HAZARDOUS AREA MONITORING FOR INDUSTRIAL PLANT POWERED BY IOT

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Abstract

Internet of Things (IoT) represents a general concept for the ability of network devices to sense and collect data from the world around us, and then share that data across the Internet where it can be processed and utilized for various practical purposes in different aspects of life.

The reach of loT based systems in industrial areas is still limited, but it has huge potential. In this project, we create an IoT based hazard monitoring system specifically suited to requirements of mining, refining and manufacturing industries.

The system actively records, processes and analyzes the temperature of sur roundings, which is a prime safety parameter in areas where molten metal is processed, manufacturing is done or welds are made. Also, it keeps track of high levels of dangerous gases present in the environment (LPG/Natural Gas).

If a parameter is violated, the system sends an immediate notification to a set of preset list of users on their smartphones, and continues logging and moni toring data for further analysis to suggest improvements in the safety regulations of the industry.

The sensors used in this prototype model can be modified with industry

requirements (for example more robust temperature sensor may be required in very harsh conditions) whenever the need arises..

Introduction

In the list of most threatening causes that led to global warming are fire hazards. Hazards can be resolved by the adaption of new and growing technologies which also help in better living. Applications in monitoring and control are performed by the wireless multisensory network are characterized by small, low power and cheap devices which are integrated with limited computation, sensing, and remote communication. It impacts enormously on fire emergency. Temperature sensors are installed in fire endangered areas which allow a person to manually provide temperature information on fire extinguishing website email or landline number. The process of accessing information from the website may be time-consuming and it may cause some amount of delay in the response to the fire
extinguisher. IOT is a wireless technology. Use of IOT is in combination with fire fighting for hazard source monitoring, fire fighting rescue, fire early warning, preventing and early disposal. It is effectively used for the enhancement of fire brigade fire fighting and emergency rescue capabilities

LITERATURESURVEY

1.Prof. Natrajan M, 2017 - In this paper,he planned a framework which will consequently control and screen the mechanical applications and furthermore enabled the client to control the application from anyplace on the planet.Having control over the applications over the internet is one of the best ways to dealwith the industrial applications.

2.Gopinath Shanmuga Sundaram,2013 - By using Radio Frequency Communication protocol we were able to establish Bluetooth transmission in Raspberry Pi controller board with utmost accuracy. Also when there is a mismatch between the sent and received data, we were able to detect it at all instances and notify the client system.

3.Konrad Iwanicki, 2018 – Industrial IoT systems indeed pose a number of challenges. They have to interoperate with existing infrastructures and integrate highly heterogeneous hardware-software platforms. They also have to be prepared to scale a few orders of magnitude in size, diameter, and/or density, as well as to enable management by different entities.Moreover, they have to be dependable, that is, reliable, safe, available, maintainable, and secure, all at the same time. What is also importantis that this list of requirements is by no means complete

4.Kallappa, B. B. Tigadi, 2016- In this paper, he depicts an IOT Based Reconfigurable savvy WSN unit for modern security parameters observing. The framework can gather sensor information keenly. It was composed in light of utilization of remote correspondence. It is exceptionally appropriate for constant and powerful necessities of the fast information securing framework in IoT condition. The application of ARDUINO UNO greatly simplifies the design of peripheral circuit, and makes the whole system more flexible and extensible. Different types of sensors can be used as long as they are connectedto the system. Fundamental outlinestrategy for the reconfigurable keen sensor interfacegadget is depicted in thispaper. At long last, by taking modern wellbeing parameters observing in IoT condition for instance, we checked that the framework accomplished great impacts in functional application. Nevertheless, many interesting directions are remaining for furtherresearches in the area of
WSN in IoT environment.

5.Hongyu Pei Breivold,2015 – Internet-of-things allows organizations to become more agile and aggressive in pursuing new revenue streams and new business models .It has the potential to change the traditional way of spending investment on building, maintaining, and upgrading respective infrastructures for multipleunconnected products. Through conveyingnew end client programming administrations that depend on data removed from different associated items, Internet-of-things gives another method for acknowledging business nimbleness and quicker pace of advancement.We have started to witness these IoT innovation deployed in many industries such as smart city, smartenergy, healthcare, logistics and retail,transportation,etc. However, scarce information is available for IoTusage in industrial automation domain for reliableand collaborative automation. In this paper, based on thespecific constraints that we have seen in the industrialautomation domain,we have described relevantchallenges that we need to cope with when deployingindustrial IoT solutions in automation domain,andidentified relevant technicalsolutions that potentiallyaddress these challenges.

6.Wu He, ShancangLi, 2014 – As a complex cyber- physical system,IoT integrates variousdevices equipped with sensing, identification, processing, communication, andnetworking capabilities. In particular, sensors and actuators are getting increasingly powerful, less expensiveand smaller, which makes their use ubiquitous. Industries have 2240 IEEE Transactions On Industrial Informatics, Vol. 10, No. 4, November2014 strong interestin deploying IoT devices to develop industrial applications such as automated monitoring, control, management, and maintenance. Due to the rapid advancesin technology and industrial infrastructure, IoT is expectedto be widely applied to industries. For example, the food industryis integrating WSN and RFID to build automated systems for tracking, monitoring, and tracing food quality along the food supply chain in order to improve food quality.

7.Prachi H. Kulkarni,Pratik D. Kute,
V.N. More-2016.In this paper, system is designedfor automate industrial meter reader and upload the data to the cloud for centralizing. It uses the Respberry Pi microcontroller as a main hardware. Digitalimage processing is also act one of the main role.

In this device Respberry Pi 5MP camera is used for capture the seven segment LED or LCD meter reader. After that the LCD meter image is recognized using feature extraction techniques. Google Form isused to collect the date and upload that data into the google spread sheet. These whole process is done within 35 seconds