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IOT Based Industrial Management

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Abstract: Internet of Things (IOT) is rapidly increasing technology. IOT is the network of physical objects or things embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. In this project, we are developing a system which will automatically monitor the industrial applications and generate Alerts/Alarms or take intelligent decisions using concept of IOT. IOT has given us a promising way to build powerful industrial systems and applications by using wireless devices, Android and sensors. A main contribution of this project is that it uses IOT in industries to monitor and control the Industry using various sensors and control units.
Keywords: IOT, Sensors, Embedded Electronics, Laptop, MySQL, Eclipse.

I. INTRODUCTION

In recent years a wide range of industrial IOT applications have been developed and deployed. Evolution of this starts from RFID technology, which allows microchips to transmit the identification information to a reader through wireless communication. By using RFID readers, people can identify, track, and monitor any objects attached with RFID tags automatically. Another technology is the wireless sensor networks (WSNs), which mainly use interconnected intelligent sensors to sense and monitoring. Its applications include environmental monitoring, industrial monitoring, traffic monitoring. Both RFID and WSN are used to develop IOT. Then upcoming technology is IOT. The Internet is one way of the growing platform for automation, through which new advancement are made through which on easily monitor as well control the system using internet. As we are making use of Internet the system becomes secured and live data monitoring is also possible using IOT system. In previous year, Industry was monitored manually, but now IOT can be used to monitor as well as control the Industry autonomously without human intervention.
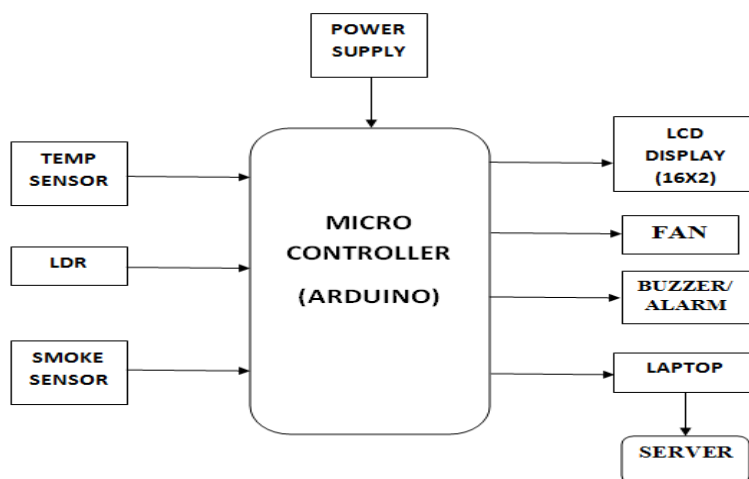
II. BLOCK DIAGRAM

Fig1. Block Diagram

III. DESCRIPTION

In this modern era of automation and advanced computing using IOT offer promising solutions towards the automation of Industry. In order to understand the development of IOT in industries, the current research of IOT, key enabling technologies, major IOT applications in industries, and identifies research trends and challenges. The Internet of Things allows objects to be sensed and controlled remotely across existing network infrastructure. Sensors (Temperature sensor, LDR sensor, Smoke sensor) are used to percept the environment and object conditions. Analog signal are provided to android device produced by sensors. Admin set threshold to every sensors placed in Industry. Android check this threshold against incoming analog signal. When it encounter an uneven condition devices (Buzzer, Alarm, fan) are use to take accurate measures such as Alarm/Alert are generated, it send

messages to Admin. Then with the help of IOT it takes adequate steps to solve the problems. This can be possible through past experience and similar previous condition stored in database. In this we use cloud as database for scalability.

IV. MOTIVATION

A. The new age of technology has redefined communication.

B. Most people nowadays have access to mobile phones and thus the world indeed has become a global village.

C. At any given moment, any particular individual can be contacted with the mobile phone.

D. But the application of mobile phone cannot just be restricted to sending SMS or starting conversations.

E. Industrial automation in simple words automation of industrial appliances using internet of Things.

F. Controlling of the various industrial appliances from anywhere, at any time with the fastest speed and having wide coverage area.

G. It may include centralized lighting system, heating and smoke.

H. Hence gives plenty of advantages that we can monitor as well as control various parameters without any human intervention.

V. OBJECTIVES

A. To make smart industrial environment which enables the user to monitor and control industrial parameters on real time basis using mobile device.

B. Design the system to take intelligent decisions and control devices.

C. To deliver an uninterrupted output.

D. To reduce the maintenance cost and to optimize critical monitoring system.

E. To provide necessary data related to industry, to a maintenance officer located anywhere at any time.

VI. SCOPE OF PROJECT

As technology is becoming more and more state-of-the-art day by day, and the access of internet in every corner of the world is going to be easily accessible, so the future of IOT is undoubtedly bright. Achieving greater connectivity is the requirement for progress in the present world; thus the Internet of Things (IOT) has become a vital instrument for interconnecting devices in industry and controlling various parameters in industry. IOT is going to transform our lives beyond imagination. It would make our life faster, easier and more productive. We can remotely access the system. Pollution due to various industrial gases can be reduced.

VII. PROBLEM DESCRIPTION

To build the system which can monitor the sensor data and upload it over internet and also capable of taking some crucial decision of controlling within industries using the IOT. Most of the industrial controls and monitoring processes have human interventions, which can have human errors. As the set up in industries are too costly, human errors and any of the damage is not affordable. So we are going to develop a system which will have less human interference and can be monitor globally.

VIII. LIST OF MODULES

A. Embedded software

Embedded is nothing but combination of hardware and software. So we have to use microcontroller to which all the peripherals will be interfaced. Arduino IDE will be required in which we can write, edit and compile the firmware. Arduino IDE is an open source and can be download for windows OS.

B. IOT application

IOT application will be in PHP language which will be hosted on live server say godaddy.com, also database in MySQL will be hosted on same. This will be paid but in very less amount.

C. Android application

Android application will be develop in Android studio Software. This is an open source IDE. Server application will be bootstrapped for android app.

D. Embedded hardware

An arduino microcontroller board will be used to which sensors like temp (LM35), PH Sensor, Gas Sensor (MQ7), LDR Sensor etc will be interfaced. Power supply of 5V, 1A will be designed to run this system.

IX. LITERATURE SURVEY

[1]Internet of Things (IOT) is rapidly increasing technology. IOT is the network of physical objects or things embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. In this paper, we are developing a system which will automatically monitor the industrial applications and generate Alerts/Alarms or take intelligent decisions using concept of IOT. IOT has given us a promising way to build powerful industrial systems and applications by using wireless devices, Android, and sensors. A main contribution of this review paper is that it summarizes uses of IOT in industries with Artificial Intelligence to monitor and control the Industry.

[2]Internet of Things (IOT) is rapidly increasing technology.IOT is the network of physical objects or things embedded with electronic software, sensors, and network connectivity which enables these objects to collect and exchange data. In this paper, we are developing a system which will automatically monitor the industrial applications and generate Alerts/Alarms or take intelligent decisions using concept of IOT. Safety from leaking of raw gas and fire are the most important requirements of home and industrial security system for people. A traditional security system gives the signals in terms of alarm.

[3]The Concepts of Internet of Things (IOT) are applied to a number of applications ranging from home automation to industrial IOT, Where connecting physical things, from anywhere through a network. Let them take an active part in the Internet, exchanging information about themselves and their surroundings. This will give immediate access to information about the physical world and the objects in it leading to innovative services and increase in efficiency and productivity. The proposal of system is to develop an IOT based Interactive Industrial Home wireless system, Energy management system and embedded data acquisition system to display on web page using GPRS, SMS & E-mail alert. This device is essential for sensor data collection and controlling of the industrial Home Wireless Sensor Networks (WSN) in the Internet of Things (IOT) environment. It is planned to style a re-configurable sensible device interface for industrial WSN in IOT atmosphere, during which ARM is adopted as the core controller. Thus, it will scan information in parallel and in real time with high speed on multiple completely different device information. Intelligent device interface specification is adopted for this style.

[4]Internet of things (IOT) encompasses a plethora of connected smart devices and support diverse applications. IOT is likely to be an integral feature of next generation cellular systems. In the manufacturing and supply chain industry, the Industrial IOT (IOT), which consists of sensors, actuators and machinery, is deployed for monitoring, data collection and analysis, asset management, maintenance planning, and plant control and optimization. In this work, we consider the uplink transmission of an IOT system, in which the IOT devices transmit their data to the Base Station (BS) through User Equipment's (UEs). The BS, in turn, transmits the data to the cloud for further processing. The UEs receive the data from the IOT devices, aggregate with their uplink data, and transmit the aggregated data to the BS. Our investigation shows that the IOT devices require less transmit energy when UEs are used as relays. We study the system when the IOT devices associate themselves with the UEs through the fixed, random, and greedy schemes, and evaluate the end-to-end outage probability at the devices for each of the three schemes.

X. CONCLUSION

By implementing this system we can access the live data using IOT and also we can control the device interfaced with our system.

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