
IOT BASED TRANSFORMER HEALTH MONITORING AND CONTROL

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Abstract

Power distributions as well as any bulk energy consuming companies have a strong demand for dependable power so far as profit generation and product are concerned. Mills are great means to companies and thus conservation as well as relief of the motor is plant to be a luxurious exercise for every company. Keeping this factor in mind, IoT grounded distribution motor health condition monitoring system is developed in this work to cover the health conditions of distribution mills ever and at regular intervals.

Keywords: transformer, health, monitoring, IoT etc

Introduction:

Mills are a critical and precious element of the power system. Mills are used in different sizes, types, and connections. Thus, the durability of its operation is of vital significance in maintaining the trustability of power force. In order to reduce frequent breakdown of mills because of lack of monitoring, the experimenters intend to develop an IoT grounded distribution motor monitoring system which is a completely mortal machine interface device and doesn't bear any mortal hindrance during its operations. The system will give accurate information since the detectors give real time information on the critical conditions of the motor.

Methodology

Arduino is the main element in this circuit. The circuit illustration of the discriminational protection of motor using arduino is shown. The Force Of Power Is Given Through Step Down Motor 230/ 12V, Which Steps Down The Voltage To 12V AC. This Is Converted To DC Using A Bridge Rectifier And It Is Also Regulated To 5V Using A Voltage Regulator 7805 Which Is Needed For The Operation Of The Arduino, 3.3 Volt For The Wi-Fi Unit And Other Component. However, lower canvas, over temperature And Over current Happens Also Microcontroller Will Shoot data Communication To An Android App And laptop, If Overvoltage.

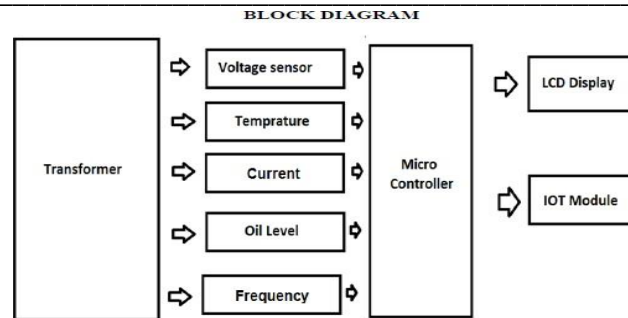


Figure 1: Block diagram

Corridor TO BE USED

- 1) Step down motor-it's Used for stepping down the input for low power work to do.
- 2) Aurdino uno-Low power microprocessor used for small programming automated work.
- 3) Wifi Module-Wifi module id used for communication between the module and the phone connected to the system.
- 4) Voltage Detector-It's grounded on the Principle of resistive voltage design. It can measure voltage up to 25volt. It has the limit of aurdino analog input 5vDC only.
- 5) Current Detector-The ACS712-05B can measure current up to $\pm 5A$ and provides affair perceptivity of 185mV/ A which means for every 1A increase in the current through the conduction outstations in the positive direction, the affair voltage also rises by 185mV
- 6) Ultrasonic Sensor-Ultrasonic detectors emit short, high- frequency sound beats at regular intervals. These propagate in the air at the haste of sound. However, also they reflected back as an echo signal to the detector, which itself computes the distance to the target grounded on the time- span between emitting the signal and entering the echo, If they strike an object.
- 7) Temperature Detector- Then we're using detector named LM35, which Minimum and Maximum Input Voltage is 35V and-2 V independently.
- 8) Regulator IC- Then we're using LM7805 5v Regulator. It's a 5v three terminal voltage controller IC. It also have a lot features hence we named that.
- 9) GSM Module-GSM means global system for mobile communication. GSM digitizes the data and compress data also shoot it down a channel with other aqueducts of stoner data, each in its own time niche. It's used to shoot sms to needed number of phones by accepting input from the aurdino.

Advantages

Low cost of operating as well as the original
 Real time covering
 High Effectiveness
 High Delicacy
 Remote Monitoring and operation
 Ameliorate system trustability
 FUTURE Compass

In unborn work we can develop database of all parameters of distribution motor, which are placed at different places. We can get all information by placing the proposed system modules at every motor. We can shoot the data through Wi-Fi module and through Ethernet router. With garçon, we can store data on webpage or website. A Wi-Fi module connects to near network and sends information to covering knot.

Result And Observation

The system conforming of arduino and detectors senses the motor health parameters. The data are collected and a knot mcu unit communicates with Effects Speak. The entered real time data is reused by it. This data is shoot using HTTP protocol. The penetrated readings can be imaged in Thing Speak platform.

Conclusion

The transformers play a vital role in distribution part of power system. Therefore the monitoring and protection of transformer is very crucial. This system introduces a new and improved method of transformer health parameter monitoring using IoT. The sensors incorporated in the system collect the data of transformer health parameters such as voltage, temperature and current. These data are sent to an IoT platform, Things Speak using. These data can be sent and accessed using HTTP protocol. Thus the real time data collection, storage and monitoring of the transformer health parameters are possible with the system

Referance

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