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"DESIGN AND IMPLEMENTATION OF INDUSTRIAL AUTOMATION SYSTEM BY USING INTERNET OF THINGS (IOT)"

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Abstract - *Internet of Things (IOT) has provided a opportunity to build powerful industrial system and applications by leveraging the growing ubiquity of RFID, wireless ,mobile and sensor devices. Many industrial IOT applications have been increasingly developed and deployed in recent years. In this project we access fully automated Site from anywhere in the world that the power of internet.*

Key Words: Internet of Things (IOT), Server, Relays, CGI , HTTP, HTML, WSN, Web3.0, UUID.

1. INTRODUCTION

The Internet has become an integral part of the lives of millions of people, and this number is constantly increasing. The network coverage is extending, the number of gadgets that can be connected to this network is increasing. The Internet is also changing under the influence of new technologies and concepts. Today there is a tendency to the Internet of Things, the Internet of Services, cloud computing, and Web services.

The new technology has the capability to supply more real-time in turn. This information carries location, weather, traffic, local business and visits a store frequency. This also provides new service-oriented industry opening.

There is a growing interest in using IOT technologies in various industries. A number of industrial IOT projects has been applied in areas such as food processing industry, environmental monitoring, security surveillance, agriculture, and others. Meanwhile, the number of IOT publications is quickly growing.

In this, we can interface webpage and server through gateway. The Common Gateway Interface (CGI) is a standard for interfacing external applications with information servers, like HTTP or Web servers. A plain HTML document that the Web daemon retrieves is static, which means it exists in a constant state: a text file that doesn't change. A CGI program, on the other hand, is executed in real-time, so that it can output dynamic information.

Most of the people thought of controlling appliances and many other IR remote or a wired things running from computer to a switch board, but what if you are not at things like bulbs, tubes and switches etc. using an Site and suddenly you reminded that you have left something ON but you are not sure and you can't even go back.. So what one can do? Is there a solution?

So to solve this problem Now access your fully automated Site from anywhere in the world that the power of internet. The Internet allows one PC (called a client) to control hardware (like motors or relays) installed on another PC (server). In other words, one can remotely control or monitor devices. Since the Internet is just only the medium for computers to "communicate" to each other, it enables you to perform applications like automating your industries (e.g. turn on/off air-conditioning) and data acquisition (e.g. measure temperatures).

2. BACKGROUND & CURRENT RESEARCH OF IOT

Many Research efforts and real time implementations have been done for IOT.

IOT is a globle network infrastructure composed of multiple connected devices that rely on sensory, communication, networking, and information processing technology. IOT is based on two fundamental technology first is RFID technology allows microchips is to transmit the identification information to a reader by wireless communication. By using RFID readers, people can moniter ,track and identify any objects attached with RFID tags automatically [4]. RFID has been mostly used in pharmaceutical production, retailing, and supply chain management since 1980s [5,6].And the second technology for IoT is the wireless sensor networks (WSN), which is use to interconnected intelligent sensors to sense and monitoring. Its' applications contains environmental , industrial , traffic , healthcare monitoring and so on [7,8]. The improvement of both RFID and WSN may play important role in the development of IoT. Also, various other technologies and devices such as smart phones, social networks, barcodes, and cloud computing are being used to form an extensive network for supporting IoT

In 2014,Li Da Xu,Wu He,shancangli propose " Internet of Things in Industries: A Survey"

This paper gives us the current research of IOT, key enabling technology, various IOT applications in industries and identifies research trends and challenges. A basic purpose of this paper is to summarize the current state of-the-art of IOT in industries systematically.

The author also describe the service-oriented architecture for IOT .The main motive of IOT is to connect different things over the network SOA can be applied to support IOT. From the perspective of their functionalities, a four layered service-oriented architecture of IoT is shown where the four layers interact to each other.

2.1 Sensing layer

In the sensing layer, the wireless smart systems and sensors are now able to automatically sense and exchange information among different devices. This technology gives significant improvement of the capability of IoT to identify and sense the things or environment. In some industry sectors, intelligent service deployment schemes and a universal unique identifier (UUID) is given to each service or device that may be needed.

2.2 Networking layer

This process containn QoS management and control according to the requirements of users/applications.The Things requires to be automatically signifies with roles to deploy, manage,and schedule the behaviours of things and be able to switch to any other roles at any time as needed. To design the networking layer in IoT, designers need to address issues like as network management technologies for heterogonous networks (fixed, wireless, mobile, etc.), energy efficiency in networks, service discovery and retrieval, data and signal processing, security and privacy , QoS requirements.

2.3 Service layer

Service layer depends on the middleware technology, which gives the functionalities to seamlessly integrate services and applications in IoT. A main work of the service layer is to involve the service specifications for middleware, which are being developed by various organizations. This layer includes the following components:

a) Service discovery
b) Service composition
c) Trustworthiness management
d) Service APIs

2.4 Interface layer

The continous increase of things involved in an IoT makes it harder to dynamically connect, communicate, disconnect, and operate.
An interface profile (IFP) can be seen as a subset of service standards that support interaction with applications deployed on the network. The interface profiles is used to describe the specifications between applications and services.

IN April 2014, K.C. Kavitha, Student Member IEEE, R. Perumalraja, Member, IEEE propose "Smart Wireless Healthcare Monitoring for Drivers Community " smart healthcare monitoring system is now focus on not only patients but also drivers community, old age person , sport person .if there is any problem occurred by using this technology.health care professionals takes rapid action using ambulance service if any accident happens.

Wireless body area network (BAN) is also called as body sensor network(BSN) that includes more than one variable computing device this system contain instruments like Bloodpressure monitor, heart rate monitors , pulse oscimeter,and spirometers. This sensors are attached to the patient by using wire but if a patient is wired connected to sensor then he can not involved in regular activities so to avoid this patient mobility problem author introduced the wireless healthcare monitoring system. It monitors the patient health condition by using some touchable sensing devices.

In developing countries the road accidient could happen due to drivers poor health conditions such as overstress due to continous work, heart stroke while driving. In this system the sensor is connected to drivers body and it continuously examine the drivers health status if there is any problem ,the system which is connected to the server inform drivers health condition to transport office and health care specialist via cellular network . this healthcare status is uploaded on drivers databased where there the complete record of driver health is present in centralized server of hospital then a flash messages is delivered to doctor cellphone and he dicided to operate a patient. If the doctor decided to monitor a patients the system select nearest ambulance service using GPS and nform the unit. The future information is transfer to transport office and arrange a alternate driver for passengers. The proposed healthcare system is designed , developed and tested in network lab.

In 2013, Mikhail M. Komarov, Maria D. Nemova ,proposed"Emerging of new service-oriented approach based on the Internet of Services and Internet of Things." This article deals with internet services, cloud computing and IOT. Because of improvement in technology and growth of online services, mobile application , a specific number of latest and improved web based service module are introduced.

Nowadays the internet services, web services and IOT is developing under new researches an technologies. Now mobile phones is necessary for every daily purpose. This mobile era is also stated as web 3.0 era . web 3.0 concept contains various meaning but all of them gives us the information about offline media for example print and TV. The further modification of web gives web 2.0 . which empowered consumer information into active producer of contain an information.

In web3.0 user experiences internet be different because the data information will live up in the cloud so user can use the information on phone or move device to device .the service sertor has become the fastest growing business sector in the world in these adifferent type of service interms of software engineering, business,web and the internet but to process all the automation the IOT helps

In this paper auther also describe social web of things . socialbweb of things states the synergy of two concept [10].first is implementation of social web of things which gives existing and emerging smart things , uploading the datd an exc\hange of information and second is social network metaphor provides user and easy connections to the network and service . it also gives user interface to people.

3. CONCLUSION

This paper reviews , the concept of IOT is elabourated. IOT gives us an easy way to control hardware and appliances from anywhere in the world. It is a complete solution on maintainanace work of industry. IOT includes various device equipped with processing , identification , sensing , communication and networking capabilities . Industries which shows strong interest in assembling IOT devices to develop their industries such as, automation and management. Due to this advancement, the industry is integrating WSN and RFID to develop automated system.

The IOT can also used in smart wireless healthcare monitoring system to give protection for drivers community that improves transport co-operation.

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