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IOT Based Industrial Automation

P. SAHITYA KIRAN[1], K. PUSHKALA[2], S. YASWANTH KUMAR[3], S. LAVANYA KUMARI[4], N.J. SRIKAR[5]

Asst. Professor, Department of ECE, N S RAJU INSTITUTE OF TECHNOLOGY, SONTYAM, VISAKHAPATNAM, A.P, INDIA

U.G. Scholars, Department of ECE, N S RAJU INSTITUTE OF TECHNOLOGY, SONTYAM, VISAKHAPTNAM, A.P., INDIA

Abstract- *Internet of things (IOT) has made great impact in industries. IOT is a technology that helps us to control the physical devices through internet which is used to reduce the human effort. As India is developing country there are many manufacturing companies. But the major issue in the industries was industrial accidents. But the major issue due to industries was industrial accidents which causes the human and profit loss. To reduce this problem this project is introduced which helps to control and monitor all the industrial parameters, for this purpose we are using different sensors such as fire, gas, mems, humidity and temperature sensors. Along with this alerting system for workers and surrounding peoples there is a voice module and buzzer and light indication which gives them voice and sound alerts that something wrong happening in the industry. And addition of this software was using for live monitoring termed as blynk software which is familiar to the mobile and web dashboard*

Keywords- *IOT, fire sensor, gas sensor, temperature and humidity sensor, mems sensor*

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I. INTRODUCTION

Now a days, the industries require more manual power to monitor and control the parameters in industries like temperature, fire, gas, etc. with the help of single microcontroller and LCD displays. To sense the various parameters the different sensors are aroused in the industry. Here there is no sensing devices in the industry at the time of emergency, it leads to a harmful situation, so, in this project different sensors and alert systems is used under the concept of automation control which is reduce the high manpower necessity, so in this automation method all parameters are sensed by the microcontroller. The issue is displayed on the LCD and immediately the voice alert is comes from the speakers for the inside workers alerting purpose. The light Indication is for surrounding people alerting.

II. OBECTIVE

The main aim of this project is to reduce the industrial deaths and avoid the human effort. The main theme of the project using domain of embedded systems technology that includes IOT in the industries by using different sensors like gas, fire, mems, temperature and humidity sensors to monitor the various parameters. Here relay acts as a kill switch which is activated when things go out of hands. Here voice module, light indication is for the workers and surrounding people alerting and take precautions accordingly along with this we are using Blynk software for live monitoring purpose.

III. LITERATURE SURVEY

By the case study of LG polymers gas leakage taking, it as an example we implemented this concept as a project of "IOT based industrial automation" Here we have taken the some of the IEEE existing base papers for Here we are have taken the some existing systems for monitoring industrial parameters they include "Internet of Things in Industries: A Survey". In this paper they summarize the current state-of-art of IOT in industries systematically. They tracking and identifies the key enabling technologies involved in IOT include RFID systems, barcode, and intelligent sensors. A simple RFID system is composed of an RFID reader and an RFID tag. Because of its ability to identify, trace, and track devices and physical objects, the RFID system is increasingly being used in industries such as logistics, supply chain management, and healthcare service monitoring [1].

Another paper was "integration of wireless sensor network services into other home and industrial networks" in this they discussed about the need and how to integrate wireless sensor networks into other existing IP-based networks. Using the 6LoWPAN it is possible to connect a wireless sensor network with the

internet and other IP-based networks in home and industrial environments. The 6LoWPAN also implements the header compression and fragmentation as well as reassemble of fragments in order to map from IPv6 to ZigBee networks [2].

IMPLEMENTATION

Here the different sensors like fire, gas, mems, and temperature & humidity sensors are used for detect the slight changes in the industries. All the sensors are interfaced through the Arduino Atmega 328. If any sensor detects the faults the then immediately the power supply turned off by the relay. Here relay acts as kill switch

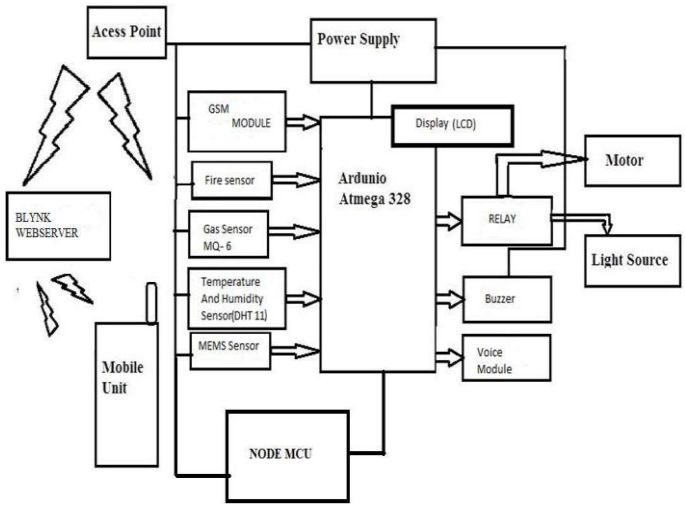

Fig. 1: Block Diagram

whenever things go out of hands its automatically turns off the power supply. Here relay acts as kill switch whenever things go out of hands its automatically turns off the power supply and voice alert is coming from the speaker and buzzer will activated and along with this the GSM is used for sending the messages to the the higher authorities to take approximate measures. For the surrounding peoples the light is placed on top of the industry is turned on which is visible to the surrounding people. This all parameters is live monitored and stored in the blynk software from both pc and mobile. Blynk allows us to create applications and then use it to control Arduino board connected to a PC with internet access, from anywhere in the world, (for instance, controlled, servos, receive data etc.), with a smartphone and a website world, (for instance, controlled, servos, receive data etc.), with a smart phone and a website.

Basically, Blynk are two types

1.Web dashboard

2.Mobile dashboard

IV. RESULTS

This is the hardware output of the project. The figure 3(a) shows the initial condition of the system.

Fig.2: IOT Based Industrial Automation

In this project all the sensors is interfaced to the Arduino board when any faults is occurred like any gas leakage or fire detection is happened then its respective sensor is detect that, and it's displayed on the LCD and immediately the power supply and motor is turned off by the relay switch. The speaker and buzzer is the alerting system which is used to both inside industry workers and nearby peoples. The GSM module for sending messages to officials. This all operations are done simultaneously. After sometime the motor and power supply come to normal condition.

V. CONCLUSION & FUTURE SCOPE

Conclusion

The aim of the project are developing an industrial application using internet of things technology. In this project we have to proposed to provide an application for monitoring industrial parameters and to inform the responsible person using GSM module which is used to take appropriate measures, and aim to serve an efficient announcement using voice module if anything happened incorrectly in the industry with the help of sensors (fire, gas, temperature, humidity, memes). By the using of blynk software live monitoring is happened in both pc web dashboard and mobile web dashboard. This blynk software is familiar with both pc and mobile phone.

Future Scope

The future scope for IOT can be huge. There are many factors to improve on to make IOT more powerful, intelligent, scalable, and to become better overall for industrial automation. For example, the four different sensors are used for detecting the industrial parameters like fire detection, gas leakage temperature and humidity monitoring, detecting vibration or any tilts in the machinery. For live monitoring purpose the blynk software is used. Blynk is the software tool which is familiar to the both pc and mobile phone. Well, no system is ever perfect. It always has a scope for improvement. One just needs to put on a thinking cap and try and make the system better. There is also a possibility in the future to add even more sensors and also to cover all the locations of the industries for a full far view and accurate response in order to reduce the industry related accidents and occupational deaths or near them to zero.

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