



OVERVIEW

- An innovative approach to de-icing road surfaces
- Aims for safer and more efficient transportation.
- AI and integrated sensing systems prevent road surface freezing in real-time.
- Continuous monitoring of temperature and environmental conditions.
- Predictive algorithms activate heating element when freezing conditions are detected.
- User-friendly web application for data visualization and control.

OBJECTIVES

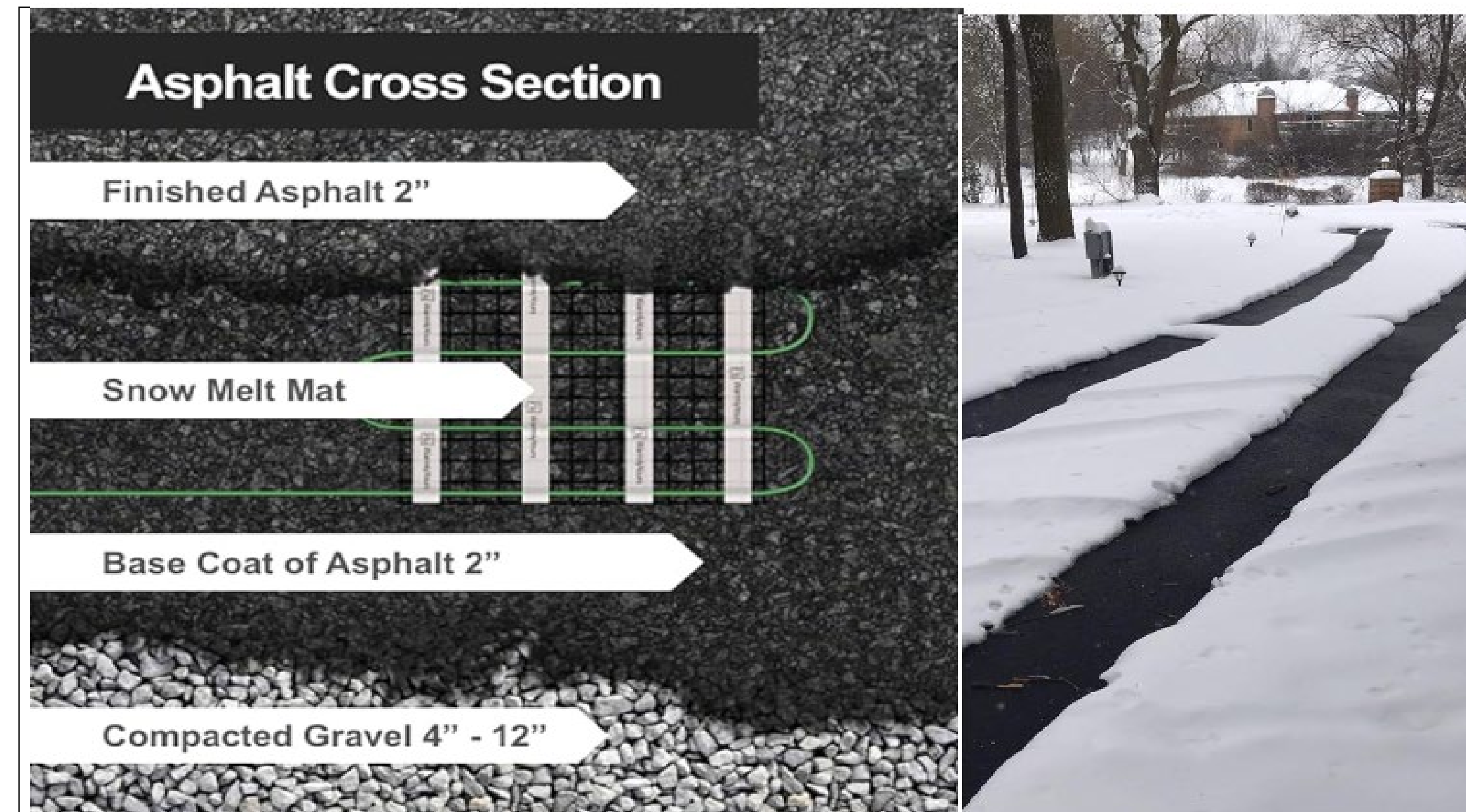
- **Objective 1: Data Collection and Integration**
To establish a system for collecting data from embedded thermocouples, measuring interface and environmental temperatures, humidity, and weather forecasts. Data is sent in real-time to a central database for analysis.
- **Objective 2: AI Algorithm Development**
To create and implement an AI algorithm to predict surface-freezing conditions based on real-time data.
- **Objective 3: Heating Element Activation**
To develop a system that can activate a heating element when AI predicts imminent surface-freezing conditions.
- **Objective 4: Adaptive Control System**
To design an adaptive control system within the AI framework to modulate heating elements based on real-time sensor data, adjusting for road temperature changes or external conditions.

BENEFITS

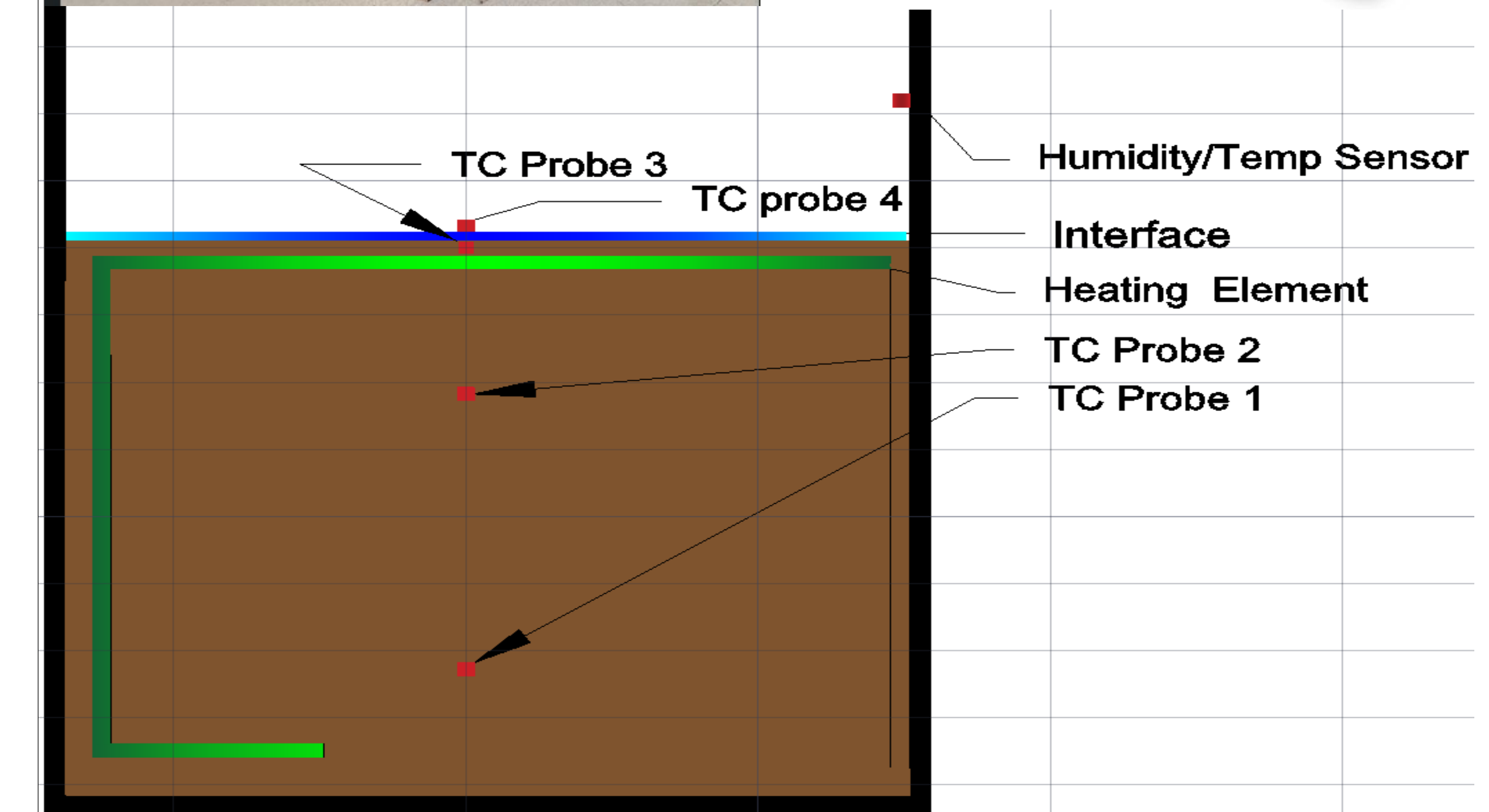
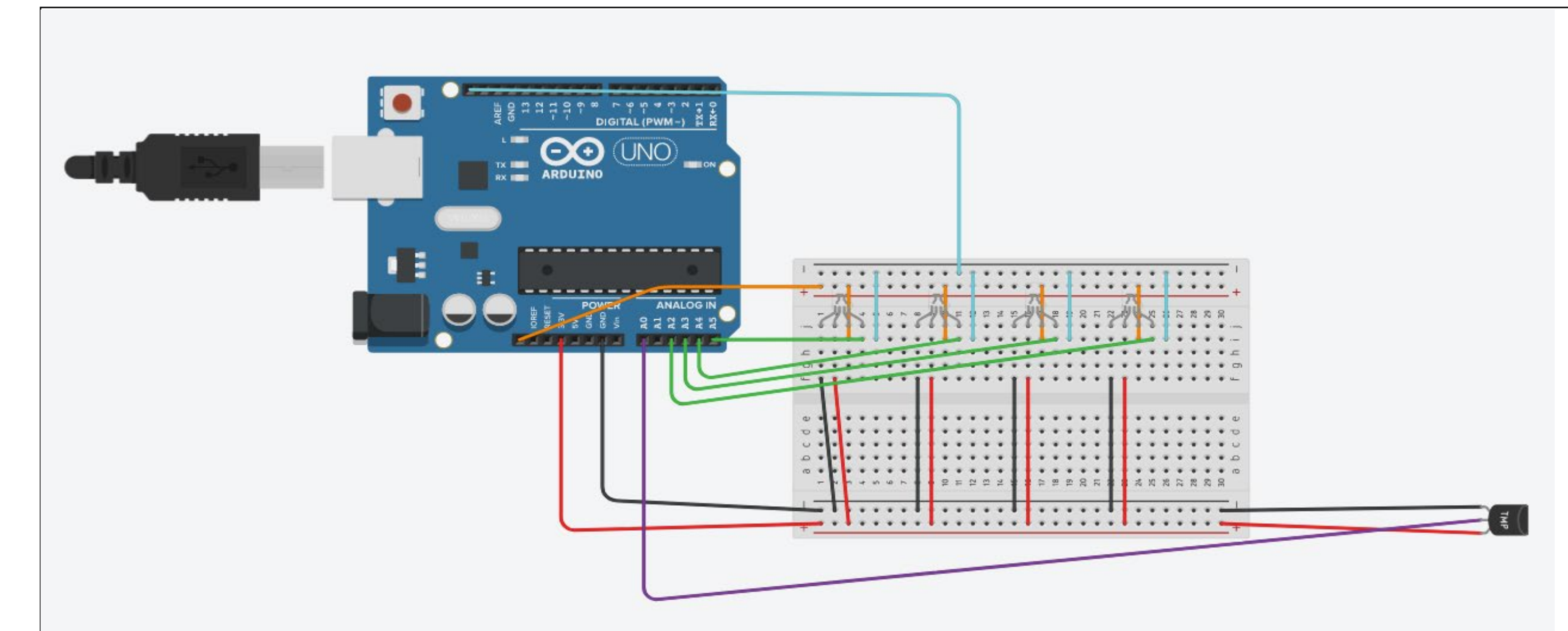
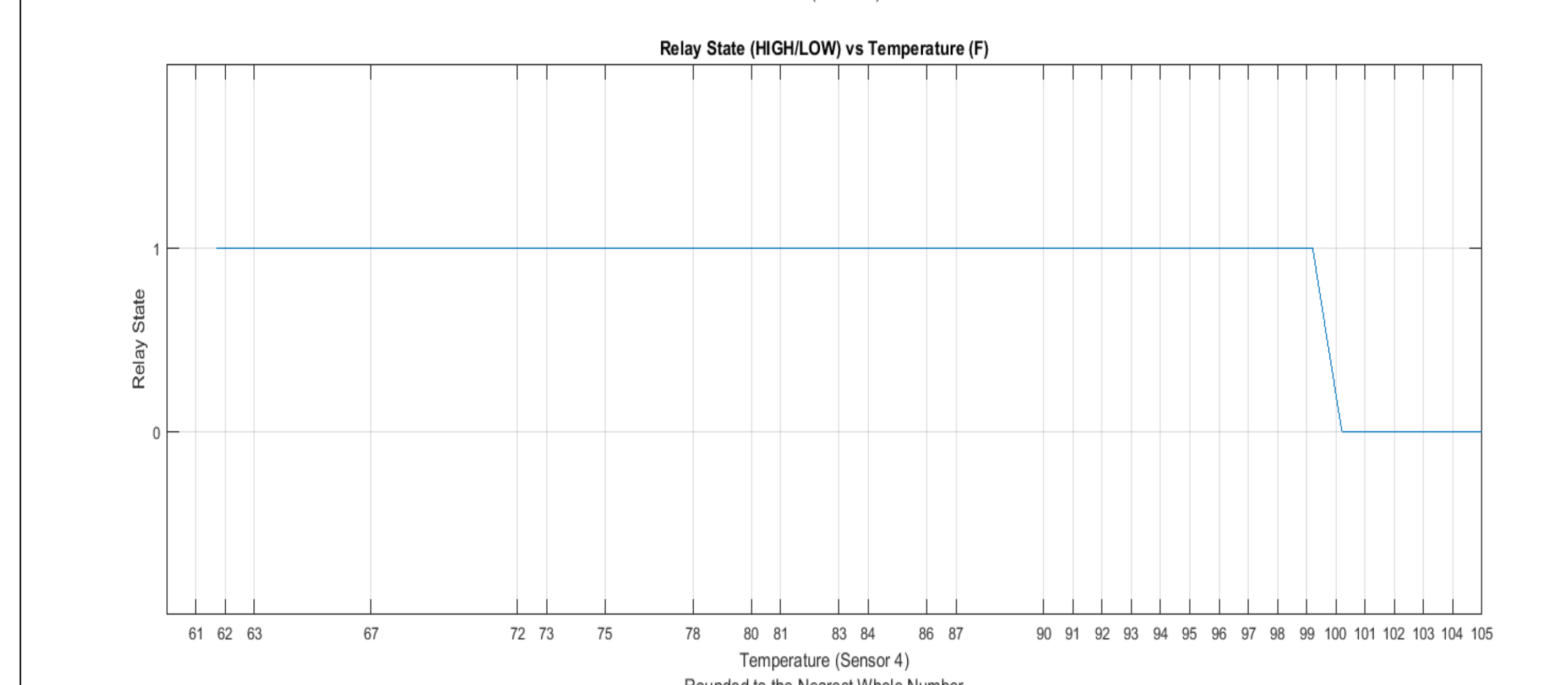
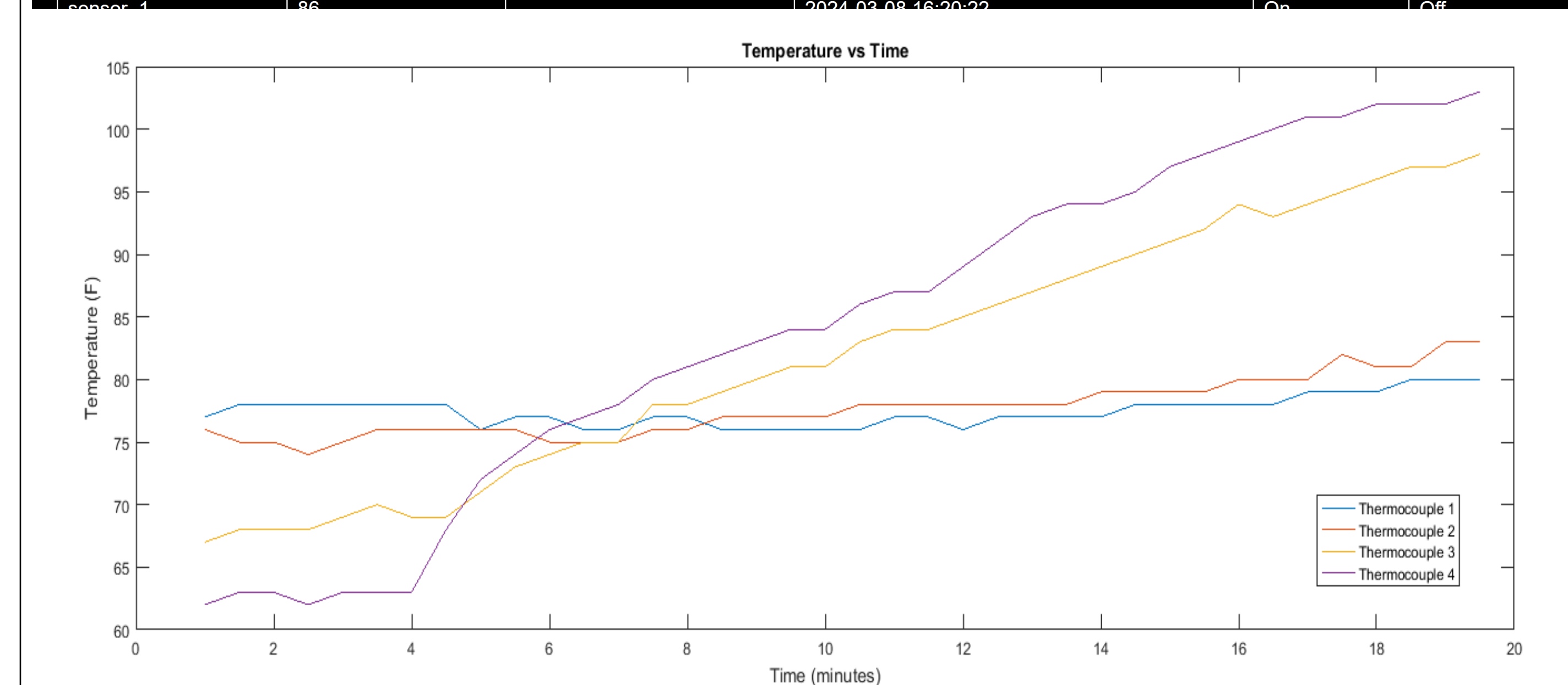
- Improved Road Safety
- Energy Efficiency
- Real-Time Monitoring
- Reduced Maintenance Cost
- Improved Travel Efficiency

APPLICATIONS

- Transportation and Road Infrastructure
- Parking Lots and Sidewalks
- Highways and Road Management
- Airport Runways



All Sensor Readings					
Sensor	Temp(F)	Humidity %	Date/Time	State	Relay
sensor_1	85.1		2024-03-08 16:20:16	On	Off
sensor_2	84.65		2024-03-08 16:20:16	On	Off
sensor_3	84.65		2024-03-08 16:20:16	On	Off
sensor_4	87.8		2024-03-08 16:20:16	On	Off
sensor_1	86		2024-03-08 16:20:18	On	Off
sensor_2	86		2024-03-08 16:20:18	On	Off
sensor_3	85.55		2024-03-08 16:20:18	On	Off
sensor_4	87.35		2024-03-08 16:20:18	On	Off
sensor_1	85.55		2024-03-08 16:20:20	On	Off
sensor_2	85.1		2024-03-08 16:20:20	On	Off
sensor_3	85.1		2024-03-08 16:20:20	On	Off
sensor_4	86.9		2024-03-08 16:20:20	On	Off
sensor_1	86		2024-03-08 16:20:20	On	Off



Collaboration with UAF

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