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Speed Monitoring and Controlling of Motor Using Internet of Things (IoT) Enhanced with WI-FI

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Abstract- **There are a great many risks to your health which can be linked to coal mining operations. Though there are obvious workplace hazards associated with working in a coal mine, these are not the only risks associated with mining activities. Simply living within proximity of a mine can actually cause a variety of health concerns, and both types of mining (deep and surface) pose their own set of problems. A smart helmet has been developed that is able to detect hazardous events in the mines industry. In the development of helmet. The concentration level of the hazardous gases such as CO,SO2,NO2, and particulate matter. Hazardous event was classified as a miner removing the mining helmet off their head. The environment temperature and heart beat rate also finds to identify the worker's health conscious. The concentration level of the hazardous gases such as methane, carbon monoxide, hydrogen sulfide and particulate matter. This project, aims to design a mine safety system using wireless sensor networks with measurement of parameters such as temperature, air-flow, humidity, noise , dust, and gas concentration.**

Keywords: WIFI, Anti Clockwise, Sensor, Buzzer.

1. INTRODUCTION

In addition, the availability of fast-processing, stable and sensitive products provided particular benefits in industrial automation. As a result of the developments in Communication technologies, systems are no longer monitored and controlled by personnel using classic methods, but automatically by computer-controlled or remote-controlled devices.

Industrial environmental conditions have been upgrading day by day with this newly introduced automatic techniques as a result of getting rid of the conventional procedures of manufacturing increasing huge work loads. The next generation industries will be Technological developments have enabled to be taken classic systems place by Automatic and advanced systems definitely more advanced and automatic as compared with existing ones. This brings on a new terminology of "Smart Industries" in this new era of Monitoring as well as controlling of various Industrial applications.

As an emerging technology brought about rapid advances in modern wireless telecommunication, Internet of Things (IOT) has attracted a lot of attention and is expected to bring benefits to numerous applications. The newly introduced concept of "Internet of Things" (IOT) is providing a helping hand to achieve the Industrial automation through remote access. In IOT each device or devices constituting a system will be able to communicate with the other devices or system in the same premises over a common platform.

Hence this leads to exchange of relevant data, statistics, logs and various other parameters information among various devices to improve their performance, which will help industries to have better productivity, management and increased throughput.

II .OVERVIEW

PROPOSED SYSTEM:

In this proposed system IOT based specification the temperature, voltage and current of the DC motor can also be measured using temperature, current and voltage sensor.

The voltage and current given to the motor is monitored and controlled will increase the life time of the motor The measurement of voltage and current depend upon the rating of the motor and the data of the system are stored in the cloud storage present in the internet and the past and present details of the motor can be viewed at any time.

It is easy to monitor the error occurred in the system by verifying the details present in the storage. The data of the system present can be transmitted and received with high speed. The key idea of the proposed work is to provide flexible and long distance connectivity between industrial environment and user.

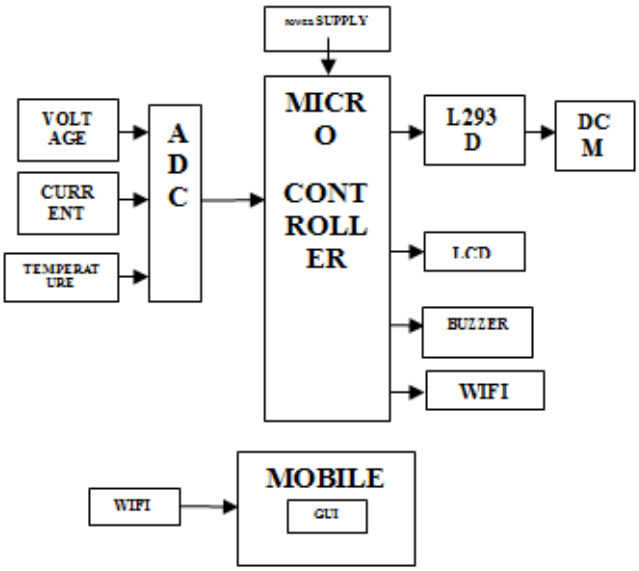


FIG.1. BLOCK DIAGRAM

III.HARDWERE IMPLEMETATION

A.TEMPERATURE SENSOR

Thermistors are thermally sensitive resistors whose prime function is to exhibit a large, predictable and precise change in electrical resistance when subjected to a corresponding change in body temperature. Negative Temperature Coefficient (NTC) thermistors exhibit a decrease in electrical resistance when subjected to an increase in body temperature and Positive Temperature Coefficient (PTC) thermistors exhibit an increase in electrical resistance when subjected to an increase in body temperature. Temperature is the most often-measured environmental quantity. This might be expected since most physical, electronic, chemical, mechanical, and biological systems are affected by temperature. Certain chemical reactions, biological processes, and even electronic circuits perform best within limited temperature ranges. Temperature is one of the most commonly measured variables and it is therefore not surprising that there are many ways of sensing it. Temperature sensing can be done either through direct contact with the heating source, or remotely, without direct contact with the source using radiated energy instead. There are a wide variety of temperature sensors on the market today, including Thermocouples, Resistance Temperature Detectors (RTDs), Thermistors, Infrared, and Semiconductor Sensors.

B. CIRCUIT DIAGRAM

Fingerprint identification is the method of identification based on the different patterns of human fingers, which is actually unique among each person. It is the most popular way of acquiring details of any person and is the most easy and convenient way of identifying a person. An advantage of fingerprint

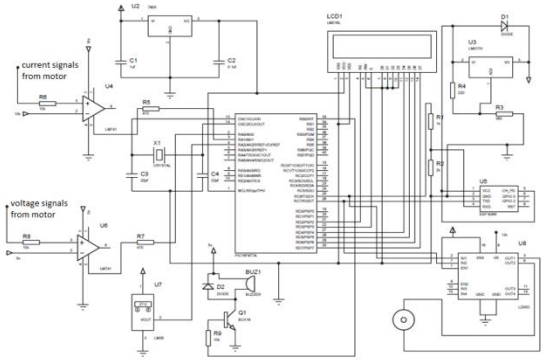


FIG.2.CIRCUIT DIAGRAM

C. LM35 MODULE:

The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius (Centigrade) temperature. The LM35 thus has an advantage over linear temperature sensors calibrated in ° Kelvin, as the user is not required to subtract a large constant voltage from its output to obtain convenient Centigrade scaling. The LM35 does not require any external calibration or trimming to provide typical accuracies of ±1⁄4°C at room temperature and ±3⁄4°C over a full −55 to +150°C temperature range. Low cost is assured by trimming and calibration at the wafer level. The LM35's low output impedance, linear output, and precise inherent calibration make interfacing to readout or control circuitry especially easy. It can be used with single power supplies, or with plus and minus supplies. As it draws only 60 µA from its supply, it has very low self-heating, less than 0.1°C in still air. The LM35 is rated to operate over a −55° to +150°C temperature range, while the LM35C is rated for a −40° to +110°C range (−10° with improved accuracy).

D.VOLTAGE SENSOR:

A voltage sensor circuit is a circuit that can sense the voltage input into it. If the voltage reaches a certain threshold, then an indicator, such as an LED, will turn on. This is not a voltmeter circuit, where we know or are measuring the amount of voltage input into it. That's a different thing entirely. This is a voltage sensor circuit, where if we get to a certain level of voltage, then the output will turn on. And we can build a voltage sensor circuit, simply with a voltage comparator chip or an op amp that can function as a voltage comparator.

E.CURRENT SENSOR:

A current sensor circuit is a circuit that can sense current going through it. If the current reaches a certain threshold, then an indicator, such as an LED, will turn on. This is not an ammeter circuit, where we know or are measuring the amount of current going through. That's a different thing entirely. This is a current sensor circuit, where if we get to a certain level of current, then the output will turn on. And we can build a current sensor circuit, simply by exploiting ohm's law.

F.WI-FI MODULE:

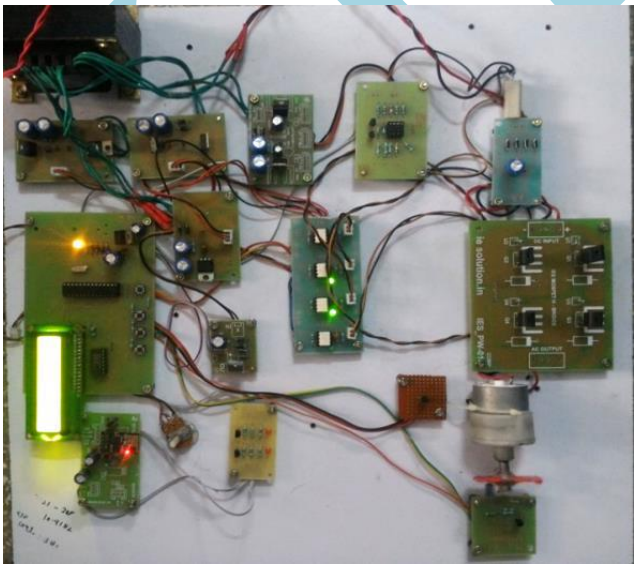
ESP8266 WIFI Module:

ESP8266 is an impressive, low cost WIFI module suitable for adding WIFI functionality to an existing microcontroller project via a UART serial connection. This module can even be reprogrammed to act as a standalone WIFI connected device–just add power! The feature list is impressive and includes: 802.11 b/g/n protocol Wi-Fi Direct (P2P), soft-AP Integrated TCP/IP protocol stack. This guide is designed to help you get started with your new WIFI module so let's start! The hardware connections required to connect to the ESP8266 module are fairly straight-forward but there are a couple of important items to note related to power: The ESP8266 requires 3.3V power–do not power it with 5 volts. The ESP8266 needs to communicate via serial at 3.3V and does not have 5V tolerant inputs harness the magnetic interaction between a current-carrying conductor and an external magnetic field to generate rotational motion.

G.RPS:

Almost all electronic devices used in electronic circuits need a dc source of power to operate. The source of dc power is used to establish the dc operating points (Q-points) for the passive and active electronic devices incorporated in the system. The dc power supply is typically connected to each and every stage in an electronic system. It means that the single requirement common to all phases of electronics is the need for a supply of dc power. For portable low-power systems batteries may be used, but their operating period is limited. Thus for long time operation frequent recharging or replacement of batteries become much costlier and complicated. More frequently, however, electronic equipment is energized by a power supply, derived from the standard industrial or domestic ac supply by transformation, rectification, and filtering.(The combination of a transformer, a rectifier and a filter constitutes an ordinary dc power supply, also called an unregulated power supply).

IV. HARDWARE RESULT



V.CONCLUSION

This paper has presented the design and implementation of Internet of things for monitoring and controlling of various application and parameters in industries using wireless communication technique. The key idea of the proposed work is to provide flexible and long distance connectivity between industrial environment and user. The advantages of the developed system are to have a continuous monitoring over industrial applications and also control them if going beyond their threshold conditions. Future work will focus on improvement of above proposed work and adding features to make a reliable smart Industrial monitoring and controlling system.

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