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Password Based Lineman Security System

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Abstract: *Circuit breakers are an important safety feature in electrical systems, used to protect against overloads and short circuits that can cause damage or evenfires. However, traditional circuit breakers have limitations in terms of remote control and monitoring, making them difficult to integrate into modern smarthomes and buildings. This paper proposes a novel approach to circuit breaker design that leverages multi microcontroller networking systems and password-based authentication to enable remote control and monitoring of circuit breakers. The proposed circuit breaker system consists of multiple microcontrollers that communicate with each other over a network. The slave devices detects whether the fault is happened in any line or not and informs to the central control unit.The microcontrollers are connected to a central control unit, which manages the Phase lines.*

Keywords: Password

I. INTRODUCTION

A circuit breaker is a crucial component in electrical systems that protect against overloading and short-circuiting. The conventional circuit breaker relies on a mechanical switching mechanism that trips the circuit when the current exceeds a certain level. However, with the advancement in technology, the conventional circuit breaker has been replaced with an intelligent circuit breaker that incorporates a microcontroller.

The microcontroller-based circuit breaker has many advantages over the traditional circuit breaker. It can perform various functions such as detecting overloads, short-circuits, and ground faults, and can also provide remote monitoring and control. These advanced features make the microcontroller-based circuit breaker an ideal choice for modern electrical systems.

One such system is a password-based multi-microcontroller networking system, which is used to control and monitor multiple circuits using a network of microcontrollers. This system incorporates a password-based security mechanism that allows only authorized users to access the circuits. The password-based multi-microcontroller networking system is designed to provide enhanced security, control, and monitoring of electrical systems. The system consists of multiple microcontrollers that are connected to each other using a network.Each microcontroller is responsible for controlling and monitoring one or more circuits.

The system is designed to be user-friendly, and it can be operated using a simple user interface. The user interface allows the user to enter the password to gain access to the circuits. Once the user enters the password, they can control and monitor the circuits from the user interface.

The password-based security mechanism ensures that only authorized users can access the circuits. This is crucial in ensuring the safety and security of the electrical system. Unauthorized access to the circuits can lead to overloading, short-circuiting, and other safety hazards.

The password-based multi-microcontroller networking system also provides remote monitoring and control. This means that the user can monitor and control the circuits from a remote location using a computer or mobile device. This feature is particularly useful in situations where the user is not present at the site of the electrical system.

In addition to the password-based security mechanism and remote monitoring and control, the system also incorporates other advanced features such as real-time monitoring and fault detection. The system continuously monitors the circuits and provides real time alerts in case of any fault or abnormal behaviour. This helps in detecting and addressing issue before they escalate into a major problems.

The password-based multi-microcontroller networking system is designed to be highly reliable and efficient. The use of microcontrollers ensures that the system can perform multiple functions simultaneously without compromising on

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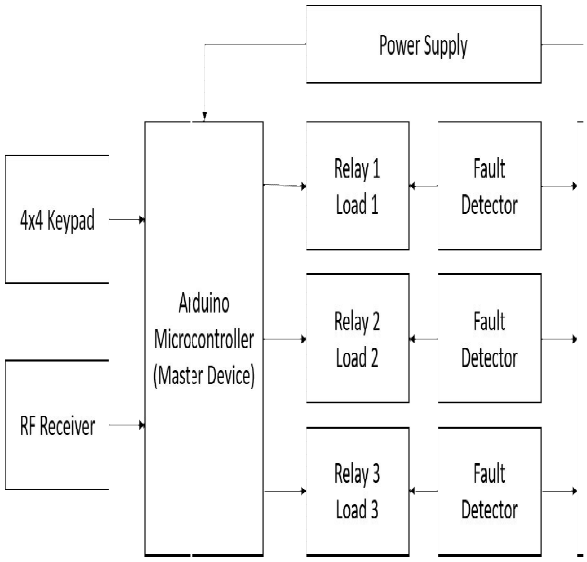
performance. The system is also designed to be scalable, which means that it can be expanded to include more circuits and microcontrollers as the need arises.

II. OBJECTIVES

In Order to avoid such accidents, the breaker can be so designed such that only authorized person can operate it with a password.

This ensures security of worker because no one can turn on the line without his permission

III . BLOCK DIAGRAM



IV. COMPONENTS

- Matrix keypad
- AT89S52
- Relay Module
- LCD Display
- LED
- RF Transmitter and Receiver

Matrix keypad

The matrix keypad acts as a input device.it has 12(4*3)Keys in total, which means that it has unique values for each key and hence the password can be entered through this .the entered password or the button clicked will be displayed in LCD Display.

AT89S52

The Atmel AT89S52 is an 8051 based Full Static CMOS controller withThree-Level Program Memory Lock, 32 I/O lines, 3 Timers/Counters, 8 Interrupts Sources, Watchdog Timer, 2 DPTRs, 8K Flash Memory, 256 Byte On-chip RAM. Development Board for AT89S52 is basically a memory board which is placed on single integrated circuit chip. It consist of memory , a processor , as well as input-output interfaces.

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Relay Module

A power relay module is an electrical switch that is operated by an electromagnet. The electromagnet is activated by a separate low power signal from a microcontroller .when activated , the electromagnet pulls to either open or close an electric circuit.

Rated up to 70 amps, GEP's power relay modules are Designed for seamless integration in high power Distribution application. the convenient integral mounting brackets provide easy installation and accessibility .with endless options such as terminal position assurance available for wire retention, GEP power products power distribution solution and off-road industry knowledge second to none .

LCD Display

LCD 16x2 is a16 pin devices that has 2rows that can accommodate 16 characters each.LCD 16x2 can be used in 4-bit mode or 8-bit mode. It is also possible to create custom characters. It has 8 data lines and 3 control lines that can be used for control purposes

LED

A light-emitting diode (LED) is a semiconductor light source that emits light. When current flows through it. Electrons in the semiconductor recombine with electron holes,releasing energy in the form of photons. The colour of light(corresponding to the energy of photons) is determined by the energy required for electrons to cross the band gap of the semiconductor. White light is obtained by using multiple semiconductors or a layer of light-emitting phosphoron the semiconductor device.

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RF Transmitter And Receiver

The Transmitter module consist of 3 pins namely Vcc, Din and ground as shown above. The Vcc pin has wide range input voltage from 3v to 12v. the transmitter consumes a minimum current of 9mA and can go high as 40mA during transmission. The centre pin is data pin to transmitte the signal. This signal modulated using the ask and then send on air at frequency of 433MHz.

RF receiver module has four pins should be powered with a regulated 5v supply. The operating current of this module is less than 5.5 mA . the pins Dout is shorted together to receive the 433MHz signal from air. This signal is then demodulated to get the data and send out through the data pin.

V. FUTURE SCOPE

the Circuit Breaker based on password muti microcontroller networking system is an advanced electrical system that provides enhanced security,control, and montoring of circuits. The system is designed to be highly realiable and efficient, and it incorporates a password-based security mechanism that ensures only authorised users can access the circuits. With the ever-increasing demand for advanced electrical systems, the Circuit Breaker based on password multi microcontroller networking system has a bright future. One of the most significant future scopes of the circuit Breaker based on password multi microcontroller networking system is its integration with the Internet of Things (IoT). IoT is a rapidly growing technology that enables devices to communicate with each other and share data over the internet. The integration of the circuit Breaker based on password multi microcontroller networking system with IoT will enable users to control and monitor control circuits from anywhere in the world using their smartphones,tablets,or computer. This will make the system more convenient and user-friendly. Another future scope of the circuit Breaker based on password multi microcontroller networking system is its integration with Artificial Intelligence (AI). AI is a rapidly growing technology that enables machines to learn from data and make decisions based on that data. The integration of Circuit Breaker based on password muti microcontroller networking system with Al will enable the system to detect faults and abnormalities in the circuits and take corrective action automatically. This will make the system more efficient and reduce the need for human intervention.

VI. RESULT

This project is helpful for the substations to monitor and control transmission lines. The proposed system will turn on or off the transmission lines by using passwords. Also our system have a feature to detect the faults in the transmission line. Suppose the faults is occurred in any transmission line will be automatically off by our system. And it will again restart whenever the lineman enters correct password.

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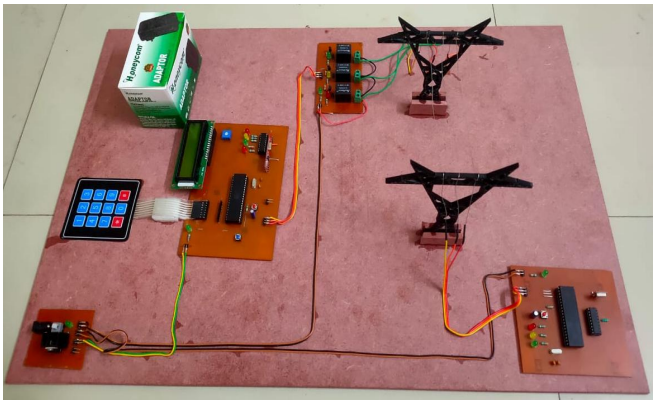

VII. CONCLUSION

In conclusionthe password-based multi-microcontroller networking system is a modern and advanced electrical system that provides enhanced security,control,andmontoring of circuits. The system incorporates a password-based security mechanism that ensures only authorized users can access the circuits.

It also provides remotes montoring and control,real-time montoring, and fault detection, making it an ideal choice for modern electrical systems. With the ever-increasing demand for advanced electrical systems, the password-based multi-microcontroller networking systems is set to become the future of circuit breakers

REFERENCES

[1]"The Microcontroller and Embedded system''byMuhammad Ali Mazidi and Janice Mazidi,Person Education.
[2] http://www.irdindia.in/journal_ijaeee/pdf/vol5_iss6/5.pdf
[3] Electric Line Man Safety using Micro Controller with GSM Module IJSRD – International Journal for Scientific Research & Development Vol.4,Issue 01,2016.
[4] Electric Line Man Safety with OTP Based Circuit Breaker IJERT: International Journal of Research in Engineering and Technology Volume : 03 | INCEPTION-2015.