

A SURVEY ON ENVIRONMENTAL PARAMETERS MEASURING USING IOT

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ABSTRACT: The Novel IOT Architecture of the proposed weather station uses various sensors for monitoring weather parameters. In this paper it is mainly assigned with the switches for different modes. The proposed system uses five different modes for sending data to end users. In this, if any mode is pressed or selected those sensors data is sent to the end users like GSM, webpage and LCD. Hence, in this survey various papers are studied in which they used various components to measure the weather data and output is displayed on various modules like Android app, GSM, webpage, thing speak etc.

Keywords: Raspberry Pi-3, PIC microcontroller, Sensors, GSM, Webpage.

I. Introduction

Environmental parameters monitoring plays an important role in human life, so the gathering of information about the progressive dynamics of weather changes is very important. The project aims at designing a system which keeps track of the weather conditions and we can continuously screen the environment parameters through Wi-Fi. In this paper DHT11 is used to measure both temperature and humidity values. MQ2 sensor is used to sense LPG gases, Alcohol, Propane, and Hydrogen. MQ7 is used to sense CO levels. MQ-9 is used to keep track of CO2 levels. MQ135 is used to sense ammonia, alcohol, Benzene and smoke. We can also sense rain with the help of moisture sensor. We can also screen the rain levels using rain gauge. We can also monitor the wind direction and wind speed.

WORKDONE:

Kondamudi Siva Sai Ram, A.N.P.S.Gupta [1], contracts with checking and governing the ecological circumstances like temperature, relative moisture, light intensity and co2 level through sensors and sensors information is processed in Arduino and send to user end using Wi-Fi module. The information is displayed on thingspeak in the method of graphs. Meetali V. Rasal, Prof. Jaideep G. Rana [2], this climate monitoring system has been established to Record, displaying of the climate parameters using relative sensors. Prachi H. Kulkarni, Pratik D. Kute [3], idea for an IOT device that gathers data concerning physical strictures, using microcontroller platform, different devices, through dissimilar modes of communication and then uploads the data to the Internet. The presented device has remained planned for remote monitoring of meteorological conditions parameters. Nisha Gahlot, Varsha Gundkal [4], System design contains of transmitter and also receiver of ZigBee. Transmitter section consist of dissimilar kind of sensing element such as temperature, moisture, rain quantity measurement, wind direction, wind flow and also the sun intensity and receiver will receive the records from microcontroller and displayed in PC. Karthik Krishnamurthi, Suraj Thapa [5], used 3 sensors to amount the weather factors such as temperature, moisture, light power, precipitation point and heat index. The standards recite from the sensors are processed through the Arduino micro-controller. The readings are displayed on an on board LCD for quick viewing.

Poonam S. Patil¹, S.R.Sawant, R.R.Mudholkar [6], this system is designed to monitor weather parameters like temperature and humidity with digital display. The stored data can be transmitted to personal computer (PC). Micro-controller AVR-At mega 32 is the heart of the weather monitoring system. T.Sudha, D.Udaya Kumari, T.Sathya [7], the System uses temperature, humidity as well as rain sensor to monitor weather and provide live reporting of the weather parameters. They used the IOT technology. Mr. Pravin Pawar, Mr.Sudarshan Lahade [8], monitored weather parameters like temperature, humidity, rain fall, pressure and light intensity of the atmosphere. The sensors data is processed in raspberry pi and processed data send to online. Pramod Arvind Kulkarni, Vaijanath V Yerigeri [9], we are interested to identify the geographical areas for solar and wind energy generations at a very low cost. It can be achieved by monitoring atmospheric Weather conditions such as temperature, humidity, wind speed and light intensity. Mr. Nerella Ome, Mr. G. Someswara Rao [10], monitored temperature, humidity, light intensity using relative sensors and sensors data is send to Arduino to process. The processed data is send to cloud using ESP8266 and data sent to thingspeak. Akhilesh Chawla, Tejas Bangera [11], designed an efficient, compact and cost effective weather station that gives us valuable information about temperature and humidity using highly reliable sensors HC-05 Bluetooth Module. Gaurav Jadhav, Kunal Jadhav [12], the project aims to build a system to monitor the parameters in a given environment. With the evolution of miniaturized sensor devices wireless technologies it is possible to remotely monitor the parameters. Bulipe Srinivas Rao, Pof.Dr.k.Srinivas Rao [13], monitored the weather parameters using different sensors with Arduino, Wi-Fi module and web server. Thangarasu, Srinivasan [14], the effective implementation of real time data built with GPRS modules and networking of weather station. Yibin Li, Jia Si [15], It intends to assess the exactness of various expectations and they designed weather station for harvesting. Miroslav kadlec,Barbora buhnova [16], they display a calculation for planning water radiators and wild photovoltaic creation are intended for genuine arrangement. Connor Wright, Christine [17], the heap and climate decent variety inside the control territory of a diverse utility in the region of a Saskatchewan. Emmanuel kondela, Amos nungu [18], in this weather station they monitored weather data globally using internet. Niimura,Ozawa [19], given probability of precipitation data as input to get the projected broadsheet outline of PV output. Rohan singh,kishan bhushan sahay [20], Hourly one hour ahead breeze speed determining has been improved the situation test of every day and month of information of year of 2014 utilizing unbiased systems. Muhammad nurwiseso,adang suwandi ahmad [21], the learning developing framework uses climate sign criteria as the premise of climate gauge. J.X Yeo,Y.H. LEE [22], keeping in mind the end goal to enhance the execution of the site decent variety framework, the determination of the assorted variety destinations end up basic with usage of the radar information. Hari ginard,abdul munif [23], the productive and appealingly demonstrate a course for movement with climate condition on the course. They designed this weather station for travellers, so that messengers can know the weather data before planning there tour. Powell, Hedengren [24], the warm vitality stockpiling enables the framework to influence the ability to dispatch capable data. J. A. Oliveira-Lima, V. Delgado-Gomes [25], this task introduces an inventive fitting and play approach for the coordination of climate stations with control framework gadgets, bolstered by a standard based and administration arranged programming foundation called NEMO, in view of the IEC 61850 and DPWS correspondence guidelines. Kaladevi Ramar, Dr.T.T.Mirnalinee [26], intended to determine semantic heterogeneity by utilizing semantic relations got from reference metaphysics based philosophy arrangement calculation and union the mapped ideas to get a bound together cosmology. E.kanagaraj, L.M. Kamarudin [27], weather data from sensors node send through WSN towards base station attached to embedded computer (Robin Z530L) and these data is accessed and sent to web-based monitoring. Aris Munandar, [28] the design of real-time weather monitoring system based on a mobile application using Automatic Weather Station (AWS). The system connects to the AWS equipped with several sensors for collecting data and storing the data to the web server. Data from weather sensor is taken from the AWS-Davis Instrument using the Weather Link software.

ADVANTAGES:

Kondamudi Siva Sai Ram, et al [1], Using of IOT technology for sending of data. Meetal V. Rasal, et al [2], this arrangement can be relevant to the numerous of applications like Data monitoring, sending and controlling of data at remote location. . Prachi H. Kulkarni, et al [3], It is a low cost weather station where Iot technology is used and data is sent online. Nisha Gahlot, et al [4], It is a low-slung price climate station. It also reduces manpower and Wireless Sensor Systems, Quicker Information transfer. Karthik Krishnamurthi, et al [5], Using of IOT technology to send processed data through cloud to end user. Poonam S. Patil1, et al [6], The DHT11 sensor serves the purpose of high accuracy in terms of measuring temperature and humidity whereas the HC-05 Bluetooth module enables high data rate, better range and portability. T.Sudha, et al [7], Due to wrong prediction of weather and incorrect irrigation. This system will prove to be an important part in development in agricultural field. Pravin Pawar, et al [8], It is a low cost weather station. Easy to implement and used for getting measurements of weather parameters. Pramod Arvind Kulkarni, et al [9], It is easy to implement and inexpensive weather station. Mr. Nerella Ome et al [10], IOT based weather reporting system provides an efficient internet based weather reporting system for users. Akhilesh Chawla, et al [11], Using of IOT technology with raspberry pi-2, where the Raspberry Pi 2 delivers six times the processing capacity of previous models. Gaurav Jadhav, et al [12], It is a low cost project. Easy to implement and get data as SMS through GSM. Bulipe Srinivas Rao, et al [13], Due to wrong prediction of weather and incorrect irrigation. This system will prove to be an important part in development in agricultural field. Thangarasu, Srinivasan et al [14], and Using Arduino with Wi-Fi module we can get data any were in the world in web page. Yibin Li, et al [15], It simplifies the concept complexity of coding. Miroslav kadlec, et al [16], Reconfigurable equipment can set aside to 50% vitality expended to programming based execution. Connor Wright, et al [17], this framework might be less noteworthy decreases of vitality misfortunes in the influence lattice. Emmanuel kondela, et al [18], the predominant execution of load for estimating framework. This weather station provides good weather data services of the remote stations. Niumura,Ozawa et al [19], The framework is generally associated with utility matrix for reinforcement capacity to control over private vitality administration. Rohan singh,kishan et al [20], The execution of these models is high in mean supreme rate blunder. Muhammad nurwiseso, et al [21], the observing of past information will be higher precision in the developing framework. J.X Yeo, et al [22], the chose destinations we can enhance the general site assorted variety framework. Hari ginard, et al [23], the application will be associated with the guide box API to get delineate of the city plainly. Powell, et al [24], with a specific end goal to completely comprehend and upgrade the execution of the warm vitality. J. A. Oliveira-Lima, et al [25], Sun oriented board is utilized to give control supply to whole framework. Kaladevi Ramar, et al [26], they utilized layers to demonstrate climate determining on page. Utilizing of layer we can comprehend the effectively the procedure going ahead in the venture. E.kanagaraj, et al [27], effectively extends radio communication range and minimize power required to transmit data. Aris Munandar, et al [28], The Android application reads the files and displays the information provided by the web server in real-time.

DISADVANTAGES:

Kondamudi Siva Sai Ram, et al [1], they used few sensors. Thingspeak server they used for records gathering where data in the form of graph we cannot get the correct values of measurement.Meetal V. Rasal, et al [2], Using LCD for displaying data it may or may not work instead of this we can use mobile apps using cloud. Prachi H. Kulkarni, et al [3], they used limited sensors to monitor weather parameter and SMS may also be sent though GSM. Nisha Gahlot, et al [4], If we want unremitting monitoring of necessary constraint then we have to retain pc on at receiver that will rise the power feasting. Incomplete Communication range. Karthik Krishnamurthi, et al [5], this system is developed for Small area. It is not web based system.

Poonam S. Patil¹, et al [6], Limited sensors are used to measure the weather parameters and web services may also be used. T.Sudha, et al [7], they monitored only temperature and humidity. Other parameters may also be measured like pressure, wind speed, wind direction. Pravin Pawar, et al [8], Instead of connecting Wi-Fi module to raspberry pi-2 we can use raspberry pi-3 where Ethernet is inbuilt. Pramod Arvind Kulkarni, et al [9], IOT technology may use and few more sensors can be used. Mr. Nerella Ome et al [10], Using of thingspeak for analysing data where data is seen in form of graph which may not correct or exact values be of measures we cannot get. Akhilesh Chawla, et al [11], Bluetooth may not use for long distance for getting data. Gaurav Jadhav, et al [12], only temperature, humidity, pressure sensors are used they may also include co, smoke, wind speed, wind vane sensors. Bulipe Srinivas Rao, et al [13], only temperature, humidity, pressure sensors are used we can also include co, smoke, wind speed, wind vane sensors. Thangarasu, Srinivasan et al [14], this system based automatic weather station is erected. Yibin Li, et al [15], considerably more time and vitality climate conjecture based planning is required. Miroslav kadlec, et all [16], The evaluated warmer power ought to be least. Connor Wright, et al [17], In this weather station the data is not monitored continuously, hourly data is recorded. Emmanuel kondela, et al [18], It is a high cost weather station where they used costly equipments for monitoring weather parameters. Niimura,Ozawa et al [19], The climate estimate data which is promptly not accessible by open communicate. Rohan singh,kishan et al [20], An arrangement of speed conjecture is more in input signals and only speed is monitored. Muhammad nurwiseso, et all [21], The data from different sensors will be not handled and consolidated in this framework. J.X Yeo, et al [22], Image sequence only change shape and does not change in size or intensity. Hari ginard, et al [23], the application will utilize a star calculation to decide the course of movement isn't indicating clear yield. Powell, et al [24], the various wellsprings of vitality can be at the same time expanding. J. A. Oliveira-Lima, et al [25], It is a high expense climate station and usage is more unpredictable. Kaladevi Ramar, et al [26], It is surprising expense where they utilized distinctive programming's for observing climate and getting information. E.kanagaraj, et al [27], It is very high cost weather station. Aris Munandar, et al [28], it is a high cost weather station and only mobile application is used to send monitored data.

Hence, Environmental parameters checking are important in human everyday life, so in previous schemes they used limited sensors and high price components for screening climate parameters. In proposed scheme we have used eleven sensors for checking weather conditions which are low price components.

CONCLUSION

It can be concluded that, researches are made on different prototypes of weather station where they used different sensors or components to monitor the weather parameters. Various researches have used various methods to show the output data like thing speak, GSM, Webpage etc.

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