small weather monitoring system using esp32

components are:

* ESP32
* DHT11 sensor
* 4.7k Ohm resistor
* Breadboard
* Jumper wires
* Raspberry Pi

Wiring the components

A picture containing text, table

Description automatically generated

A picture containing text, electronics

Description automatically generated

Diagram

Description automatically generated

A circuit board with wires

Description automatically generated with low confidence

The ESP32 collects the temperature and humidity readings from the DHT11 sensor and publishes them to Mqtt broker, the temperature and humidity readings are published in the in the esp32/dht/temperature and esp32/dht/humidity topic.

A picture containing indoor

Description automatically generated

The Mqtt broker is installed on a raspberry pi.

Graphical user interface, application

Description automatically generated

The code is uploaded to the ESP32.

Graphical user interface, text, application, email

Description automatically generated

A picture containing graphical user interface

Description automatically generated

A picture containing text, electronics, display, screenshot

Description automatically generated

The Node-RED and Node-RED dashboard is installed on the raspberry pi. Node-RED is subscribed to those topics and the dashboard displays the readings received from the sensor.

A picture containing diagram

Description automatically generated

Text

Description automatically generated

Text

Description automatically generated

A NodeJS server that subscribes to mqtt topics and sends an html file.

Text

Description automatically generated

Text

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Then go to <http://localhost:3000/> to access the html file. The page shows the current sensor readings.