Sensor Data Monitoring on Web Server and Thingspeak Cloud Using Raspberry Pi Pico W

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Abstract

This research explores the interface of a Raspberry Pi Pico W with DHT (digital temperature and humidity) sensor using Arduino IDE. The main aim is to detect environmental data, including temperature, humidity, heat index and dew point, and transmit them to a web server and the ThingSpeak platform for real-time monitoring and analysis. The arduino code demonstrates how to interface sensors, read data, and connect with the ThingSpeak platform and web server for data visualization and analysis. Real-time sensor data can be visualized on serial monitor and OLED display. Moreover, sensor data can be viewed on ThingSpeak cloud in the form of a live-graph or widget from anywhere with the internet access and also viewed on mobile phone using the thingview app. Data can be exported and stored in CSV format. Sensor data can be visualized on web page which is created using HTML and CSS. This research highlights the foundation for creation cloud technology that involves remote monitoring and data logging using the Raspberry Pi Pico W and various environmental sensors.

Keyword: Raspberry Pi Pico W, ThingSpeak, web server, DHT, Arduino code.

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