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Temperature and Humidity Monitoring using NodeMCU

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Abstract: The paper thus proposes an advanced system that monitors the temperature at various points of location in a data centre and makes this temperature data visible over the internet through cloud-based dashboard and sends SMS and email alerts to predefined recipients when temperature rises above safe operating zone and reaches certain high values. Most of our daily life activities depend on environmental conditions. Traditionally, such parameters are monitored inefficiently with a wired moni toring system, which incurs greater cost of implementation and maintenance. Moreover, the device to detect temperature in terms of a thermometer is not at all appropriate for online measurement because it requires more time to give a response in terms of measurement. The said technology facilitates remote, efficient monitoring of temperature as well as humidity. This system captures real-time data about temperature and humidity in rooms, which ensures safety, protection of equipment, and quality control. The two main parts of this system include a nodeMCU microcontroller equipped with ESP8266 Wi-Fi capability to easily send data to the Arduino IoT Cloud. In this system, DHT11 is applied in determining environmental conditions.

Keywords: NodeMCU microcontroller,DHT11 sensor, ESP8266 Wi-Fi, Jumper wires, USB cable, LCD display

