

Lineman Safety By Using Password Based Circuit Breaker

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ABSTRACT - Password Based Circuit Breaker is a simple project that helps in controlling the electrical lines with the help of a password. Nowadays, electrical accidents to the line man are increasing, while repairing the electrical lines due to the lack of communication between the electrical substation and maintenance staff.

INDEX TERMS – Arduino, LCD Display, Voltage sensor, Relay, Regulator, Lamp, Adapter, Adder pin etc.

I. INTRODUCTION

The Nowadays, electrical accidents to the line man are increasing, while repairing the electrical lines due to the lack of communication between the electrical substation and maintenance staff. This gives a solution to this problem to ensure line man safety. In this proposed system the control of the electrical lines lies with line man. This system is arranged in such a way that maintenance staff or line man has to enter the unique user id and password to ON/OFF the electrical line. Now if there is any fault in electrical line then line man will switch off the power supply to the line by entering into their own log in page and comfortably repair the electrical line, and after coming to the substation line man switch on the supply to the particular line by entering their login page. All linemen, particularly those who deal with live electrical apparatus, use personal protective equipment (PPE) as protection against inadvertent contact. This includes rubber gloves, rubber sleeves and protective blankets. When working with energized power lines, linemen must be use protection to eliminate any contact with the energized line. The requirements for PPEs and associated permissible voltage depends on applicable regulations in jurisdiction as well as company policy. Linemen must also wear special rubber insulating gear when working with live wires to protect against accidental contact with the wire. The requirements for PPEs and associated permissible voltage depend on applicable regulations in jurisdiction as well as company policy. The buckets linemen.

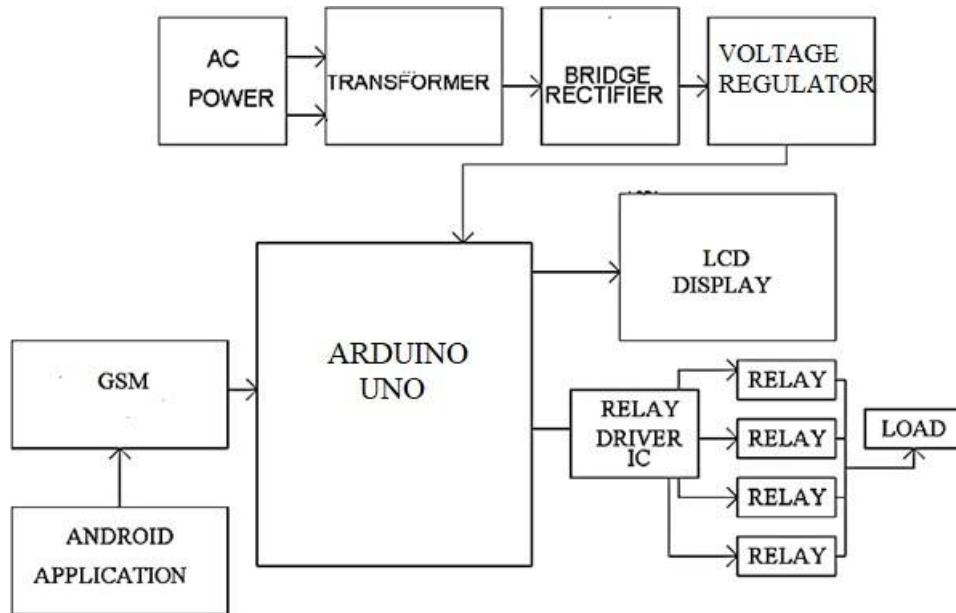
II. PROBLEM STATEMENT

The To avoid the drawbacks occurred in password-based model, used android application to control the circuit breakers. By using android application, there is no need of physical contact between lineman and circuit. He can operate and control the circuit breakers within the Bluetooth range i.e., 10m-20m. The activation or deactivation of the circuit breaker is indicated by a lamp that turns on or off and also voice activation is also given.

III. LITERATURE SURVEY

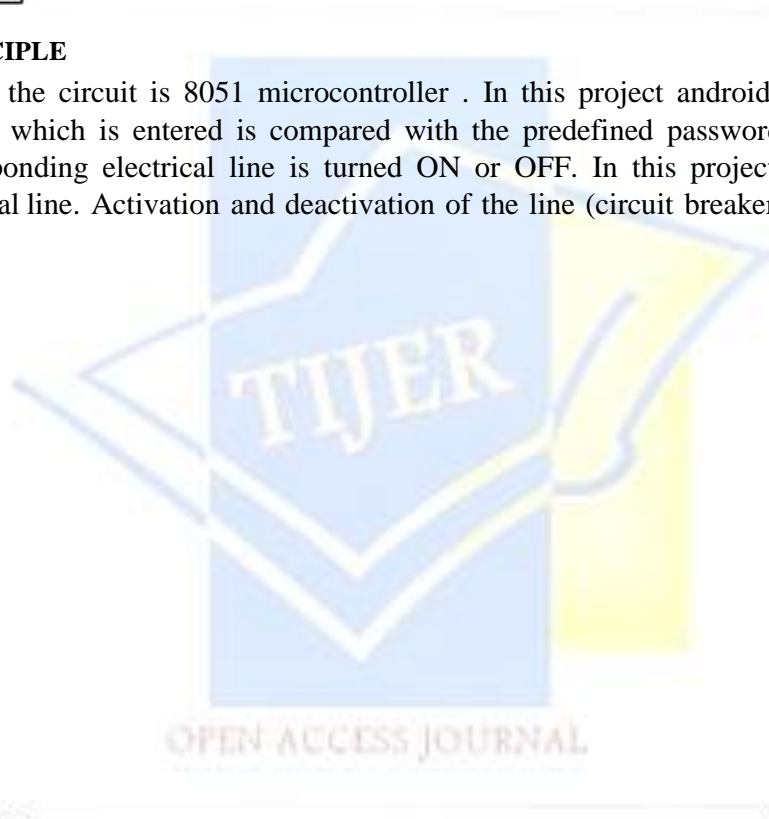
Electric lineman protection using user changeable password based circuit breaker: A circuit breaker is an automatically operated electrical switch designed to protect an electrical circuit from damage caused by overload or short circuit. Its basic function is to detect a fault condition and interrupt current flow. Unlike a fuse, which operates once and then must be replaced, a circuit breaker can be reset (either manually or automatically) to resume normal operation. When operated manually we see fatal electrical accidents to the line man are increasing during the electric line repair due to the lack of communication and coordination between the maintenance staff and the electric substation staff. In order to avoid such accidents, the breaker can be so designed such that only authorized person can operate it with a password. Here, there is also a provision of changing the password. The system is fully controlled by the 8 bit microcontroller of 8051 family.

III. BLOCK DIAGRAM

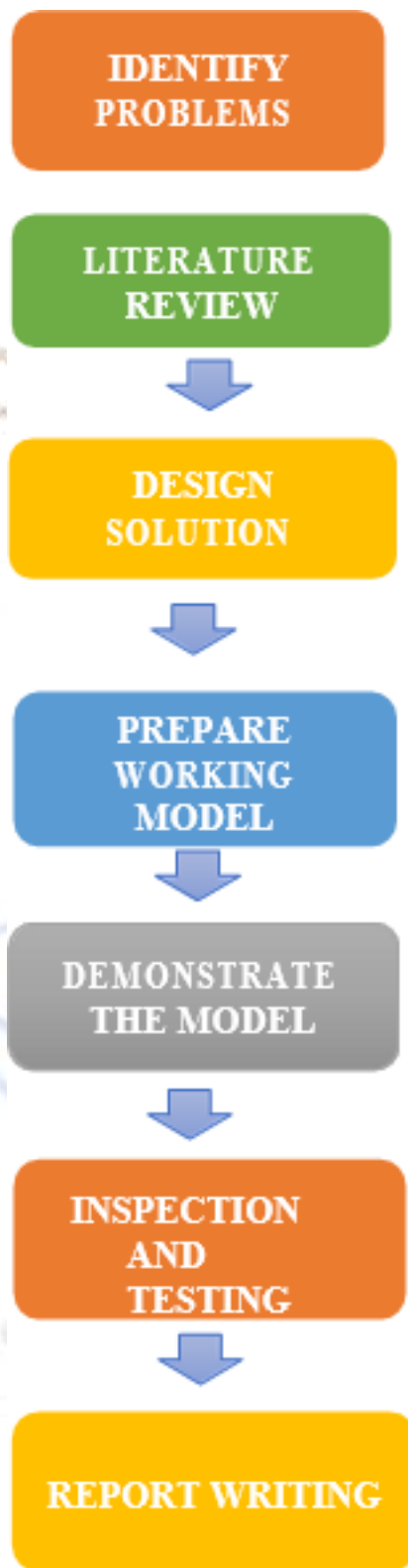


IV. WORKING PRINCIPLE

The main component in the circuit is 8051 microcontroller . In this project android app is used to enter the password. The password which is entered is compared with the predefined password. If entered password is correct, then the corresponding electrical line is turned ON or OFF. In this project, a separate password is provided to each electrical line. Activation and deactivation of the line (circuit breaker) is indicated by the load (Light Bulbs)



V. IMPLEMENTATION



VI. CONCLUSIONS

It can work on a single given known password.No other person can reclose the breaker until the stored password is entered. It gives no scope of password stealing. It is effective in providing safety to the working staff. It is economical and it can be easily installed. Whenever the HT wire sag is higher than the predetermined range/value then ultrasonic sensor sends a message to the substation through GSM and intimates the operator about the trouble occurred.

VII. REFERENCES

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- [2]. Electric Line Man Safety System with OTP Based Circuit Breaker IJRET: International Journal of Research in Engineering and Technology Volume: 04 Special Issue: 03 | INCEPTION-2015. 2.C. H. Vith Alani, “Over-Under Voltage Protection of Electrical Appliances”, August 2003, Electronics for You.

VI ADVANTAGES

- Improves Lineman safety
- Electrical accidents can be avoided.
- Easy of operation
- Maintance will be simple
- Reduced overloading on distribution side

