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MONITORING OF WEATHER CONDITION VIA IOT

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Abstract

Internet of Things (IoT) is providing value to products and applications in recent years. The connectivity of the IoT devices over the network has reduced the consumption of power, connectivity and robustness to access information over the network. Monitoring of weather parameters is very important in many aspects of everyone's life. This proposed system consists of wireless technology, which is also connected to GSM modem. Here, the system observes the conditions of weather and updates the information on the web server. The reason to update data on a web server is because anyone can observe the weather condition of a particular area from anywhere and anytime. The proposed system consists of many sensors to collect data of different parameters of the environment such as wind sensor, temperature sensor, and solar sensor. All these sensors are eligible for collecting the corresponding environmental parameters. The proposed system can be used in large buildings and companies as well as wherever users want to know the environmental parameters.

Keywords: *Sensor, Microprocessor, Weather, IOT, GSM.*

I. INTRODUCTION

Present innovations in technology mainly focus on controlling and monitoring of different activities. These are evolving more and more to meet human needs. Most of this technology is based on tracking and managing various activities effectively. In order to track and evaluate conditions if the specified parameter level is exceeded, an effective environmental monitoring system is required (e.g., noise, CO and radiation levels). As items such as sensor devices, microcontrollers and various software applications becomes an environment for self-protection and self-monitoring, it is often referred to as a smart environment[1]. Alarm or LED warnings automatically occur in such an environment when any event occurs. The influence on animals, plants and humans due to environmental changes can be tracked and controlled by a smart environmental monitoring system. This is one of the applications that targets the smart world

by using embedded intelligence in the environment, rendering the environment collaborative with other goals[2].

Depending on the type of data obtained by the sensor devices, human requirements need various types of monitoring systems. The two categories in which applications are listed are Event Detection Based and Spatial Process Estimation. The sensor devices are initially installed in the atmosphere to detect parameters (e.g. temperature, humidity, strain, LDR, noise, levels of CO and radiation, etc.) during the collection, computation and control of data action (e.g., the variations in the noise 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 the 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 cloud and to project the estimated trend on the web browser.

This paper proposes a solution for tracking noise and CO levels, i.e. any parameter value in an environment using a wireless embedded computing device that exceeds its threshold value ranges, e.g. CO levels in the air in a specific area exceeding normal levels, etc. For a specific field of interest, the solution often offers intelligent remote control. In this paper, in relation to the normal or defined ranges of specific parameters, we also present trending results of collected or sensed data. The embedded system is an integration of sensor devices, wireless communication which enables the user to remotely access the various parameters and store the data in cloud[3].

Zigbee based wireless sensor networks to monitor physical and environmental conditions with thousands of applications in different fields. The sensor nodes directly communicated with the moving nodes deployed on the object of interest which avoided the use of complex routing algorithms but local computations are very minimal. RFID is a way of storing and retrieving information by electromagnetic transmission to an integrated circuit compatible with RF. It is commonly used in supermarkets and factories to label and track products. Two primary components consist of RFID systems: tags and readers. A tag has an ID number and a memory that stores additional data such as manufacturer, type of product, and environmental variables such as temperature, humidity, etc. The reader can read and/or write data through wireless transmission to tags. Tags are attached or incorporated into items that are in need of identification or monitoring in a standard RFID application. RFID tags can be classified into three major categories by their power source: active tags, passive tags, and semi passive (semi-active) tags.

Sensor-enabled cell phones or smart phones are used for social effects, and how mobile devices must be used to protect the environment, detect and influence just-in-time information to render environmentally sustainable movements and actions. Mobile phone sensors have been installed and used for monitoring in urban areas and have been classified into two key groups, participatory sensing where users are directly involved and opportunistic sensing where users are not involved, but their drawbacks include constraints on the processing of power and static information or mobility. A Wireless Sensor Network consists of many inexpensive wireless

sensors, which are capable of collecting, storing, processing environmental information, and communicating with neighboring nodes. In the past, sensors were connected by wire lines[4]. The WSN gateway node access approach is useful because it is possible to obtain data from a WSN at any time and any location through the gateway. The gateway serves as the network coordinator responsible for node authentication, message buffering, where your measurement data can be stored, processed, evaluated and displayed. The model of wireless sensor network management consists of end users, routers, gateway nodes and monitoring centers for management. The end device is responsible for collecting and transmitting data from the wireless sensor network to the parent node, then sending data directly or via the router from the parent node to the gateway node. After receiving data from the wireless sensor network, gateway node extracts data after analyzing and packaging them into Ethernet format data, sends them to the server[5].

A server is an example of a computer programmer that accepts requests made by another programmer, known as a client, and answers them. In less formal terms, any computer running server software may also be called a server. To control network resources, servers are used. Services or information on servers that are linked via LAN and made accessible to users via smartphones, web browsers or other web browser devices are delivered over the Internet to make the system smarter, more adaptable and more effective. A system is considered as a smart system when the device equipped with sensors, microcontrollers and various software applications becomes a self-protecting and self-monitoring system. The two categories in which applications are listed are Event Detection Based and Spatial Process Estimation. Sensor sensors are initially installed in the atmosphere to monitor parameters (e.g. temperature, humidity, strain, LDR, noise, CO and radiation levels, etc.) when collecting, computing and monitoring data (e.g. changes in noise and CO levels compared to quantified levels). In order to gather data to predict the actions of a specific area of interest, sensor devices are placed at different locations. The main aim of this paper is to design and implement a resourceful monitoring system through which the required parameters are monitored remotely using the internet and the data gathered from the devices are stored in the cloud and to project the predictable trend on the web browser.

A solution for monitoring temperature and CO levels i.e., any parameter value crossing its threshold value ranges, for example CO levels in air in a particular area exceeding the normal levels etc., in the atmosphere using wireless embedded computing system is proposed in this paper. For a specific field of interest, the solution often offers intelligent remote control. We also present current results of collected or sensed data in this paper with regard to the normal or defined ranges of specific parameters[6]. The embedded system is a wireless communication integration of sensor devices that allows the user to remotely access the different parameters and store the data in the cloud. It is the future technology of one place that connects the entire world. All objects, objects and sensors can be linked to share data obtained at different locations and processes/analyses that coordinate application data such as traffic signaling, mobile health monitoring in medical applications and methods of industrial safety assurance, etc. According to the estimates of technology experts, 50 billion objects will be linked to the IOT by 2020.

IOT provides a wide range of device connectivity with different protocols and different application properties to obtain full machine-to-machine interaction[7].

II. CONCLUSION & DISCUSSION

To implement this need to deploy the sensor devices in the environment for collecting the data and analysis. By deploying sensor devices in the environment it will record real time data. It can cooperate with other objects through the network. Keeping the embedded devices in the monitoring environment allows the environment to be self-protected (i.e., smart environment). In order to implement this, it is necessary to deploy sensor devices for data collection and analysis in the environment. We can bring the environment into real life, i.e. it can interact with other objects through the network, by deploying sensor devices in the environment. The data collected and the outcomes of the study would then be accessible via Wi-Fi to the end user. Various models are presented in this paper as a smart way to monitor the environment and an effective, low-cost embedded system. The Internet of Things (IoT) definition of the noise and air quality monitoring system was experimentally tested to track two parameters. The sensor parameters were also sent to the cloud to Google Spread Sheets. This knowledge would be useful for future research and can be shared easily with other end users. This model can be further extended to control the emissions monitoring of emerging cities and industrial zones. This model offers an innovative and low-cost approach for continuous monitoring of the atmosphere to protect public health from emissions.

III. REFERENCES

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