IOT Personal Weather Station

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Abstract - *BME280 is used to measure temperature in Celsius, the temperature in Fahrenheit, humidity, and Pressure. The control device in this project is an ESP8266 NodeMCU, which connects to an operating WiFi network and creates a Server. When a connected device requests this web server, the ESP8266 reads temperature, humidity, pressure, as well as altitude from the BME280 and transmits them to that device's browser.*

Key Words: BME-280, NODE-MCU, WEB-BROWSER

1. INTRODUCTION

Agriculture is crucial to a country's development, especially for a vast country like India. Irrigation is defined as the application of controlled amounts of water to plants at regular intervals. The amount of water provided to plants is deduced by the soil type and the nature of the plants. This process takes a long time and is usually, if not always, done manually. Farmers may use that manpower and time to manage other vital areas in the field if the process can be automated, enabling them to get more productivity out of their day. To implement proper irrigation the farmer should have proper knowledge of the environmental conditions of the field area. Implementing BME-280 with Node-Mcu will help the irrigation system as it will act as weather station providing humidity, temperature and humidity. By automating this process plants and crops are chosen accordingly to grow on the particular field.

2. LITERATURE SURVEY

Using IoT technology, a client live remote weather system can be created. The Internet of Things (IoT) is a network of connected devices that can receive and transmit without requiring human contact. The cloud platform can provide better weather data access anytime and at any time as a result of the creation of a cloud-based system. Weather surveillance and management require simple methods and new techniques. Monitoring the weather attribute is essential to analyse the current state of the weather and take appropriate action based on the data retrieved from the device. It is an embedded system which consists of web enabled smart such as processors, sensors and communication hardware, to fetch, transmit and work on available data they obtained from their weather. The IoT devices sent this processed data to the network gateway, and from there, it will be available to within network. But by designing such a system which also available on public Internet also is make more advantage to human life. Previously many of IoT based weather monitoring system design used third parties IoT platform such as Thing Speak. But we have designed our cloud-based server because of that anyone can easily access our web-based service or through android app.

3. PROPOSED SYSTEM

3.1 Objective of the Work

● To implement weather station to detect humidity , temperature and altitude.

● Development of low-cost environmental condition detector to analyze the parameters.

● To make this project cost effective and efficient for farming

3.2 Proposed System Approach

❖ **Preparing the Arduino IDE –**

Installing the library:

Arduino IDE > Sketch > Include Library > Manage Libraries. to install the library. Also for the Library Administrator to update the different list of the required libraries and download and use the libraries index. Adafruit's BME280 Library is the one to look for. Then select Install from the drop-down menu.

❖ **Displaying Parameters using ESP8266 :**

Here we configure our ESP8266 into Station (STA) mode, and open Thingspeak to serve up web pages to any connected client under existing network. We can check whether data through anywhere using Internet with Thingspeak.
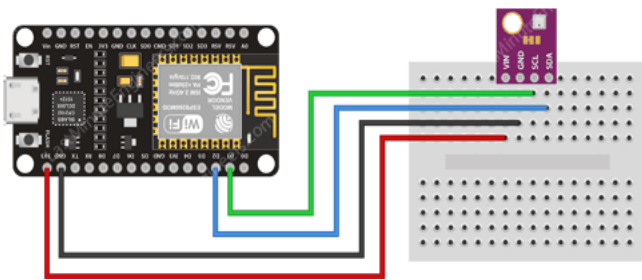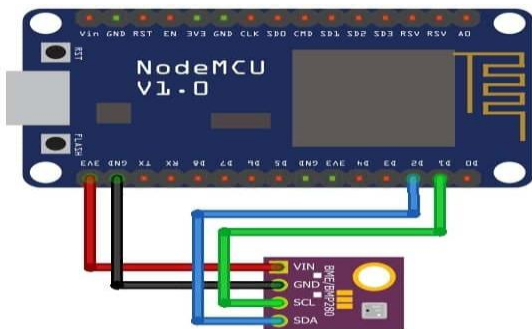

Fig 1: Circuit diagram of BME-280 and Node-MCU

3.3 Interfacing BME-280 To ESP8266 Node-Mcu :

The BME280 Sensor is connected to an Node-Mcu in the D Weather Station. Connect the SDA and SCL pins of the BME280 to the Node-Mcu I2C GPIO pins D2 and D1, respectively.

4. SOFTWARE REQUIREMENT

Thing-Speak Thing-Speak is an IoT platform designed for collecting, monitoring, and analysing real-time data streams. Thing-Speak generates real-time embeddings provided to it by your devices. With the possibility to run MATLAB code in Thing-Speak, you may study and integrate data in real time. Thing-Speak is a popular analytics tool for IoT experiments and proof-of-concept projects.

Arduino IDE - The Arduino IDE is a free tool that allows you to develop code for Arduino boards and upload it to them IDE stands for Development Platform in this situation (ide). Sketching is the term used to describe the process of developing a software or code in the Arduino IDE. To upload the code written in the Arduino IDE software. The 'ino' extension is used to save the sketch.

5. RESULTS

6. CONCLUSIONS

In this project we have built a technique which is used to detect different parameters of weather. This will increase the efficiency to detect the weather condition. It will give knowledge of weather to farmers.

ACKNOWLEDGEMENT

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