

IoT Weather Reporting System

B. Shiny Sucharitha¹, Aleti Soumya², R.Alekya³, Cheekati Harini⁴

^{1, 2, 3, 4}Assistant professor, Department of Electronics and Communication Engineering,

^{1, 2, 3, 4}St. Martin's Engineering College, Hyderabad, Telangana,

Abstract- *In this paper, the system is monitored with the technology IOT (Internet of Things) monitoring weather conditions such as at particular place and that information is visible throughout the world which is an advanced and efficient solution for connecting the things to the internet and to connect the entire world of things in a network. Here things might be whatever like electronic gadgets, sensors and automotive electronic equipment. The system deals with monitoring and controlling the environmental conditions like temperature, relative humidity, rain, air pressure, air quality and wind level with sensors and sends the information to the Database, and then received by the android application. From the implemented system the data which are updated can be accessible on the internet from anywhere in the world.*

Initially the sensor devices are deployed in environment to detect the while the data acquisition, computation and controlling action. Sensor devices are placed at different locations to collect the data to predict the behavior of a particular area of interest, To design and implement efficient monitoring system are monitored remotely using internet and the data which are gathered from the sensors are stored in the cloud database. In this project the estimated trend on the Android application. The solution also provides an intelligent remote monitoring for a particular area of interest.

Keywords- IOT (Internet of Things), Android application, Sensors.

I. INTRODUCTION

The internet of Things (IOT) is viewed as an innovation and financial wave in the worldwide data industry after the Internet. The IOT is a wise system which associates all things to the Internet with the end goal of trading data and conveying through the data detecting gadgets as per concurred conventions. It accomplishes the objective of keen recognizing, finding, following, observing, and overseeing things. It is a current correspondence paradigm that envisions a near future, in which the objects of regular day-to-day existence will be outfitted with microcontrollers, handsets for computerized correspondence, and reasonable convention stacks that will make them ready to speak with each other and with the clients, turning into a vital piece of the Internet. The

IOT idea, consequently, goes for making the Internet much more immersive and unavoidable.

II. PROPOSED METHODOLOGY

The goal of this project is to make a weather monitoring device that wirelessly logs the temperature, humidity, air pressure and air quality to a remote server. Initially the sensor devices are deployed in environment to detect the parameters (e.g., Temperature, Humidity, Air pressure and quality etc.) while the data acquisition, computation and controlling action (e.g., the variations in the temperature and CO levels with respect to the specified levels). Sensor devices are placed at different locations to collect the data to predict the behavior of a particular area of interest.

The main aim of this paper is to design and implement an efficient monitoring system through which the required parameters are monitored remotely using internet and the data gathered from the sensors are stored in the google cloud database (Firebase) and to project the estimated trend on the Android application. A solution for monitoring the temperature, humidity and CO levels in the environment using wireless embedded computing system is proposed in this paper. The solution also provides an intelligent remote monitoring for a particular area of interest. This data is live updated to be viewed on the online server system. Also, system allows user to set alerts for particular instances, the system provides alerts to user if the weather parameters cross those values. Thus, the IOT based weather reporting system provides an efficient internet-based weather reporting system for users.

IV. WORKING OF IOT WEATHER REPORTING SYSTEM

Assemble all Sensors as per circuit diagram and program NodeMCU using Arduino IDE. Switch ON the power supply. After sensing the data from different sensor devices, which are placed in particular area of interest. The sensed data will be automatically sent to the Firebase Database Server by the NodeMCU Wi-Fi module which is connected to IP.

when a proper connection is established with server, Android Application which will allow us to monitor and control the system. The Android Application gives the information about the temperature, humidity and the CO level variations in that particular region, where the embedded monitoring system is placed. The sensed data will be stored in cloud (Google Firebase Database).

The data stored in cloud can be used for the analysis of the parameter and continuous monitoring purpose. The temperature and humidity levels and CO levels in air at regular time intervals. All the above information will be stored in the cloud, so that we can provide REALTIME data of temperature and humidity levels and CO levels in a particular area at any point of time

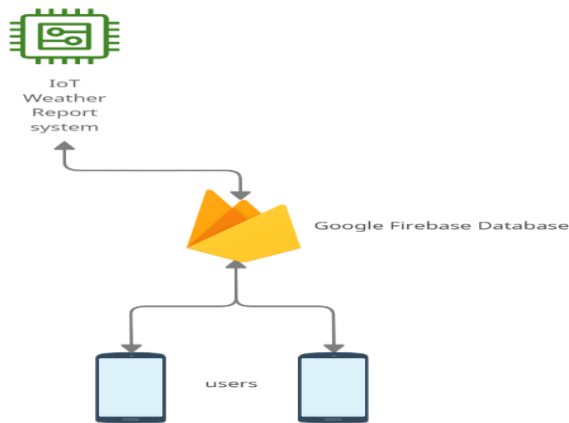


Fig. Working of IoT Weather Reporting System

V. RESULT

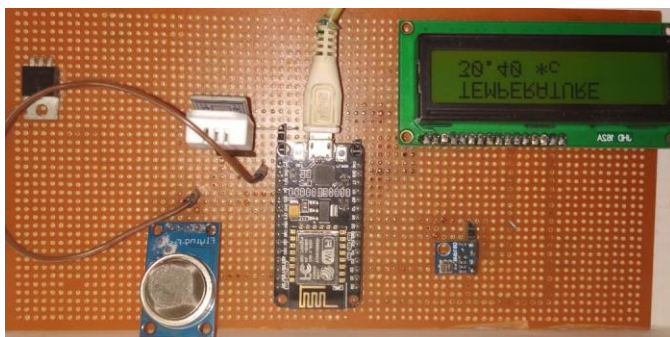


Fig: Temperature Reporting



Fig: Android Application

REFERENCES

- [1] M. H. Asghar, A. Negi and N. Mohammad Zadeh, "Principle application and vision in internet of things (IoT)", International Conference on Computing Communication Automation, pp. 427-431, May 2015.
- [2] H. Saini, A. Thakur, S. Ahuja, N. Sabharwal and N. Kumar, "Arduino based automatic wireless weather station with remote graphical application and alerts", 2016 3rd International Conference on Signal Processing and Integrated Networks (SPIN), pp. 605- 609, Feb 2016.
- [3] Y. Zhou, Q. Zhou, Q. Kong and W. Cai, "Wireless temperature amp; humidity monitor and control system", 2012 2nd International Conference on Consumer Electronics Communications and Networks (CECNet), pp. 2246-2250, April 2012.
- [4] Arduino [online] Available: <http://www.arduino.cc/download/>.
- [5] Medium [online] Available: <https://medium.com/firebase-developers/using-firebase-to-control-your-arduino-project-over-the-web-ba94569d172c>
- [6] Instructables [online] Available: <https://www.instructables.com/id/Firebase-Integrate-With-ESP8266/>
- [7] Circuit Digest [online] Available: <https://circuitdigest.com/microcontrollerprojects/sending-temperature-and-humidity-data-to-firebase-database-using-esp8266>
- [8] How 2 Electronics [online] Available: <https://how2electronics.com/iot-live-weatherstation-monitoring-using-nodemcu-esp8266/>