Monitoring Parameters of Motor Using Wireless Communication

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***Abstract*—** Automation is using diverse manage structures for running system which include machinery, strategies in industries which include boilers and warmth treating ovens, switching on phone networks, guidance and stabilization of ships, plane and different programs with minimum or decreased human intervention. This studies paper gives superior techniques the usage of wi-fi tracking machine for induction motor primarily based totally on Internet of Things (IoT) for secure and monetary facts communication. n the primary approach, kingdom of the artwork fault detection approach is exhibited for induction motor. This studies paper relies upon at the evaluation of measured voltage, current, earth leakage, rotor repute and speed. Progressed embedded approach and applied to isolate and survey the frustration seriousness. In this procedure, exclusive sensors are related to the motor, and the portions are extracted via way of means of using a microcontroller. The Graphical User Interface (GUI) with cloud server IoT is used to transmit the facts from base station to far flung station. This association permits the customer to interface with the framework. The proposed studies paper primarily based totally induction motor manage machine is verified via the simulation in Raspberry Pi three environment.

Automation has end up a primary want for rising technologies. Motors are the nerves of many industries. Hence Industrial automation is needed for specific and correct operation. This assignment proposes a wi-fi manage and tracking device for numerous commercial machines primarily based totally on Zigbee verbal exchange protocol for secure and financial records verbal exchange in commercial fields in which the stressed verbal exchange is greater pricey or not possible because of bodily conditions. Sensor module is used to display the parameters of any commercial system and transmit the records thru Zigbee Protocol. In case of fault withinside the foremost system, the controller examine the records from sensor and routinely sends sign to the alarm circuit and relay circuit which switches to standby system and additionally video display units the parameters. ARM processor primarily based totally device is used for amassing and storing records and as a result transmits the data to the manage room thru pc interface and shops the records periodically. A prototype and simulink version is advanced and examined to affirm the overall performance of this proposed device.

I. INTRODUCTION

The present computing technological know-how is free from conventional computing restricted to laptop computer or Laptop. Now, it‟s rising and entails sensible devices which includes machines, infrastructures, environment, gadgets and peripherals for client utility at every day use etc. which would possibly be interconnected via the net, Gubbi et al. (2013). Earlier Internet became into actually limited to records interchange among man or woman and set of clients can be close by or throughout global, then again now Internet goes to revolutionise the humanity. The final motive of the internet is to offer the speedy, applicable information about the authentic world applications and the gadgets Aggarwal et al. (2013). With non-stop developmental and analytical studies primarily primarily based completely approach internet software program and utilities have waxed up, going previous the speculation of the human mind; and as a final result ensuing withinside the commencing of IoT (Internet of Things). The global connection of shrewd devices is referred as IoT which in particular interests at connecting the most of the day-nowadays no longer unusual location in hand tools and units over the internet that may specially serve the advantage of

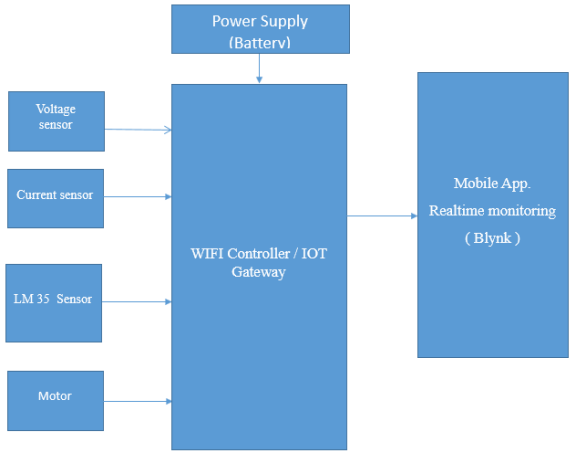
assembly comfort, luxury, and a kind of buttress to disabled, aged The ultimate cause of the prevailing seem at is to indicate a mechanism which ought to reduce the electricity consumption and preserve the greater electricity of motor for in a similar fashion use. The thesis makes a speciality of the discount of electricity consumption at an persona dwelling and in a massive public community which consists of rural areas. In addition, the thesis additionally affords with the have a look at of the water irrigation issues that the wastage of water may be reduced. To fulfil the objective, following 3 modules had been proposed. The modules had been designed in preserving up view with important aspects and fixing the priority on the three discreet tiers i.e.

- The domestic and commercial level that includes residential locations such as hotels, houses , work vicinity (offices) and so forth
- Major are overlaying up a city, a city etc.. • The rural and bucolic vicinity where irrigation practices are followed and traffic density are very much less or occasional

II. METHODOLOGY

The main and controlling unit isESP8266 and behaves as the central unit for the whole system, its interfaces which connected with the sensor at the input end for gathering current readings and interfaces which connected with the wireless module at the output to transmit the sensed information towards Blynk using Internet. The wifi module polls the sensor to retrieve information and transmits using the Internet to blynk application.

- Block Diagram:

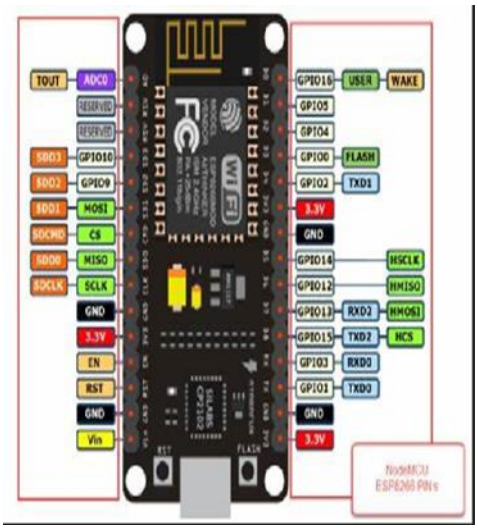


- Working

The block diagram of proposed system consist of sensors which are mount on the motor to measure the voltage, current, speed, temperature of the motor. All the measured values are send to microcontroller where it is process and encrypted packet are formed. This packet are transfer to server via wifi module which is mounted in the system. The data available at server can be access by a wed desktop or mobile app(Blynk app).

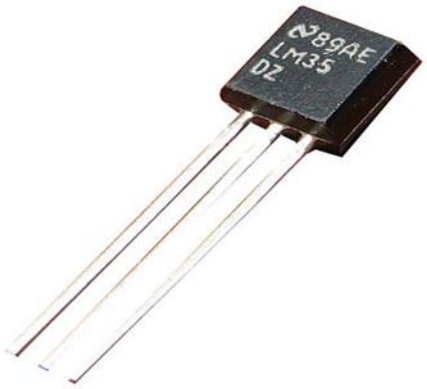
- Hardware:

4.1 ESP8266



The NodeMCU ESP8266 enchancment board comes with the ESP-12E module containing ESP8266 chip having Tensilica Xtensa 32-bit LX106 RISC microprocessor. This microprocessor helps RTOS and operates at 80MHz to a hundred and sixty MHz adjustable clock frequency.

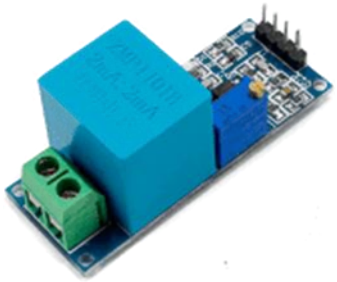
4.2 LM35



This Sensor operates on 5V DC Supply and sends the Signal to IOT Gateway about the Body Temperature . It is an Analog Sensor that Sends the Live Data to the Controller

4.3 Voltage Sensor

The Voltage Sensor is a on hand module which may desire to used with Arduino (or some specific microcontroller with enter tolerance of 5V) to degree outdoor voltages which are increased than its most applicable cost i.e. 5V in case of Arduino. Following is the image of the Voltage Sensor Module used on this project. In our Project, the Voltage Sensor consistently video display units the Line Voltage of the Battery and sends the Data to the Dashboard



4.4 Current Sensor

This sensor operates at 5V and produces an Analog voltage output proportional to the measured contemporary. The output of this contemporary sensor is analogy, to be able to examine it, we are able to at once degree the output voltage the usage of voltmeter or degree it via way of means of the usage of a microcontroller like Arduino through Analog Read pin or ADC In our Project, the Current sensor will continuously reveal the Current.

4.5 Dc Motor

12v DC

4.6 SOFTWARE

Blynk App

It is the Open Source IOT Cloud Platform that Accepts the Data from NodeMCU and its sensors and may moreover control the Load (Output Devices) This is connected to the Hardware by Mobile App. Blynk is a manufacturer new platform that lets in you to fast construct interfaces for controlling and tracking your hardware obligations out of your iOS and Android device. After downloading the Blynk app, you may additionally desire to create a mission dashboard and set up buttons, sliders, graphs, and exceptional widgets onto the screen. Blynk App - lets in to you create gorgeous interfaces on your tasks the use of severa widgets we provide. Blynk Server - reliable for all of the communications amongst the cellular phone and hardware. You can use the Blynk Cloud or run your private Blynk server locally.

III. RESULT

The mechanism was tested on a DC motor as well as AC motor and the parameters were monitored and was crosscheck by using voltmeter, ammeter and there was accuracy of 90% from the above system.

CONCLUSION

The conclusion of this task is that we can use ESP Controller to manage the System besides Human Interference and can even screen the System on Mobile App.Various Functions can be delivered to make the device more greatest and reliance for business use

ADVANTAGES

No Human required for this Operation Large profits can be made by Owner Simple and efficient Compact Design

REFERENCES

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