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Electric Line Man Safety Using Password Based Circuit Breaker with Android App

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ABSTRACT: -

The project is designed to control a circuit breaker by using a password for the safety of electric man. Critical electrical accidents to line men are on the rise during electric line repair due to lack of communication and co-ordination between the maintenance staff and electric substation staff. This proposed system provides a solution that ensures safety of maintenance staff, i.e., line man. The control to turn ON /OFF the line will be maintained by the line man only because this system has an arrangement such that a password is required to operate the circuit breaker (ON/OFF).

Keywords: - Microcontroller, Relay, Relay driver, Rectifier, Bluetooth module, Ac supply Resistor, capacitor

Introduction:-

The project is designed to control a circuit breaker by using a password for the safety of electric man. This system is fully controlled by a microcontroller from the 8051 family. A Bluetooth device is interfaced to the microcontroller and Android phone used to enter the password. The entered password is compared with the password stored in the ROM of the microcontroller. If the password entered is correct, then only the line can be turned On/Off. The activation / deactivation of the circuit breaker is indicated by a lamp that turns ON or OFF.

Furthermore, this project in future can be enhanced by using EEPROM, for the user to change the password for more secured system interaction.

Problem Definition:-

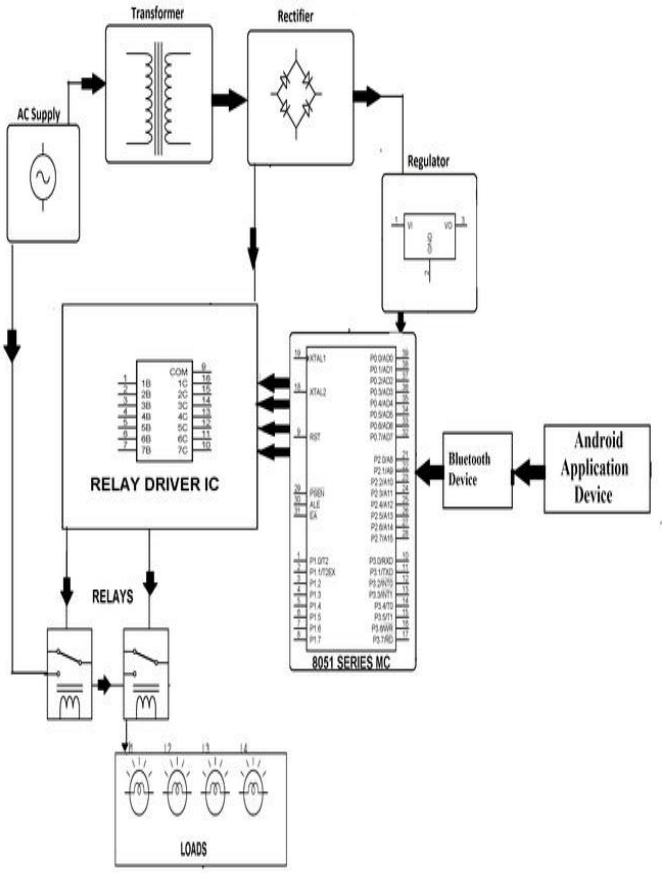
The Project is designed to control a circuit breaker by using a password for the safety of electric man. This proposed system provides solution that ensures safety of maintenance staff.

Block Diagram & Hardware :-

1. Pcb designing
2. Implantation & coding
3. Testing
4. Development & maintenance

Working :-

This project provides a password based circuit breaker system using an android application. Here we connect the circuit with android application through which we enter the password. There is a substantial increase in the number of fatal accidents involving line men due to electric shocks resulting from the lack of coordination between maintenance staff and the electric substation staff. This system provides a solution to this problem, to ensure there are no such incidents that endanger the life of line men. Here the control of the circuit is provided at the substation. The line man can enter the password to switch OFF the circuit.He may now safely work out the repairs and may return to the substation to switch ON the circuit. He again needs to enter the password in order to switch ON.



Hardware requirement :-

- Microcontroller (at89s52)
- LCD
- Relay, Relay driver, LED,
- Capacitors, and Resistor
- C programming language
- Bluetooth HC05
- Voltage regulator

89s52

- Compatible with MCS 51 products
- 8k bytes of in system Re-programmable Flash Memory
- Fully static operation : 0 Hz to 24 MHz
- 256 x 8 bit internal RAM
- 32 programmable I/O Lines
- Three 16 bit Timer or Counters
- 8 Interrupt sources
- Programmable serial channel

circuit.

Since the control to switch ON/OFF the circuit lies with the lineman himself there is no chance of accidents. The system also provides password storage using EEPROM. This system also makes it possible to change the password as and when needed for security purposes.

Advantages :

- It avoids electrical accidents to lineman
- This project is very simple and easy
- It can be built with commonly available components.

Future Scope :

- Instead of the password we can use the finger print and eye scanner as the password.
- Further it can be used in the MSCB office.

Applications :

- It is used to ensure the lineman safety in electrical substations
- This system is used in houses and buildings
- To conserve the energy, it is used in public areas like hotels and shopping malls.
- Low power Idle & power down modes

Relay :

The relay is an electromagnetic switch, used to control the electrical devices. Copper core magnetic flux plays the main role here.

- The relay's switch connections are usually labelled COM, NC, and NO:
- COM = Common, always connect to this; it is the moving part of the switch.
- NC = Normally Closed, COM is connected to this when the relay coil is off.
- NO = Normally Open, COM is connected to this when the relay coil is on.

Relay Driver (ULN 2003) :

- ULN2003 is a high voltage and high current transistor.
- It consists of seven NPN pairs that feature high-voltage outputs with common-cathode Clamp diode for switching inductive loads.
- The ULN2003 has a 2.7kW series base resistor for each pair for operation directly with TTL or 5V CMOS devices.
- Current, Output Max:500mA
- Voltage, Input Max:5V
- Voltage, Output Max:50V

BLUETOOTH :

- SPECIFICATION :-
- FREQUENCY 2.4 GHZ ISM BAND
- SPEED :- ASYNCHRONOUS: 2.1MBPS(MAX)/160kbps,Synchronous:1Mbps /1Mbps
- MODULATION: GFSK(Gaussian Frequency Shift Keying)
- SENSITIVITY: <-84dBM at 0.1%BER
- FREQUENCY BAND: 2.45GHz
- RANGE: 10 Meters.

Conclusion :-

- The Project titled "Electric Line Man Safety Using Password Based Circuit Breaker with Android App".
- It can a work on a single given known password.
- It is economical.
- From the above information finally, we can conclude that this system provides a solution which can ensure that only the lineman can control the system and thus no possibility of someone else interfering the system.

REFERENCES :

1. The 8051 Microcontroller and Embedded systems" by Muhammad Ali Maida and Janice Gillespie Mazidi, Pearson Education.
2. ATMEL 89S52 Data Sheets.
3. ''Electrical Engineering Fundamentals'' by VINCENT DEL TORO