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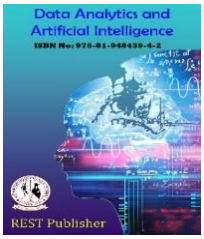

Automation of Industry Based on IOT

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Abstract: *The Internet of Things (IOT) has significantly changed several sectors. IOT technology allows us to operate physical objects remotely via the internet, saving labor-intensive tasks that would otherwise require human intervention. India is a developing nation with a large number of manufacturing businesses. But industrial accidents were the main problem facing the industry. However, the main problem brought on by industry was industrial accidents, which resulted in losses to both lives and money. In order to lessen this issue, a project that assists in controlling and monitoring all industrial characteristics is presented. Various sensors, including temperature, humidity, gas, fire, and mem sensors, are used for this goal. In addition to this warning system for employees and anyone in the vicinity, there is a speech module, a buzzer, and a light indicator.*
Keywords: IOT, gas and temperature sensors, mems sensors, fire sensors, and humidity sensors.

1. INTRODUCTION

Now a days, with the aid of a single microcontroller and LCD displays, the industries need more manual labor to monitorand control the parameters in industries like temperature, fire, gas, etc. Various sensors in the industry are stimulated to sense differentparameters. This project uses a variety of sensors and alert systems under the concept of automation control, which reduces the high manpower necessity. Since the industrylacks sensing devices in an emergency, this could result in dangerous situations. Therefore, all parameters are sensed by the microcontroller in this automation method. The problem appears on the LCD, and a voicealert alerting the internal workers is played right away over the speakers.

2. OBECTIVE

This project's primary goal is to decreaseindustrial fatalities and eliminate human labor. The primary focus of the project is theuse of embedded systems technology, whichincludes Internet of Things (IoT) in various industries. Various sensors, including temperature, humidity, gas, and fire sensors, are used to monitor various parameters. Relay serves as a kill switch in this situation,activating when things get out of control. Here, the voice module and light indication serve to alert the workers and those in the vicinity so they can take the necessary precautions. In addition, Blynk software is used for real-time monitoring.

3. LITERATURE SURVEY

We implemented this concept as a project of"IOT based industrial automation" using the case study of LG Polymers gas leakage taking as an example. Here, we have selecteda few of the IEEE's current foundational papers for Here, we have included a few of the current industrial parameter monitoring systems, such as "Internet of Things in Industries: A Survey." This paper presents a systematic summary of the state-of-the-art inIOT across industries. They track and identify the major IOT enabling technologies, such as barcodes, RFID systems, and intelligent sensors. An RFID tag and an RFID reader make up a basic RFID system. The RFID system is being used more and more because of its capacity to identify, trace, andtrack devices and tangible objects [2]. They also covered the necessity and methodsof integrating wireless sensor networks into other IP-based networks

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in a paper titled "integration of wireless sensor network services into other home and industrial networks." The internet and other IP-based networks in residential and commercialsettings can be linked to a wireless sensor network via 6LoWPAN. Additionally, the 6LoWPAN implements fragmentation andheader compression in addition to fragment reassembling to facilitate the mapping of IPv6 to ZigBee networks.[3]

4. IMPLEMENTATION

Here, a variety of sensors, including temperature and humidity sensors, fire, gas, and memory, are used to identify even the smallest changes in the various industries. The Arduino Atmega 328 serves as the interface for all of the sensors. Anytime a sensor finds a problem, the relay quickly cuts off the power supply. This relay serves as a kill switch.

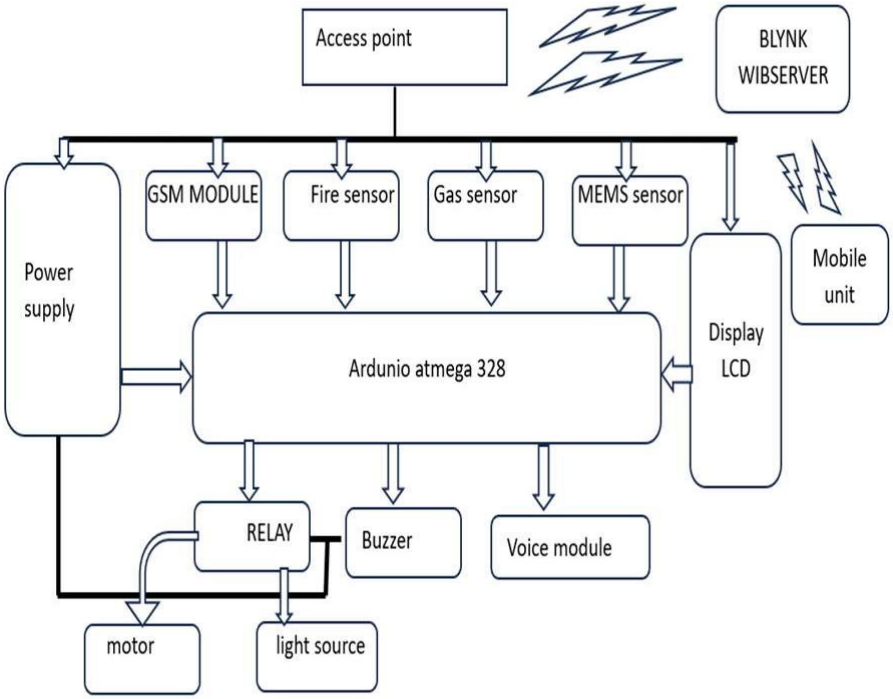

FIGURE 1. Block Diagram

The power supply is automatically cut off when things get out of control. In this instance, the relay serves as a kill switch; if things get out of control, it instantly cuts off the power supply, activates the buzzer and speaker, and uses the GSM to send messagesto higher authorities so they can take appropriate action. The light above the industry is turned on for the benefit of the nearby population, making it visible to them.Every parameter is tracked in real time and saved in the Blynk software, accessible froma computer or a mobile device. We can writeapps with Blynk and use them to controlArduino boards that are connected to PCs with internet access. Basically, Blynk are twotypes

1. Internet dashboard
2. Dashboard on a mobile device

5. RESULTS

The project result in hardware like this. An initial state of the system is depicted

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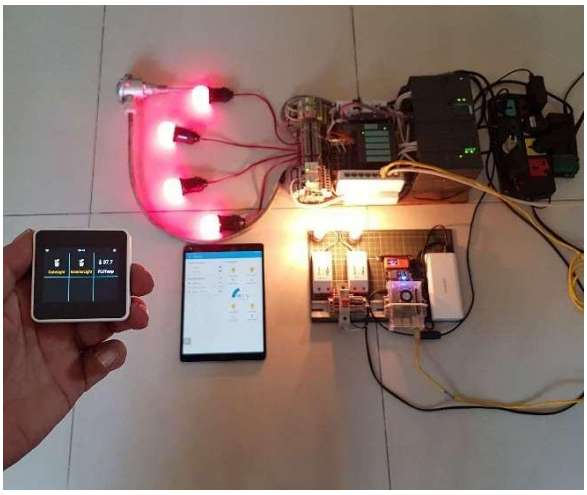

FIGURE 2. IOT based Industrial Automation

6. CONCLUSION & FUTURE SCOPE

The project's goal is to use internet of things technology to develop an industrial application. With the help of sensors (fire, gas, temperature, humidity, memes), we haveto propose an application for monitoring industrial parameters in this project. We alsowant to use a voice module to efficiently announce any errors in the industry and notify the responsible party so they can take the necessary action. Live monitoring is possible on both the desktop and mobile webdashboards when the Blynk software is used.This Blynk software is compatible with bothmobile devices and computers. Future Scope IOT has a huge potential future application. To make IOT more robust, intelligent,scalable, and better all around for industrial automation, there are a lot of things that need to be improved. The four distinct sensors, forinstance, are employed in the detection of industrial parameters such as temperature andhumidity monitoring, gas leak detection, vibration or tilt detection in the machinery. The Blynk program is used for real-time monitoring. Blynk is a software application that is compatible with both desktop and mobile devices. Well, there is never a perfectsystem. There is constantly room for improvement. All one has to do is try to improve the system by donning a thinking cap. Additionally, it's possible to add even more in the future.

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