

# Industry Supervising System By Using Arduino & IOT

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**Abstract—** With the rapid elevation in the internet users count over the past decade has made Internet a part of life. Internet of things is the advanced & emerging internet technology. With the rapid growth of supervising technology in industries, life is getting simpler and easier in all conditions. In this modern world these Automatic systems are being adopted over manual systems because of their Self-Regulating behavior. This reduces the cost and power. Internet of things is a burgeoning network from industry machine to consumer demands by sharing data and accomplishing tasks while we are hustling with various other activities.

Arduino based Industry Supervising system (ISS) aims the computers or mobile devices to monitor Industry features, functions and conditions automatically from anywhere around the world by using Internet. In this project we use Arduino Uno along with ESP8266 Wi-Fi module which enables the connection between Arduino and server [1-2].

**Index Terms—** IOT, Supervising, ESP 8266 Wi-Fi module, Cloud networking, Thingspeak.

## 1. INTRODUCTION

Many existing Industry Supervising systems are based on wired communication. This does not pose a problem if predetermined and installed during the physical construction of the industry. But for an already existing Industry the implementation expenses goes very high. In this contrast, Wireless Supervising systems can be of great benefit and effective. With the advancement of wireless technologies such as Wi-Fi, cloud networks in the recent past, the wireless systems become routine in our daily life. This is the reason for introducing wireless communication in our Industry Supervising System.

### Advantages of Industry Supervising Systems

The use of wireless technologies gives several advantages such as:

- 1) Less installation expenses: Wired communications require long cables which increases the cost and complexity. Whereas the wireless communication systems incur less cost. In this project we designed low

cost Supervising system by using Arduino rather than raspberry pi and other microcontrollers.

- 2) System scalability and easy extension : This is a wireless automated system which is highly scalable and we can expand or resize by including or excluding various sensors by using them up to our requirement
- 3) Remote monitoring: The wireless Supervising system privilege the user to access the stored data and monitor from anywhere around the world.

## 2. FUNCTIONS OF INDUSTRY SUPERVISING SYSTEM

This Industry Supervising system has the capabilities to monitor the following parameters in Industry and alerts the user with the following alarms:

- Temperature and humidity
- Theft Activity Alarm
- Smoke detection Alarm
- Fire detection Alarm

## 3. SOFTWARE DESIGN

### Front End Design :

We designed a website through which user can access the sensors data through internet. To provide good analytics, user interface and data security we used ThingSpeak platform which is powered by MATLAB [9]. For hosting our web pages we used a free web hosting site <https://in.000webhost.com/> [8]. Our website is 100% mobile friendly which is designed with HTML, w3.css, Javascript etc [7]. Follow the below link to our website. <https://haece.000webhostapp.com/index.html>

## 4. HARDWARE DESIGN

In this project we use Arduino Uno along with Sensors like DHT1 sensor, PIR Sensor , MQ2 Smoke sensor , Flame sensor etc. to collect data [3-6]. We used ESP8266 Wi-Fi module, an advanced device over GSM module to connect the system to the server via internet. The Led Indicators are provided to indicate any abnormal conditions and alarm alerts the user to take necessary actions. The figure 1 and

figure2 shows the block diagram and flowchart of Industry Supervising system respectively.

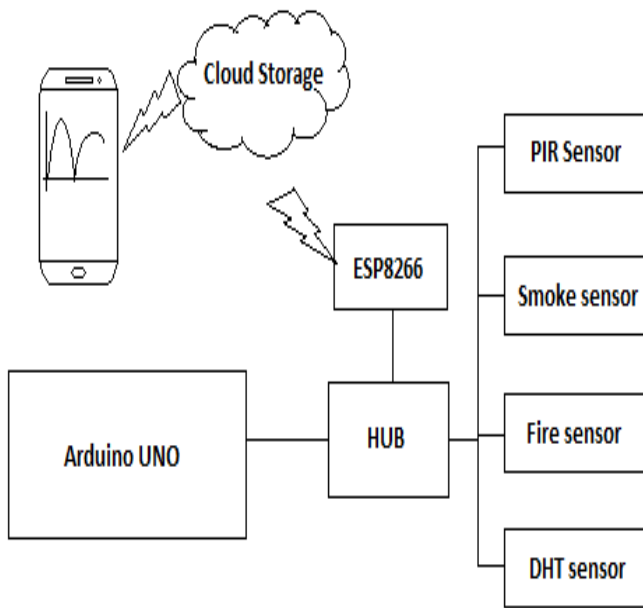


Figure 1: Block diagram of Industry Supervising System

5. FLOW CHART OF INDUSTRY SUPERVISING SYSTEM

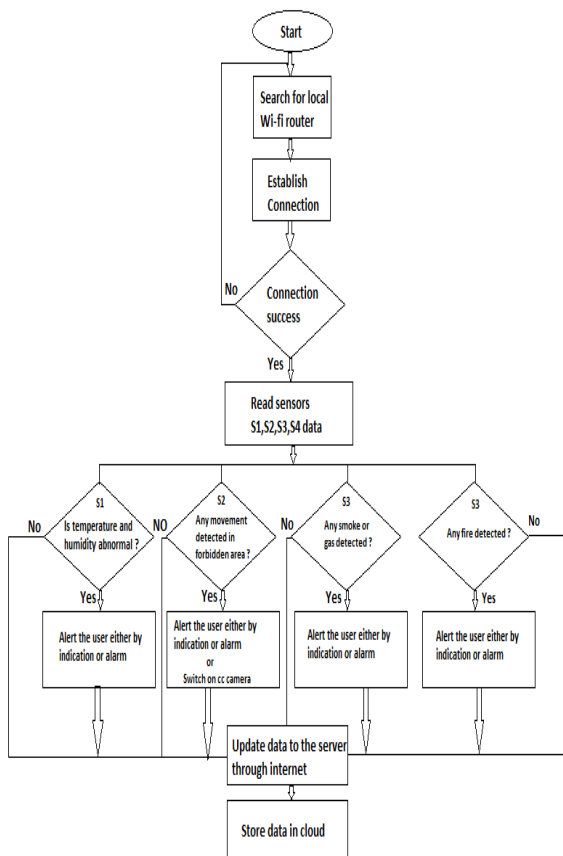


Figure 2: Flowchart indicating working flow of Industry supervising system.

6. RESULTS

The figures 3 to 7 shown below is the results obtained from various sensors through ThingSpeak website. The figure 3&4 data are obtained from DHT11 sensor. The figure 5 data is obtained from MQ2 smoke sensor. The figure 6 data is obtained from flame sensor. The figure 7 data is obtained from PIR motion detection sensor.

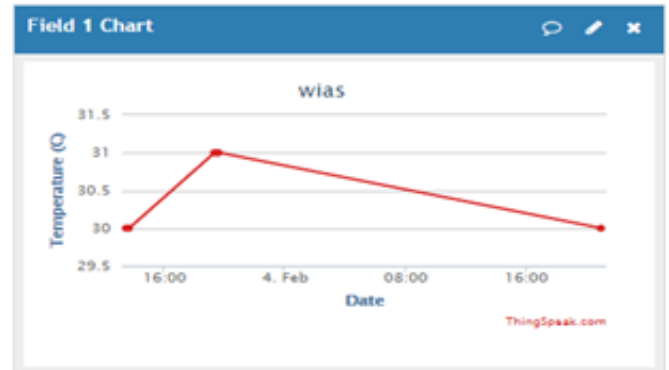


Figure 3: Temperature data displayed through ThingSpeak

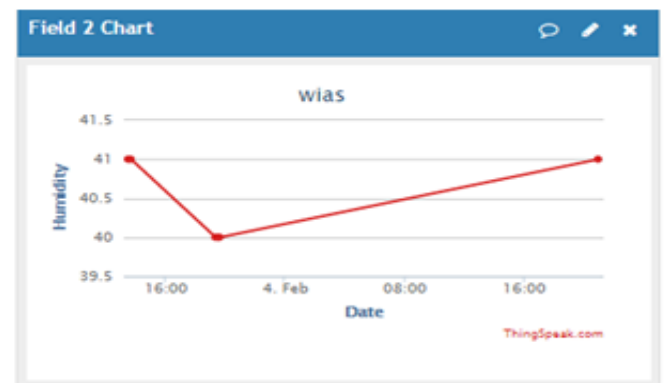


Figure 4: Humidity data displayed through ThingSpeak

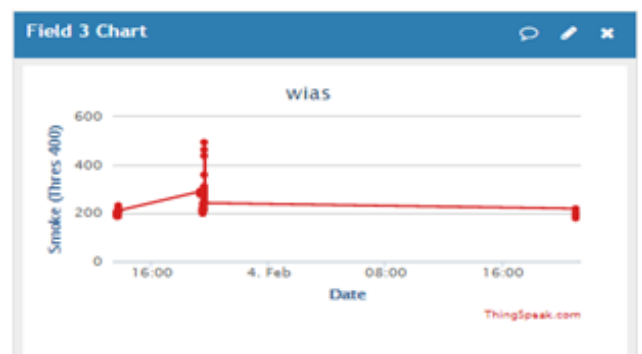


Figure 5: Smoke sensor data displayed through ThingSpeak

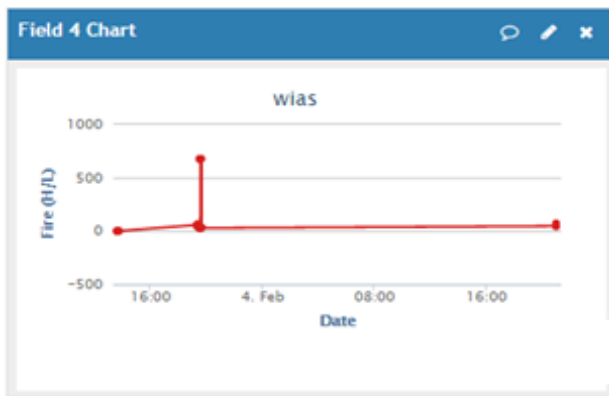


Figure 6: Fire sensor data displayed through ThingSpeak

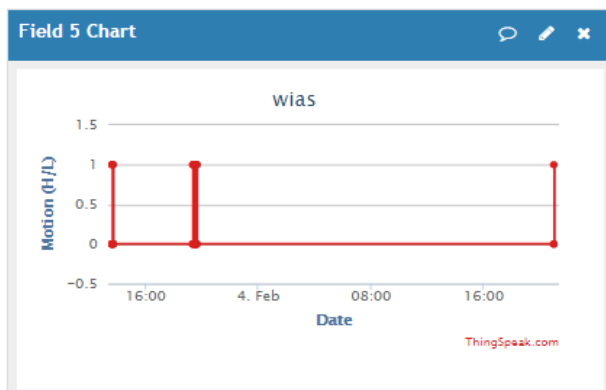


Figure 7: Motion detection data displayed through ThingSpeak indicating unauthorized movements in forbidden area

## 7. CONCLUSION

The Industry Supervising System using Arduino has been experimentally proven to work satisfactorily by connecting required sensors and they were successfully monitored remotely through internet. The designed system not only monitors the sensor data, like temperature, gas, light, motion sensors, but also alerts the user according to the requirement.

## 8. FUTURE SCOPE

This project can be expanded to include various applications to achieve Industry security features like capturing the photo of an unauthorized person moving around the forbidden places and storing it onto the cloud. This will reduce the data storage than using the CCTV camera which will record all the time and stores it. The system can be expanded for energy monitoring or weather stations.

## ACKNOWLEDGEMENT

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## BIOGRAPHY



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