

Industrial Automation Techniques based Internet of Things

P. Arumugam, T. Krishna Kumar

Abstract: *Internet of Things (IoT) is the system of electronic devices implemented in the embedded platform that enables the program, sensors, and connection of networks for the collection and exchange of data and those led to the popularity of IoT. Here, we are building a network which monitors the industrial applications automatically and produce Alerts/Alarms and helps in making intelligent decisions with the help of IoT. Internet of things helps in developing effective industrial systems by making use of wireless devices, Android applications and sensors.*

Key Words: *IoT, Sensors, Embedded electronics.*

I. INTRODUCTION

Internet of Things (IoT) is a technique that visualizes everything in this world as a part of internet and it covers large area and comprises of different objects like smart phones, digital cameras and sensors. When these devices are interconnected, it empowers more intelligent services which assist us in many needs. Different types of services are provided by these gigantic devices linked to internet and also yield large number of data and information. Cloud computing is an example of this model that enables access to a shared pool of configurable resources (computer, networks, servers, storage whenever required. This can be supplied as infrastructure, programs & applications. Platforms based on cloud helps to connect and access anything when required in a ergonomical manner by use of customized portals and applications that are build in it. In short we can say that cloud behaves as a key to approach IoT. To interact with devices like sensors, we need large storage capacity, high computational power that empowers the data processing in real time and high speed system to get audio and video. Here we need to define the connection of Internet of Things and Cloud computing to address the large Data problems. We have also explained about Sensing as a service on cloud using few applications like Environment monitoring, etc. At last, we suggest a prototype model that provides sensing as a service on cloud. The Internet has an important part in our day-to-day life and coverage of network is increasing and the number of people using the network is also increased. Latest technology and techniques also affects the Internet. Now the importance is to the Internet of Things, the Internet of Services and cloud computing because it provides more real-time in turn. It provides the knowledge about location, climate, traffic,

local business and latest openings in service-oriented industry. IOT technologies has increased its importance in various industries.

II. LITERATURE REVIEW

At present its the era of automated systems. Internet has a great influence in our life as it lord to many new efficient technologies. Among them, the inclining technology is the 'Internet of Things'. An example is Home Automation System that make use of IoT to monitor and a control the electrical and electronic appliances at home from any place by use of a Smartphone. Home automation system that is cost effective, reliable can be provided that helps in improving the use of wireless communication between user and the remote control.

This project concentrates on the management of home appliances even if the user is far away. The system is based on SMS and GSM that is used by the user. The GSM technology provides the system the opportunity to get accessed to the mechanism. 8051 Micro Controller is the major part of this project. The objective of this project is to explore a cost friendly resolution to enable the control of home appliances remotely. The motivation was to allow the users to automate their homes universally. The home appliances control system with an reasonable cost was to be built that should be mobile that provide remote access to the appliance[2].

Systems and procedures was provided that for the interaction with the users and for the transfer of data. Moreover the updation of controller code and tag can be done automatically or semi automatically. A programmable logic controller (PLC) or programmable controller, digital computer that work as automation of electromechanical works which are used in industries and machines. The present disclosure relates facilitate the provision to industrial PCs. PLC is fabricated for many ingress and egress dispositions, enlarged temperature levels, electrical noise Immunity. Programs to manage machine work are mainly saved in battery-buffered or permanent memory[3].

GOALS AND OBJECTIVES

Developing a system which automatically monitors, alerts, take smart decisions and implement them in industrial applications using IoT.

III. EXISTING SYSTEM

In present scenario there are only methods to monitor

Revised Manuscript Received on October 22, 2019.

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uneven conditions but no way to alert them. Also the methods available now are time consuming.

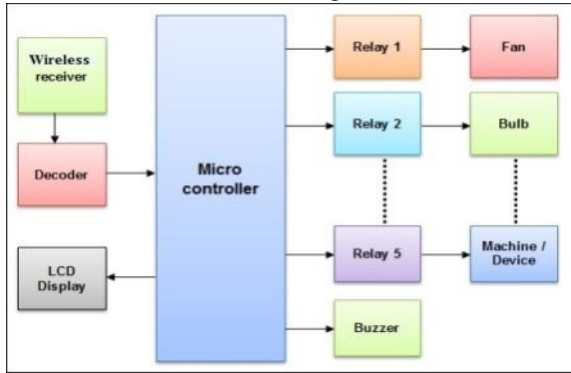


Fig. 1. Existing Block Diagram

IV. OVERVIEW OF SYSTEM

In this era of automation and advanced computing using IoT with Artificial Intelligence delivers promising and effective solutions for the automation in Industry. To get the knowledge about the IoT developments in industries, this paper refers the present research of IoT, key enabling technologies, main IoT applications in industries, and challenges. The Internet of Sensors (Temperature sensor, Voltage sensor) senses the environment conditions and pass the Analog signal to the android devices. To each and every sensors present in Industry a threshold is set by the admin. Android helps the object in Sensing and managing remotely across the network infrastructure. This is illustrated in figure 2.

This resultant analog signal is compared with threshold and accordingly on or off the connected devices (light, fan, motor...). This is feasible through previous conditions in the database..

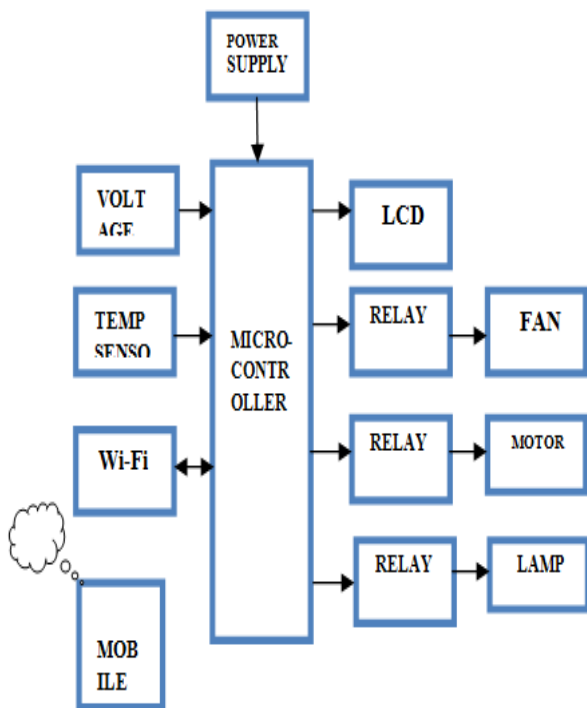


Fig. 2. Proposed Block Diagram

V. RESULT



It consists of two units: one is the control unit, which includes the main processing unit connected with the microcontroller and two electrical devices connected with the controller like machines, motor. The other unit is mobile. Both units are communicated via internet. If we control the device using mobile through an android app. In this app, we create the gadgets as per our requirements like temperature monitoring or load control using push buttons or switches. All the process is processed through a cloud server.

VI. APPLICATIONS

Industry and office: -Control and Monitor circumstances by implementing sensors over the machines by using IoT.

Hospital and Labs: -Doctor can check the patient's present status in his android phone by placing a sensor on the patient's body and this also helps in making mandatory actions and decisions.

Home: -It helps to monitor and control household appliances using sensors.

VII. CONCLUSION

In earlier times we could only find out the conditions with the use of cameras. Internet of Things (IoT) are implemented in industries to reduce manual overhead, to find out as well as to alert the people to take necessary measures, but still our requirements are not completely fulfilled. As this process is time consuming and even will harm life as well as property. Thus we go for a system for Industrial Automation using IoT.

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