

HEATWATCH(Temperature Monitoring System)

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Abstract:

The Temperature Monitoring System is a digital project designed to measure and monitor temperature levels in real-time. This system uses digital sensors, microcontrollers, and display units to collect, process, and display temperature data. It can be used in labs after some advancedments. It offers a practical application for various industries, including environmental monitoring, healthcare, and industrial control. The project involves the integration of a temperature sensor, counter IC, flip-flops, logic gates, a 7-segment LED display, and power supply components on a breadboard or PCB. It performs various tasks like it records and monitors temperature, it gives a security alarm when Temperature reaches extremes. It displays the Temperature in both Celcius and Fahrenheit. It also displays the average Temperature over 24hrs.

Our motivation is to provide safety measures and safe working conditions for employees. After some advancements we can provide this setup for maintaining optimal Temperature in Industries to make Industrial processes more effecient.

Our unique contribution is Hypothetically we can implement Alarms, maintain optimal temperature and share data using bluetooth/WiFi

Components used:

- Temperature Sensor (e.g., LM35, LM75, or thermistor).
- Counter IC (e.g., 74LS90 or 74LS192).
- Flip-Flops (e.g., 74LS74).
- Logic Gates (e.g., 74LS00, 74LS32).
- Display (e.g., 7-segment LED display).
- Power supply components (voltage regulator, capacitors, etc.).
- Breadboard or PCB for circuit construction.

Reference:

IEEE organization

<https://ieeexplore.ieee.org/document/9487691>

Textbook:- M Moris Mano

Wikipedia

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