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International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

IOT Based Current Overload Monitoring System

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ABSTRACT:

This system illustrates the use of three- phase voltage and current monitoring system for cargo protection that's IOT- grounded. Using relay- grounded automated ON/ OFF control. In order to cover three phase bias, this system tracks three phase connections in real time and trips the relay in response to variations in the voltage and current of the three phase force. And the voltage the system uses colourful phase detectors to descry the current at each phase. Each phase's measured voltage and current are fed into the Arduino's analogue to digital motor. The Arduino board will be used for the monitoring and controlling. The Arduino board's affair will control whether the relay passages. The phase detectors will find any irregularities in the input voltage and current at each phase. Voltage and current detectors are used to find issues with high voltage, low voltage, and current. This technology in continently interrupts power to the cargo whenever an abnormal circumstance arises. Each phase detector's affair is stored on the pall face for remote access and is constantly shown on the TV.

When commodity goes wrong or malfunctions, this system can also automatically switch off the mains force and also turn it back on when everything is safe.

I. INTRODUCTION:

What is Current Overload Monitoring?

• The term "overload" refers to a gradual, modest increase in current value over a sizable amount of time. It is brought on by a motor drawing more current than it should, often up to six times the rated current. A motor under too much strain will experience this. Relays used for overload protection shield systems. While brief (typically minutes) overloads are permitted, sustained overloads will use thermal action to trip a protection device

The most popular means of providing overcurrent protection to a circuit or the internal wiring of a piece of equipment are fuses, circuit breakers, or fusible connections. Breakers, fuses, and fusible linkages typically act as conductors and very slightly increase the circuit's overall resistance.

• The biggest demand for electricity is found in India, where it is anticipated that demand would rise progressively over the next years as a result of the nation's rapid industrialization, burgeoning urbanisation, and expanding population. According to statistics, up to 48% of the world's energy is used by the residential sector. The energy used by buildings in India is split between commercial and residential structures to the tune of 40%. People use home appliances with new technology in the current era. Homes typically employ 20 to 30 electrical household appliances. The great majority of home equipment take a lot of energy and power. The majority of consumers frequently waste energy by leaving lights, fans, freezers, air conditioners, and other equipment on while they are not in use.

• This disregard for consumer behaviour can result in wasteful use of electrical energy, excessive power consumption, and a reduction in the lifespan of home appliances like the hair dryer, dry iron, induction and rice cooker, water heater, microwave, air conditioner, and television. It has been established that older appliances use more energy than more recent ones.

SCOPE:

Admin:

- Admin can monitor the system controller.
- Admin can manage the data collected.

User:

- Students can view the data of the system.

- Received notification.

II. METHODOLOGY:

IoT based current overload monitoring system is a system that monitors the current level and alerts when it exceeds the required level. The system uses pulse sensors placed in the circuit to detect the pulses and a current sensor is used to detect the current level. If the current level is greater than the required level, it alerts and breaks the system[1].

The proposed methodology for IoT based meter reading and overload protection system uses pulse sensors placed in the circuit to detect the pulses. Current sensor is used to detect current level if it is greater than required level it alert and break the system. The system makes use of arguingUnoboard/atmega328 microcontrollers, Wi-Fi module to send data over thing speak server[1].

III. LITERATURE REVIEW:

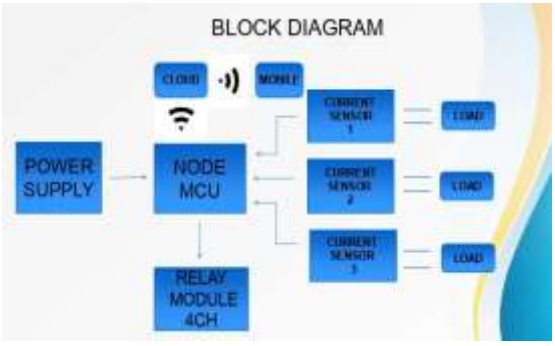
Governments Each over the world are putting a high precedence on invention with the integration of information and communication technologies(ICT) with physical structure as they pursue smart, green living to increase energy effectiveness, guard the terrain, enhance quality of life, and boost profitable competitiveness. metropolises currently defy a variety of issues, and one important bone is the need for domestic structures to be as energy effective as possible. In this exploration, a new approach called Home Energy Management as a Service (HEMaaS), grounded on the Q- learning algorithm for neural networks, is described. Automatic metre reading (AMR), advanced metering structure (AMI), and smart energy metres with real- time energy information reports have all been put into place at the ménage position in several industrialised countries. Therefore, consumers will be suitable to see their operation in real- time, ultimately encouraging them to use lower energy to save plutocrat. The detectors that feed environmental data to the custom energy operation system are composed by a set of battery operated detectors tied to a System on Chip interface. These detectors acquire environmental data similar as temperature, moisture, refulgence, air quality but also stir. A formerly being energy monitoring result was also integrated. This flexible approach can fluently be stationed to any structure installation, including structures with being results, without taking any remote robotization installations. Utilising a set of destined conditioning or, if preferred, a homemade mode, operation can identify conduct that affect in savings utilising the platform's data visualisation templates, which make an overall dashboard. With the increased vacuity of low- cost detectors, exploration on new transmission technologies bringing extended ranges, and bettered power operation linked with other platforms that store, visualise, and modify the data in order to give information, the Iota frugality is expanding in all directions. We produce and put into use a low- cost IoT energy monitoring system with multitudinous operations, including home robotization, smart grid energy operation, and power billing systems The design is grounded on a low- cost PZEM- 004T and uses on- invasive CT detectors, an electric energy dimension chip(SD3004), and a WeMos D1 small microcontroller(ESP8266) for data reclamation from detector bumps and data transmission over the internet. The results of the trials shown that the system for covering energy can directly record voltage, current, active power, and accretive power consumption. The connecting of multitudinous miscellaneous bias and effects over a worldwide network in order for them to partake data is known as the Internet of effects (IoT), an expression that has been around for ten times.

IV. SYSTEM OVERVIEW:

1. Introduction:

The Internet of Things-based Current Overload Monitoring System is shown in this block diagram. The current and voltage overload in the application will be monitored by this system. This solution uses the IoT Blynk Application to deliver the user the data.

2. Block diagram and description:



The above image illustrates the circuit diagram of an IoT based energy monitoring system and the circuit we are going to develop will be based on the above connections.

- The brain of the project is an ESP8266 NodeMCU; it has built-in internet access capability and supports several peripheral communication protocols.
- A load is connected to a current sensor module and the load has an external power supply which is separate from the 5V supply that is applied for functioning of the measuring circuit.

- If the current is exited the current limit then the relay will automatically cut off the AC supply. The NodeMCU is connected to the internet and sends the measured data to a server called BLYNK where the data is stored for future analysis.
- The real time data can be accessed on a PC / laptop / smartphone using any browser. Also on the BLYNK application.
- After that we will connect the MQ2 sensor for the detection of smoke or gas. It Can be used as a Digital or analog sensor.
- After placing all the sensors in the server room, the ESP32 module will connect to the Wi-Fi and we can monitor all parameters through the IOT BLYNK application in our smartphones/ laptops from anywhere.

V. CONCLUSION:

In conclusion, the quality and security of the server room will significantly increase with the implementation of the Current Overload Monitoring System thanks to the usage of sensors. In order to communicate data to a user, the IOT Based Current Overload Monitoring monitoring system will need to be coupled with an IOT cloud platform. The idea of common things utilising built-in sensors to acquire information and act on that information across a network.It is crucial to ensure that the implementation process runs well so that the system will perform as expected when tested. This project should enable an admin user to access the data gathered by the monitor system. After that, as the project develops, we'll make sure

In contrast to the conventional method, an IoT-based smart system that is very dependable, user-friendly, and inexpensive has been designed in this paper for remote monitoring and controlling the entire home's equipment. The suggested system is a fully automatic system that includes self-monitoring current consumption from household appliances and other devices, sending data to a web server, storing and displaying data on a web page, and sending a comment to an internet module for carrying out a particular task like starting the CB operation, current sensing, and other similar tasks. To assess the system's performance in light of this, a prototype system has been put into place and tested using real data. Theoretical research and experimental findings show that the Internet of Things-based

VI. REFERANCE:

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