IoT Based System To Monitor And Control The Industrial Applications

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Abstract

Internet of Things(IoT) is rapidly increasing Technology. IoT is the network of physical objects or things embedded with the 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 decision using concept of IoT. IoT has given as a promising way to build powerful industrial systems and applications by using Wireless devices. Androids and sensors. Here we introduce Internet on Chips(IoC) using ESP8266. ARM controller which directly across the Wi-fi router without intermediate mobile phone or system. A main contribution of this paper is that it summaries user if IoC in industries with artificial intelligence to monitor and control the industry. In addition also monitors noise level with acoustic sensors and Gas level in the surrounding.

Index Terms- Artificial Intelligence, IoT, IoC, Sensors, Embedded Electronics

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 communications. 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 with Artificial Intelligent. In previous years, Industry was monitored manually, but this paper introduces Artificial Intelligent to monitor as well as control the Industry autonomously without human intervention.

II. GOALS AND OBJECTIVES

To develop a system which will automatically monitor the industrial applications and generate Alerts/Alarms or take intelligent Decision using concept of IoT. And also design the system to take intelligent decision and control the devices. To allow easy use of mobiles in order to control industrial machineries simultaneously and to provide necessary data related to industry to a maintenance officer located anywhere at any time.

III. EXISTING SYSTEM

No ways to detect un-even condition in industry. Manual intervention required for monitoring. CCTV used which only monitor but no Alert generation. Alert and their appropriate actions not present manually. Time consuming approach to detect and generate alert manually. Industrial automation based on RF System it used only for short distance communication. In wired technology it is difficult to monitoring and long construction time. In wireless technology it has high cost and high power consumption.
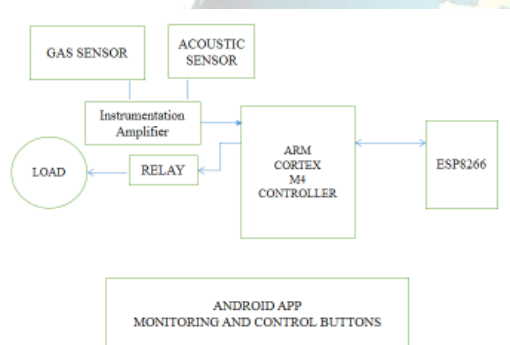
IV. PROPOSED SYSTEM

In this paper has automatically monitor and control the industrial applications and generate alert/alarms. ARM controller which directly access the wi-fi router without intermediate mobile phone or system. The real time condition of the motor namely the sound and smoke are sensed and sent to the reporting station continuously with minimal power consumption. Industrial automation systems faces four main challenges, these are high cost of ownership, inflexibility, poor manageability and difficultyin achieving security.

V. SYSTEM MODEL

In this modern era of automation and advanced computing using IoT with Artificial Intelligence offer promising solutions towards the automation if Industry . In order to understand the development of IoT in industries, this paper review current research of IoT, key enabling technologies, major IoTapplications in industries, and identifies research trends and challenges. The Internet of Things allow objects to be sensed and controlled remotely across existing networks in infrastructure. [1] discussed about a system, GSM based AMR has low infrastructure cost and it reduces man power. The system is fully automatic, hence the probability of error is reduced. The data is highly secured and it not only solve the problem of traditional meter reading system but also provides additional features such as power disconnection, reconnection and the concept of power management.

Block Diagram

Sensors are used to percept the environment and object condition. Analog signals 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 are use to take accurate measures such as Alarm/Alert are generated, it send messages to mobile application. Then with the help of artificial intelligent it takes adequate steps to solve the problems. This can be possible through past experience and similar previous condition stored in database. In this method we can use cloud as database for scalability. Here the chip ESP8266 is connected between the controller and the mobile. Industrial appliances sound and gas level are monitored by the gas sensor and acoustic sensor. ARM cortex controller which calculates the threshold region of the appliances. First the threshold values are set by the user. Then it produces alarms when it cross the threshold region. Appliances are controlled automatically by using the concept of IoT and Artificial Intelligence.

VI. APPLICATIONS

Industry and Office:- We can implement sensors in wide area over the machines and instruments. Control and monitor circumstances by using concept of Artificial Intelligence and IoT.

Hospital and Labs:- We can plot sensors on patient's body and Doctor can check current status on his android phone and also take necessary actions and decisions.

Home:- We can implement sensors to household appliances and monitor and control with the help of Artificial Intelligence.

VII.CONCLUSION AND FUTURE WORK

A. Conclusion

Now a days we need everything computerized. Earlier we can only monitor the situations with the help of cameras. In industries to reduces manual overhead we have implemented Internet of Things in industry to monitor as well as to inform the responsible person to take responsible person to take appropriate measures and we can control the appliances automatically. We are developing the system for industrial automation using IoT with the help of artificial intelligence to make system automated which will take intelligent decisions.

B. Future Work

Using this system as framework, the system can be expanded to include various other options which could include industrial security feature like capturing the photo of a person moving around the industrial and storing it onto the cloud. This will reduce the data storage than using the CCTV camera which will record all the time and stores it. The system can be expanded for energy monitoring or weather stations. This kind of a system with respective changes can be implemented in the hospitals for disable people or industries where human invasion is impossible or dangerous and it can also be implemented for environmental monitoring.

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