

Classic Car, Modern Smarts Real Time Performance Monitoring



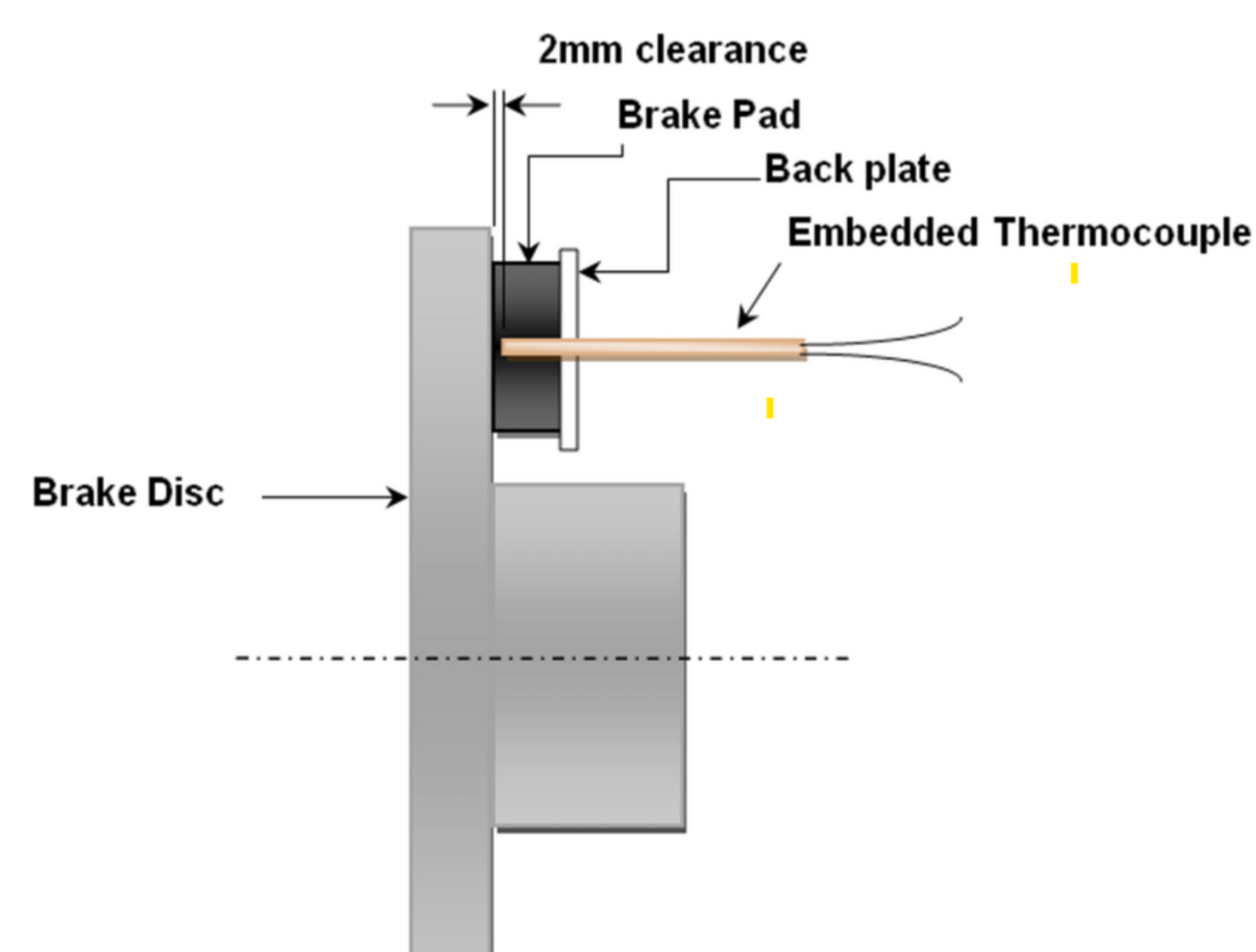
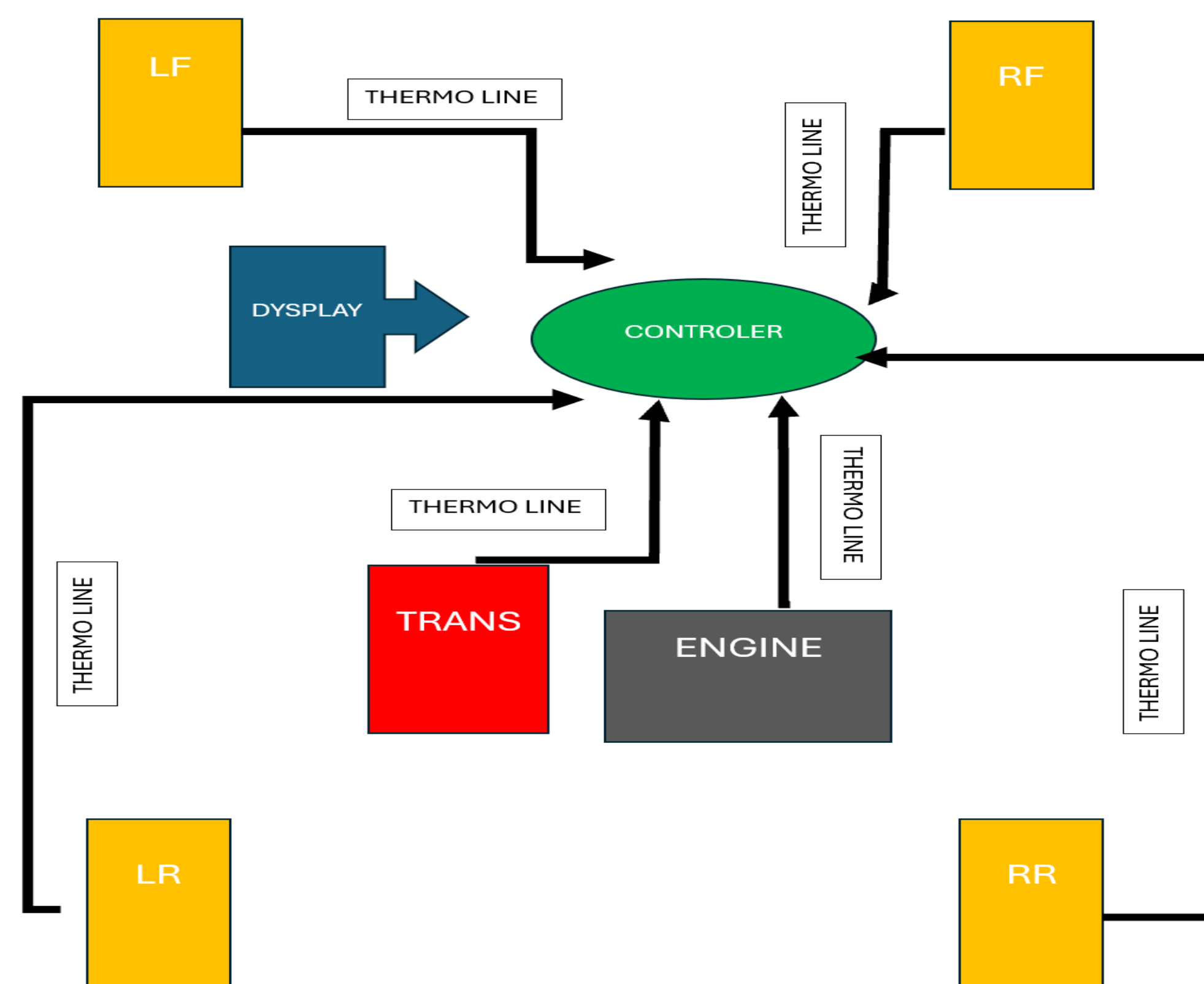
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Introduction

This project is designed to keep track of important car temperatures during track runs, especially for a classic car like my '86 engine swapped Fiero. The system watches over the brakes to prevent overheating, monitors the supercharger, transmission, engine, and outside air temperatures. It collects and stores all this information so you can study it later to find the best conditions for the car to perform. The system shows the data live on a computer through a local host website and displays key temperatures on a hidden screen inside the car, keeping the car's classic look intact. It's a tool for making any classic or large vehicle smarter and safer without changing how it looks.

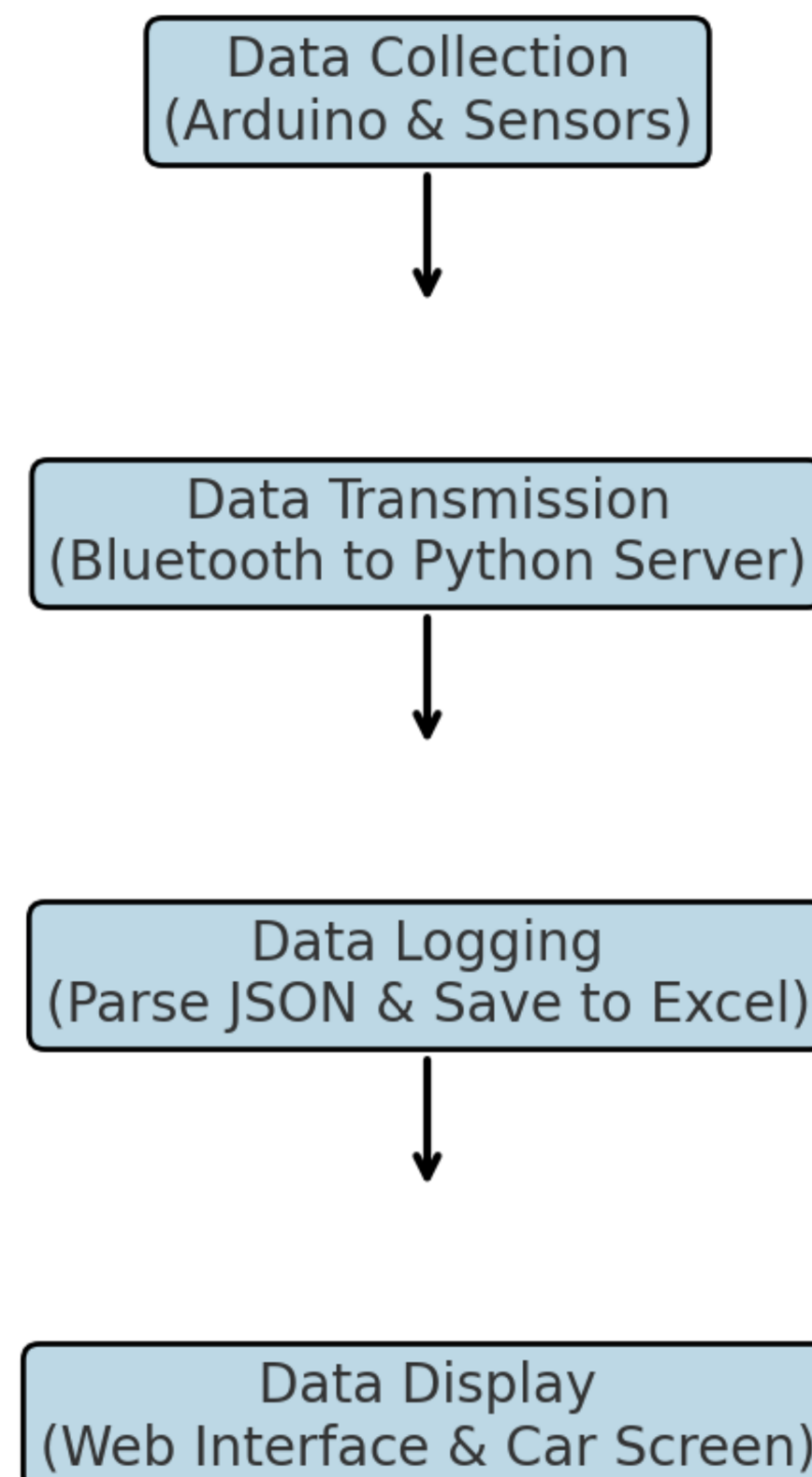
Hardware Setup

Map for thermocouple placement on car



Component
Arduino Uno
MAX31855 Thermocouple Breakout Board
K-Type Thermocouples (x8)
GY-61 Accelerometer
16x2 LCD Display
PET Expandable Braided Sleeving
Waterproof Connectors
10k Potentiometer
Resistors (220 Ohm)

Data Flow

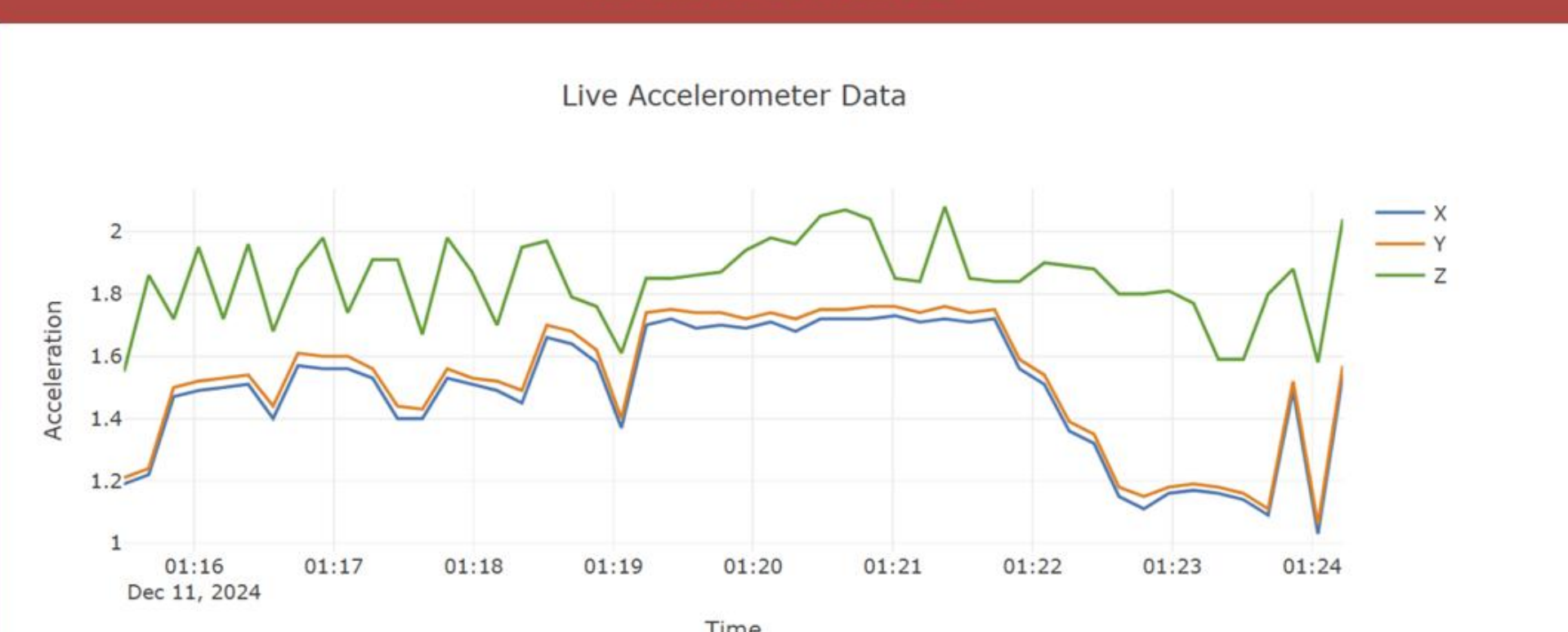


Website appearance

Accelerometer Data



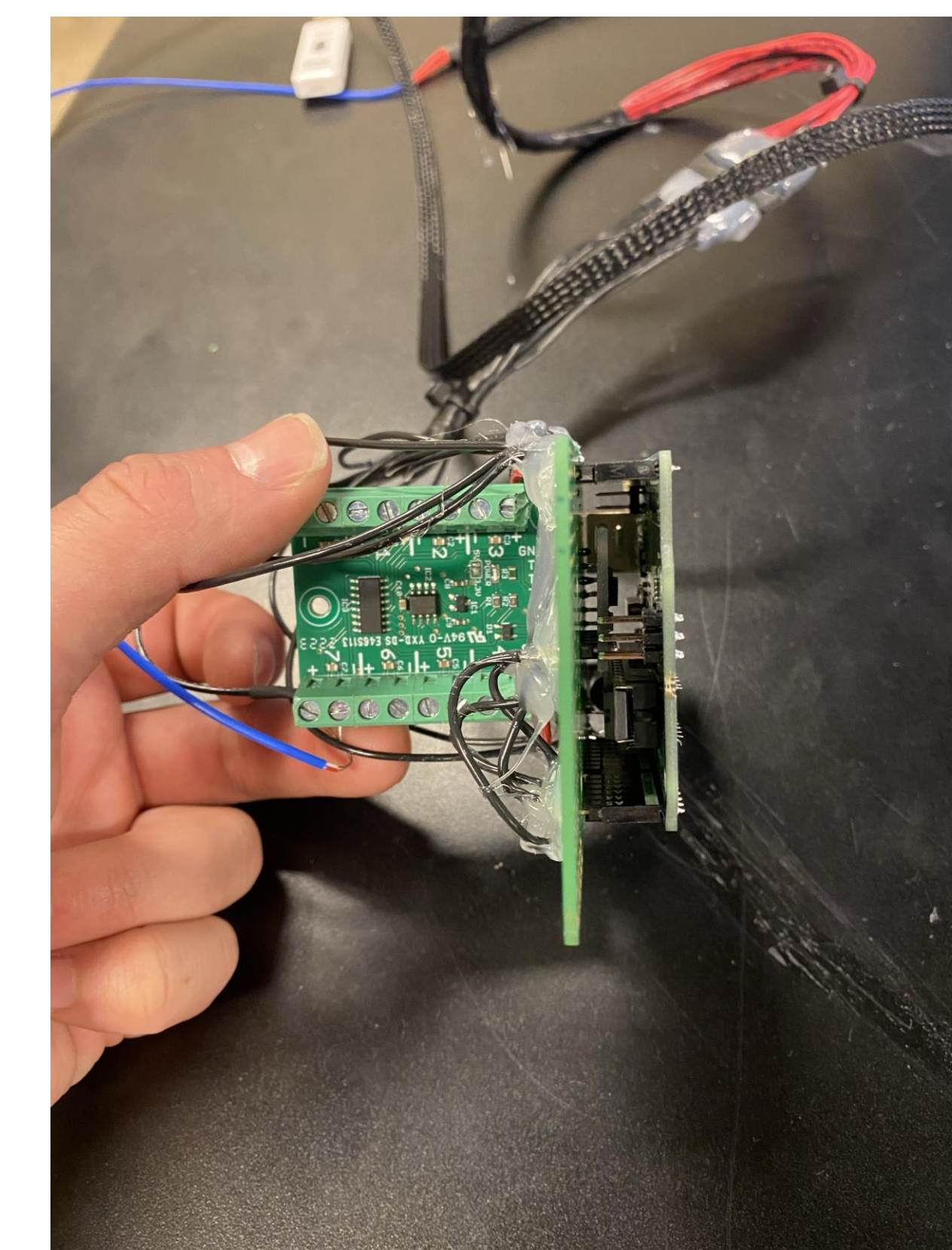
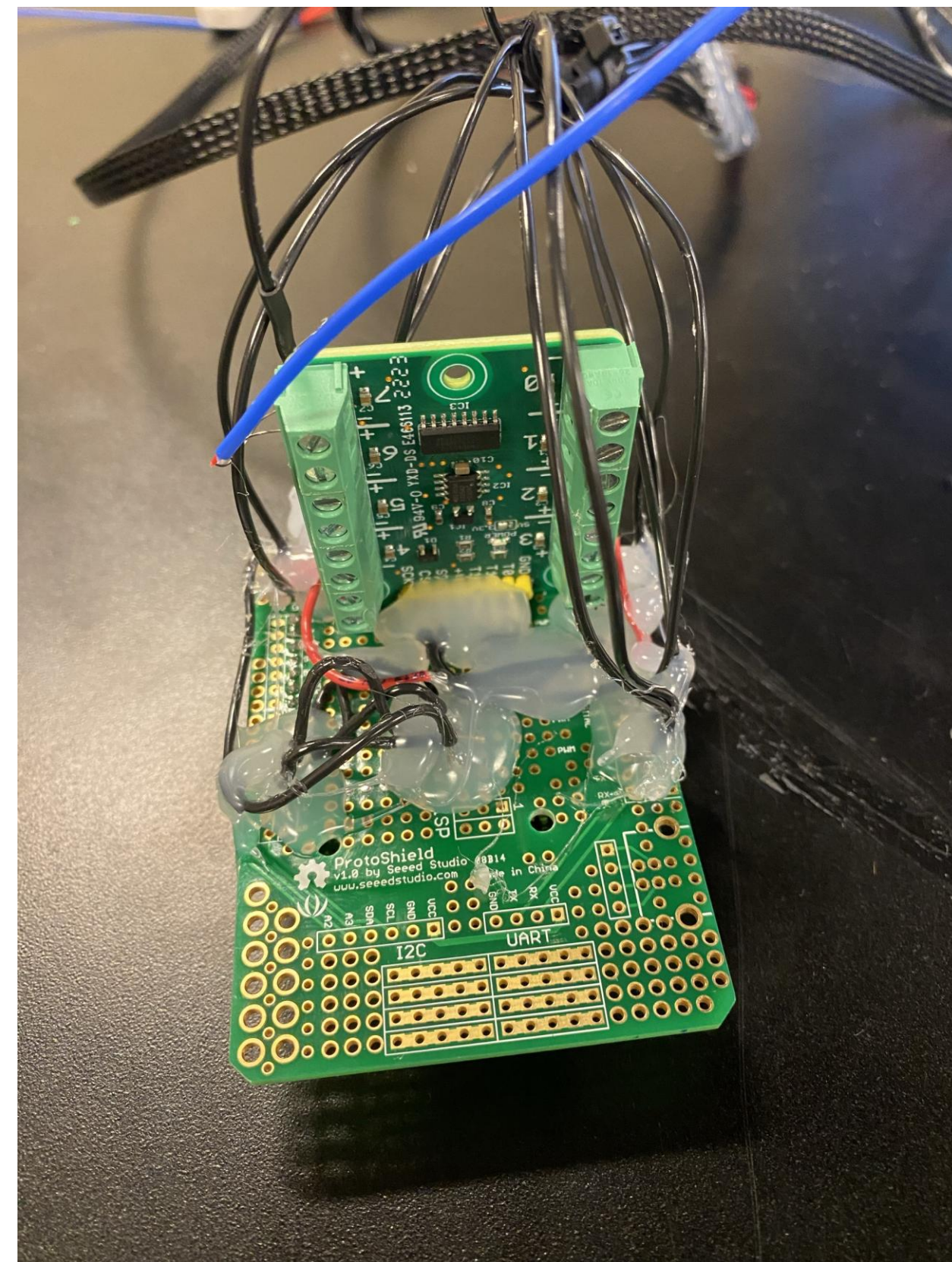
Thermocouples:
OIL TEMP: null °F
SUPER CHARGER TEMP: null °F
TRANSMISSION TEMP: null °F
BRAKE DF TEMP: null °F
BRAKE PF TEMP: null °F
BRAKE DR TEMP: null °F
BRAKE PR TEMP: null °F
OUTSIDE TEMP: 89.6 °F
Accelerometer:
X: 1.54, Y: 1.57, Z: 2.04



Final Product

Main Thermocouple Adapter Overview

- Acts as the central hub for connecting multiple thermocouples to the Arduino, facilitating accurate temperature readings from various points.
- Provides a robust and efficient interface between the thermocouples and the data processing system.



- Construction:**
- Soldered connections ensure reliability and low resistance.
- Encased in hot glue for:
 - Insulation:** Prevents short circuits.
 - Stability:** Protects against vibrations and movement.
 - Protection:** Shields from dust and moisture.

Practical Benefits:

- Ensures high accuracy and reliability in temperature monitoring by minimizing noise and signal interference.
- The hot glue encasing makes the adapter durable and well-suited for rugged environments or field testing.
- Modular design allows for easy repairs or upgrades, such as adding more thermocouples or upgrading the breakout board.

