



IOT Based Industrial Monitoring and Fault Detection Using Android

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ABSTRACT: Now a day's Automation plays major role in the industry. Human efforts are reduced using automation system which monitors and indicates any fault in the system. In this paper IOT concept is used. IOT is a network of physical object or things embedded with electronics, software, sensors, and network connectivity which use this object to collect and exchange data. In this paper a system is developed which will automatically monitor the industrial parameter such as temperature, gas, fire, humidity and generates alerts and alarms and take intelligent decisions with the help of IOT concept. Here automaton system will be used in industry for monitoring various parameters such as temperature, humidity, gas and fire.

KEYWORDS: IOT, Sensors, ULN2803; WIFI module, GUI, Android operating system .

I. INTRODUCTION

In few days a wide range of industrial IOT applications have been developed. It is start from RFID technology, it consist of microchips to transmit information to a reader through wireless communication by using this RFID readers, people can identify, also track and monitor any object attached with RFID tag automatically. There is another technology is the wireless sensor networks (WSNs). WSNs uses various intelligent sensors to sense and monitoring. RFID and WSN are use to develop IOT. IOT is nothing but internet of things. In past years industry was monitor and control manually, this paper provides artificial intelligent to monitor the sensors as well as control the industry automatically without any human interference.

II. LITERATURE REVIEW

The literature review of this research topic has been reviewed from last twenty years, in order to find outwork carried by various researchers. There are many systems available for remote monitoring and control designed as commercial products. It is also available for experimental research platforms. It is observed that most of the research carried out belongs to the following categories. Many of the systems uses Internet based Monitoring approach using Servers, GPRS modems, etc. with different approaches. GSM-SMS protocols using GSM module individually or in combination with Internet technology. There is no any method to detect un-even condition in industries. Man power intervention required for monitoring various applications. CCTV used in industry which only monitor the application but no any Alert generation takes place. Alert and their appropriate actions not presented manually. CCTV is very time consuming approach to detect and generate Alert Manually.

III. BLOCK DIAGRAM

IOT is used to monitor and control industrial parameter. This modern area of automation and advanced computing using IOT with artificial intelligence offer promising solutions towards the automation industry. Internet of things is sensed the objects and controls remotely across existing network infrastructure. It consist of various sensors (temperature, gas, fire, pressure, humidity) are used to observe environment and object conditions. In this project analog signals are used and these signals are provided to android device. supervisor set the threshold to every sensors place in industry. Android device check this threshold against incoming analog signal. When there is any uneven

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condition devices such as buzzer, alarms, motor fans are use. This device is used to take accurate measure such as alarms and alerts those are generated. It also send messages to supervisors. Block diagram of this system shown in fig.1. and an android app in fig.2

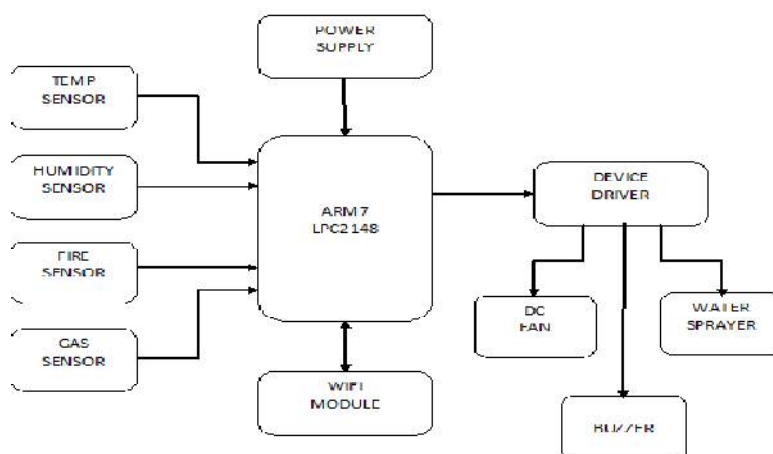


Fig.1.Block diagram

ANDORID APP GUI:-

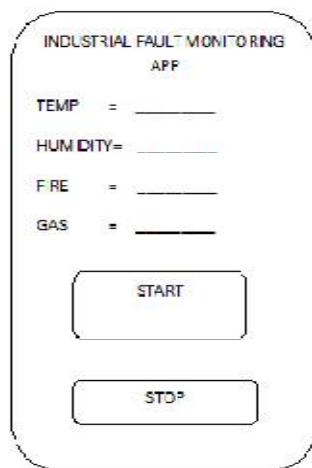


Fig.2.Android app

A.WORKING

The block diagram consist of ARM 7 (LPC2148), Power Supply, device driver, temp sensor, humidity sensor, fire sensor, gas sensor, Wi-Fi module, GSM module, DC fan, water sprayer, buzzer . Here implementation of automation system is done in industry for monitoring various parameter such as temperature, humidity, fire and gas. Different sensors are used for monitoring and detecting the fault. These are connected to ARM7 and ARM7 is interfaced to android application. Wi-Fi module is used to communicate ARM7 with android app. A real time continuous monitoring



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of the parameters on android display can be seen. If any parameter goes above the set threshold then the system indicates it through and send SMS to the respective authorities.

IV. PROPOSED ALGORITHM

A. Design Considerations:

1. Start.
2. Initialize UART of ARM7.
3. Initialize WIFI module.
4. Connect WIFI module to hardware.
5. Press start button on android app.
6. Controller will start reading sensor values.
7. Send to android app and display on android.
8. If sensor value is greater than threshold send SMS.
9. And Start output devices.
10. Repeat step 6

B. Description of the Proposed Algorithm:

Aim of proposed algorithm is to control and monitors the industrial parameter such as temperature, humidity, gas and fire. Algorithm of this system start with initialization process of UART of ARM7 processor at the same time initialization of WIFI module also takes place. After initializing WIFI module connected to hardware. this project also consist of android phone in that android app. after that when pressing the START button on app ARM7 controller continuously reading the sensor values. Controller send sensor values to android app and display .If sensor value is greater than threshold value it send SMS to respective supervisor and start output devices.

V. FEATURES

1. Protection from shock while operating and secured.
2. Easy to use and power saver
3. Physically challenged people can also operate

VI. SIMULATION RESULT

Now a day's Automation plays major role in the industry. Human efforts are reduced using automation system which monitors and indicates any fault in the system. Here the system is design in such a way that it automatically monitors and control industrial parameters. Industrial parameters are temperature, humidity, gas and fire. This parameters are continuously monitor by ARM7 and send values to the android app using WIFI module. This values are display on android app. If any value goes above the threshold then it send SMS to supervisor and start the output devices. Hardware model of this project shown in fig.3

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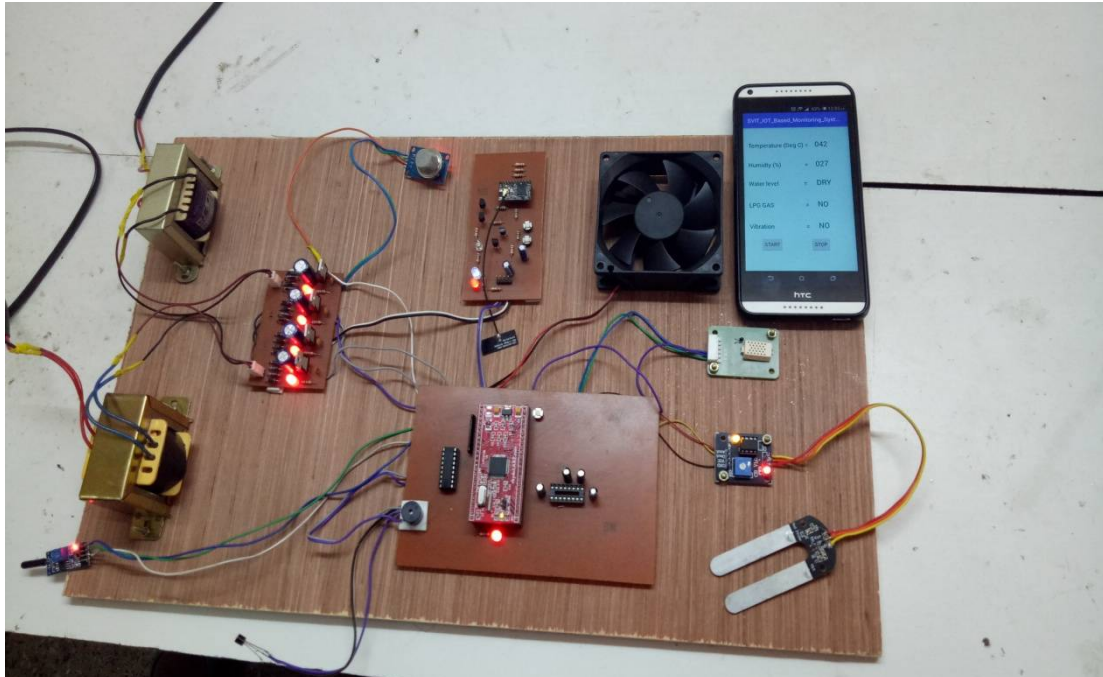


Fig.3.Hardware model

VII.CONCLUSION

Now a days, automation is a major part in industry. Earlier days monitoring of industrial situation takes place with the help of CCTV cameras. In industries to reduce manual overhead .Implemented IOT i.e. Internet of thing concept. This IOT concept monitor and control industrial parameter such as (temperature, gas, fire, humidity)and inform to responsible person to take appropriate action.

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