Humidity, Internal
Temp, Pressure



DEV-13955
Data Logger

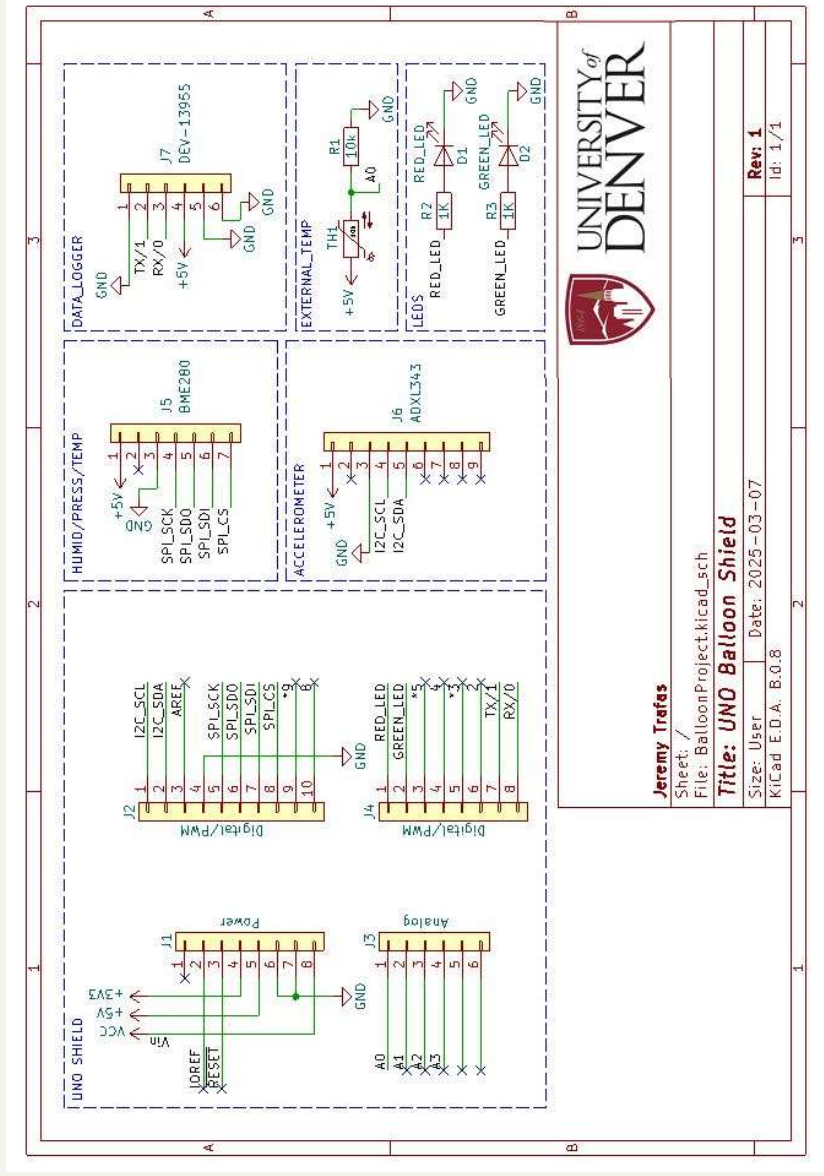


ADXL343
Accelerometer

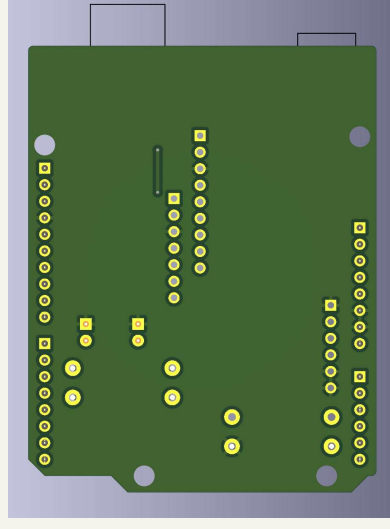
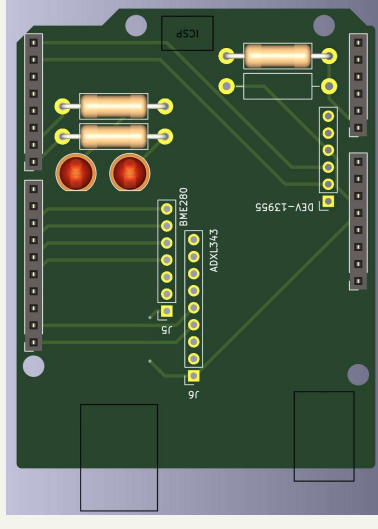
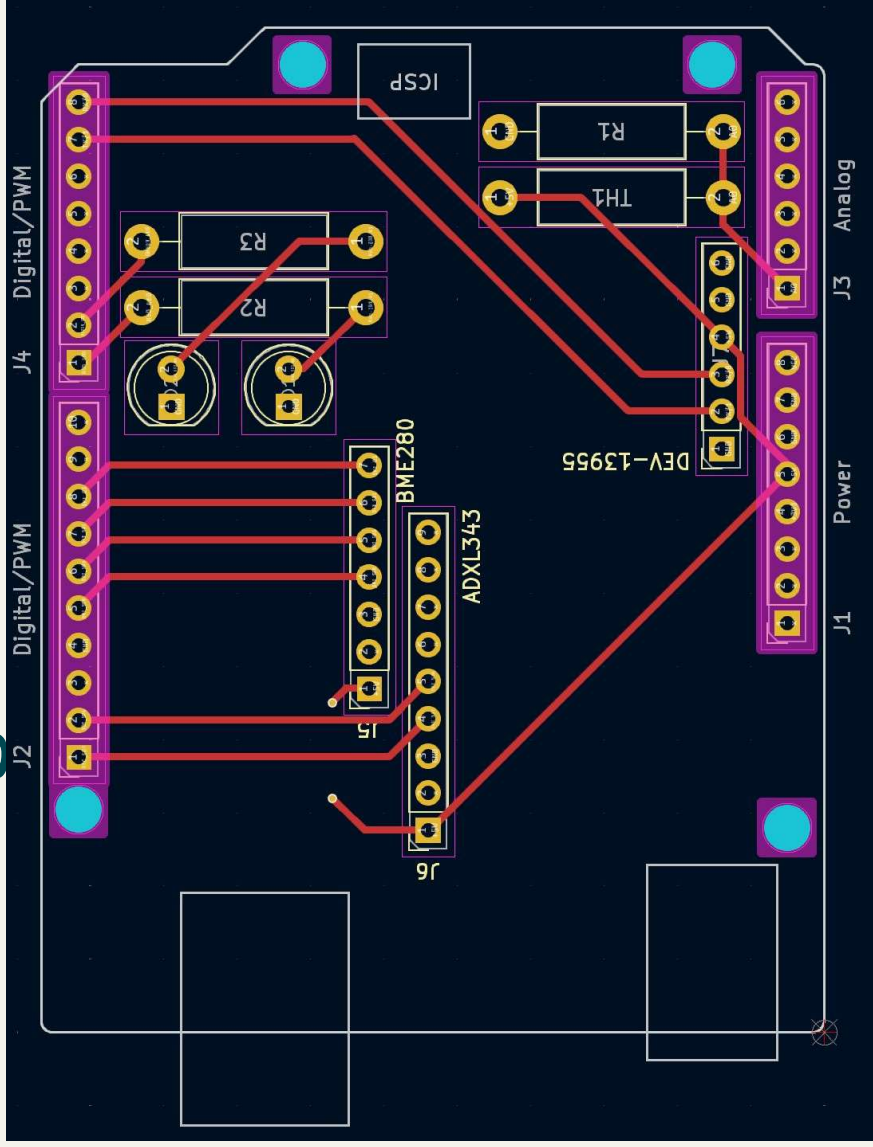


NTC Thermistor
External Temp

New Design Schematic



New Design PCB



Comparisons

Old

Price

\$155

Power

.1195 W

38hr.

Weight

<200g

New

Price

\$75

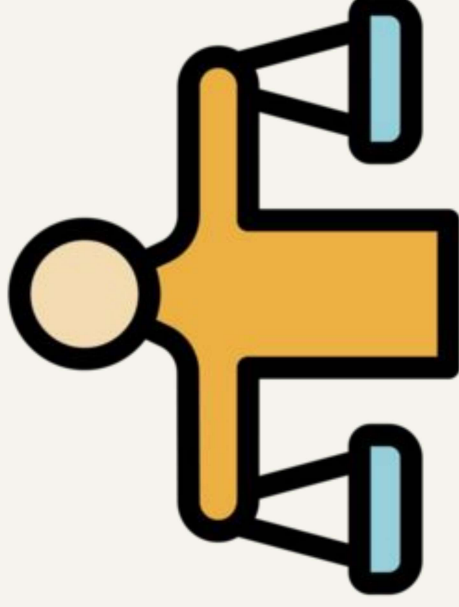
Power

.1064 W

42hr.

Weight

~130g



Key Findings

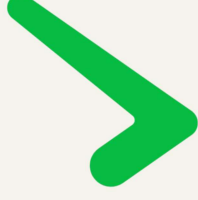
Price

-52%

Power

-11%

Weight



Thank You!

Jeremy Trafas

<https://www.linkedin.com/in/jeremytrafas/>