

Weather Monitoring System: Engineering College Prospective

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Abstract

This The IOT based Weather Monitoring and Reporting System project is used to get live reporting of weather conditions. It will monitor temperature, humidity, and moisture and rain level. Suppose Scientists/nature analysts want to monitor changes in a particular environment like volcano or a rain-forest. And these people are from different places in the world. In this case, SMS based weather monitoring system has some limitations. Since it sends SMS too few numbers. And time for sending SMS increases as the number of mobile numbers increases. In order to know the information about weather of a particular place then they have to visit those particular sites. Where everyone can see it.

Keywords: — *Weather monitoring, Temperature, Humidity, Rain Detect Sensor, Sms*

Introduction

Here we propose a smart weather reporting system over the internet .Our proposed system allows for weather parameter reporting over the internet .It allows the people to directly check the weather status online without need of a weather forecasting agency .System uses temperature ,humidity as well as rain sensor to monitor weather and provide live reporting of the weather statistics. The system constantly monitor temperature using temperature sensor, humidity using humidity sensor and also for rain .The system constantly transmit the data to microcontroller .

II.EXPLORATORY DATA ANALYSIS (EDA)

The system is used for maintaining the temperature and humidity in a room. It is going to sense temperature and humidity of targeted area not city or village. Key Words: Weather monitoring, packaging industry, micro controller, sensors and Arduino.

III. LITERATURE SURVEY

[1]. Effective and cheap methods to monitor the quality of the air and prevent it from a potential hazard. The author collects the data from the app and analyzes the Air Quality Index (AQI) at different time intervals. They correlate CO and NO2 levels against humidity and temperature [1]. The embedded controller is designed to measure the temperature and humidity of the environment. The monitoring station sends the data through a wireless network on a web page. It uses the GPS module, Real Time Clock to measure real-time weather data at a particular location. The monitored data uploaded on the cloud using a mobile application. The sensor used is wind speed, wind pressure, temperature, and humidity [2].B.S.Rao et al.[3] have Created a wi-fi network by the client to get access the cloud services and microcontroller. The data is uploaded on the Thingspeak. The

system used by the author is cost effective as it cannot use the DHT sensor which reduces the cost at a lesser extent. The author displays the result in the OLED display. It uses Wemos board instead of ESP8226 board which has inbuilt WIFI module. Kodali and his team [4] has developed a pressure monitoring system using CC3200 launch pad. The result obtained is compared with commercial thermometer and barometer. The sensors used are BMP085(Pressure Sensor), CC3200 and AT&TM2(cloud Technology). The average error in pressure measurement is 0.035%. In temperature measurement, the average error is 2.02%. The measured parameters are sent to the cloud services. The author works on Nodemcu which is also combined with different sensors like temperature, humidity, noise, CO and rain. The main advantage of this work is that it is low cost and less power consumption. It is installed anywhere to monitor the climatic changes. The system helps the user to select the best suitable environment. It uses various sensors like temperature, humidity, noise detector, and gas detector. Moreover, the data to be monitored on the website [5]. The author S N Swamy and his team [6] uses repetitive data management to handle repeated data in IoT. RDMA algorithm is applied to data collected from different sensors like DHT11, Digital light sensor, pressure sensor, and rain detecting sensor. In this work, comparison between the repeated data and non-repeated data is presented successfully. The proposed algorithm reduces the 44.83% network load and eliminates the data processing overhead due to repeated data generated by different sensors in IoT. Durrani et al [7] have used various sensors like humidity, pressure, temperature, light, rain level sensor and Air Quality, and so forth are used. It acquires data from the different sensors and send data to the cloud and display the resultant data in the mobile App. It also predicts the next 24 hours data and forecast in the web. In this paper, the author also uses various machine learning algorithm like Recurrent Neural Network. Step 4: Linear regression and multiple regression algorithm is used to display the data of weather. Step 5: The result is shown in Arduino IDE, Rstudio, ThingSpeak and Mobile App view.

IV. PROBLEM STATEMENT AND OBJECTIVE

1. Problem Statement

Pred. Problem Statement: Weather monitoring system being very hard for better performance of the solar plants has the issue of higher cost. The hard drive based data logging facility requires a separate computer setup for its operation and many a times, the data stored cannot be manipulated in a useful mean

2. Objectives

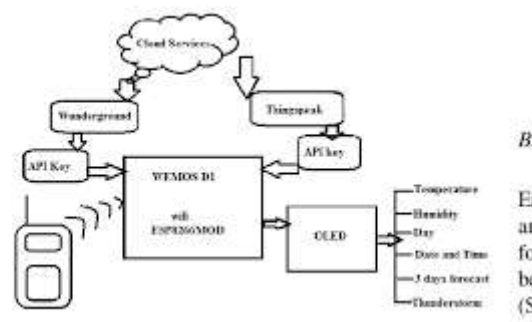
The main objectives are:

The aim of weather monitoring system is to detect, record and display various weather parameters such as temperature, humidity. This system makes use of sensors for detecting and monitoring weather parameters and then this collected information is sent to the cloud which can be accessed using the internet.

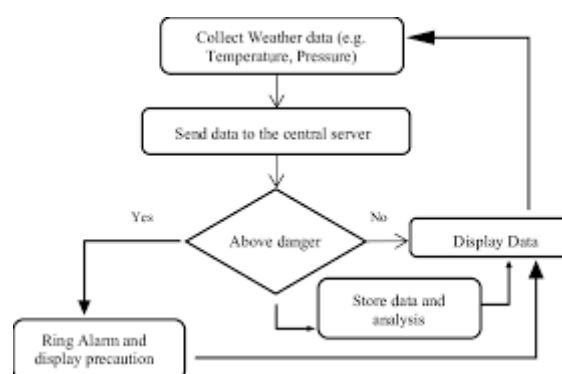
V. PROPOSED SYSTEM

1. The system proposed for monitoring weather conditions in a particular place like temperature, humidity, CO Level using sensors, sensors detect changes in environment and send it to the users for making statistical analysis, **iot** is the technology used for monitoring, collecting, controlling and connecting the system .
2. The implemented system consists of a microcontroller (ESP8266) as a main processing unit for the entire system and all the sensor and devices can be connected with the microcontroller. The sensors can be operated by the microcontroller to retrieve the data from them and it processes the analysis with the sensor data and updates it to the internet through Wi-Fi module connected with it.

VI. ARCHITECTURE DIAGRAM



VII. FLOW CHART REPRESENTATION



VIII. CONCLUSION

The data can be stored online, which can be used to forecast weather and eventually analyze climate patterns, as well as for other meteorological purposes. The system uses a good combination of analog and digital sensors in wired and wireless modes of operation. In this area of global warming research in weather monitoring system are becoming more and more relevant getting the latest weather monitoring system and taking necessary precaution have become a major issue all over the world. Weather monitoring plays an important role in human life so the collection of information about the temporal dynamics of weather changes is very paramount.

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