

## PASSWORD BASED CIRCUIT BREAKER

<sup>[1]</sup>S.P.Manikanta

<sup>[2]</sup>Srinivasarao. T

<sup>[3]</sup>P.A.Lovina

[1]Associate Professor, Department of ECE, St.Martin's Engineering College,Dhulapally,Secunderabad-500100,Telangana

[2] Assistant Professor, Department of EIE, Bapatla Engineering College,Bapatla,AndhraPradesh.

[3]Assistant Professor, Department of ECE St.Martin's Engineering College,Dhulapally,Secunderabad-500100,Telangana.

### ABSTRACT:

The project work password based circuit breaker is a simple project that helps in controlling the electrical line with help of a password. Now days electrical accidents to the line men are increasing while repairing the electrical lines. This is due to the lack of proper communication between the electrical sub-station and the maintenance staff. This project gives a solution to this problem to ensure the safety of the line man. In this proposed project work, the control (ON/OFF) of the electrical line lies with the line man. The concept is designed such that maintenance staff or the line man has to enter the password to switch ON/OFF the electrical line. If there is any fault in the electrical line or any repair is to be done to the line, then the supply to the electrical line is cut off by entering the password and can comfortably repair the line. After repairing the line, by entering the password again, supply to the electrical line will be restored. Separate passwords can be assigned to different electrical phase lines. The system is designed with three outputs with three different passwords. At each output a relay is connected and this relay contact is used to make or break supply to the electrical line. Presently the demo module is constructed with three lamp loads; all of them can be controlled independently.

**Keywords:** *RECORD, IP cores, TDM, COTS, Trojan attacks.*

### 1. INTRODUCTION

Electricity transmitted through power lines destined for commercial, industrial and residential use can involve hundreds of thousands of volts and high currents. Inevitably, there is an element of danger in measuring the voltage on a transmission line because of the need

to make contact with the line. Indeed, even the proximity to a high voltage line may be sufficient to cause a spark to jump through the air to the nearest object. Nonetheless, in installing, servicing and repairing power lines, there are various occasions when contact is made. This project work password based phase line controller is a simple project that helps in

controlling the electrical line with help of a password. Now a days electrical accidents to the line men are increasing while repairing the electrical lines. This is due to the lack of proper communication between the electrical sub-station and the maintenance staff. This project gives a solution to this problem to ensure the safety of the line man. In this proposed project work, the control (ON/OFF) of the electrical line lies with the line man. The concept is designed such that maintenance staff or the line man has to enter the password to switch ON/OFF the electrical line. If there is any fault in the electrical line or any repair is to be done to the line, then the supply to the electrical line is cut off by entering the password and can comfortably repair the line. After repairing the line, by entering the password again, supply to the electrical line will be restored. Separate passwords can be assigned to different electrical phase lines. The system is designed with three outputs with three different passwords. At each output a relay is connected and this relay contact is used to make or break supply to the electrical line. Presently the demo module is constructed with three lamp loads; all of them can be controlled independently.

To enter the password, a small keyboard designed with twelve keys is used and it is interfaced with microcontroller. This keyboard is

designed as 3X4 matrix form and the data generated by the keyboard is stored in RAM, depending up on the program prepared for controller, and the information produced by the keyboard, if it is tallied with the pre-defined program, then the corresponding relay will be activated automatically. The data entered through keyboard will be displayed through LCD in the form of stars to maintain the secrecy, if the entered data is correct, then the display shows that the corresponding electrical line is de-activated. For activating the line, again password has to be entered. In addition using GSM, which is also interfaced to the controller, this information can be transmitted in the form of SMS to the concern person or authorities.

### **OVER VIEW:**

In order to identify whether the line is functioning or not, a light with some group of LED's is connected in each line and a light sensor LDR is connected exactly below the light. This LDR is connected to a trigger circuit that is designed using a 555 timer chip. This trigger circuit will provide a signal to the controller whether the line is functioning or not. Depending on this information, if the line isn't working, automatically a message in the form of SMS will be sent to the line man mobile by which the person will know that the line is faulty. To repair the line, he enters the password and disconnects the supply

to that particular line and works comfortably. After repairing the line, he himself can restore the line again.

## 2. LITERATURE SURVEY

**Problem Identified:** Nowadays, the current power system deals with huge power network as well as associated electrical equipment. During the electrical fault or short circuit, the power network will suffer from a high stress of fault current in them which may harm the equipment permanently. For conserving the power networks and equipment, the fault current should be very cleared from the system as fast as possible. Now a days electrical accidents to the line men are increasing while repairing the electrical lines. This is due to the lack of proper communication between the electrical sub-station and the maintenance staff. This project gives a solution to this problem to ensure the safety of the line man.

**Proposed Work:** This project gives a solution to this problem to ensure the safety of the line man. In this proposed project work, the control (ON/OFF) of the electrical line lies with the line man. The concept is designed such that maintenance staff or the line man has to enter the password to switch ON/OFF the electrical line. If there is any fault in the electrical line or any repair is to be done to the line, then the supply to the electrical line is cut off by entering

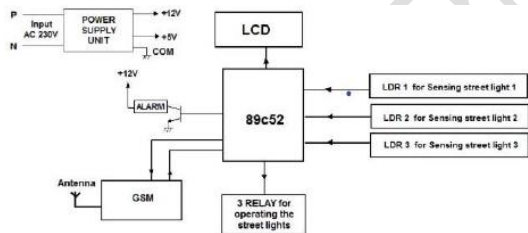
the password and can comfortably repair the line. After repairing the line, by entering the password again, supply to the electrical line will be restored.

## 3. PROPOSED SYSTEM

Electricity transmitted through power lines destined for commercial, industrial and residential use can involve hundreds of thousands of volts and high currents. Inevitably, there is an element of danger in measuring the voltage on a transmission line because of the need to make contact with the line. Indeed, even the proximity to a high voltage line may be sufficient to cause a spark to jump through the air to the nearest object. Nonetheless, in installing, servicing and repairing power lines, there are various occasions when contact is made.

This project work password based phase line controller is a simple project that helps in controlling the electrical line with help of a password. Now a days electrical accidents to the line men are increasing while repairing the electrical lines. This is due to the lack of proper communication between the electrical sub-station and the maintenance staff. This project gives a solution to this problem to ensure the safety of the line man. In this proposed project work, the control (ON/OFF) of the electrical line lies with the line man. The concept is

designed such that maintenance staff or the line man has to enter the password to switch ON/OFF the electrical line. If there is any fault in the electrical line or any repair is to be done to the line, then the supply to the electrical line is cut off by entering the password and can comfortably repair the line. After repairing the line, by entering the password again, supply to the electrical line will be restored. Separate passwords can be assigned to different electrical phase lines. The system is designed with three outputs with three different passwords. At each output a relay is connected and this relay contact is used to make or break supply to the electrical line. Presently the demo module is constructed with three lamp loads; all of them can be controlled independently.



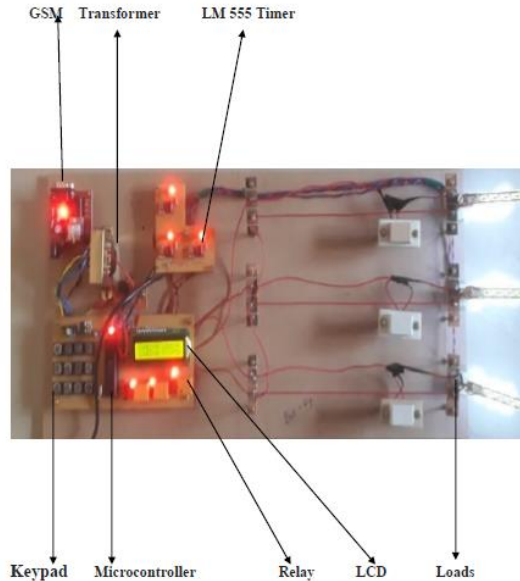
**Fig.3.1. Block Diagram.**

**RESULTS:**

The password based electric line man safety system is designed to control a circuit breaker by using a password for the safety of electric man, the line man can enter the password using a keyboard. There are many critical electrical accidents are rises during the electric line repair. These

accidents are happen due to lack of communication and co-ordination between the maintenance staff and electric substation staff. In this proposed system the security of the line man is its own hand. The control to turn on or off the line will be maintained by the line man. The system is fully controlled by a microcontroller from ATMEL 89C52. A matrix keypad and GSM is interfaced to the microcontroller to enter the password. The entered password through keyboard is compared with the password stored in the memory. If the entered password is correct then only then the line can be turned ON/OFF.

In order to identify whether the line is functioning or not, a light with some group of LED's is connected in each line and a light sensor LDR is connected exactly below the light. This LDR is connected to a trigger circuit that is designed using a 555 timer chip. This trigger circuit will provide a signal to the controller whether the line is functioning or not. Depending on this information, if the line isn't working, automatically a message in the form of SMS will be sent to the line man mobile by which the person will know that the line is faulty. To repair the line, he enters the password and disconnects the supply to that particular line and works comfortably. After repairing the line, he himself can restore the line.



**Fig.3.2.Hardware kit.**

## 5. CONCLUSION

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. The lineman can simply work the loads from the major center rather than come to every circuit breaker source. Thus, it is an extremely useful, inexpensive and safe way of using circuit breakers. The project work is designed and developed successfully. For the demonstration purpose, a prototype module is constructed; and the results are found to be satisfactory. The major and critical task is preparing the software for performing the tasks depending on the inputs. The performance of the machine purely depends on the software (code) we define in the

controller. The technology utilized here is for developing the prototype module only; it has to be enhanced to develop it into a real working system.

## REFERENCES

- [1] Y. Jin and Y. Makris, "Hardware trojans in wireless cryptographic ICs," *IEEE Design Test Comput.*, vol. 27, no. 1, pp. 26–35, Jan./Feb. 2010.
- [2] L. Lin, M. Kasper, T. Güneysu, C. Paar, and W. Burleson, "Trojan side-channels: Lightweight hardware trojans through side-channel engineering," in *Cryptographic Hardware and Embedded Systems—CHES* (Lecture Notes in Computer Science), vol. 5747. Berlin, Germany: Springer, 2009, pp. 382–395.
- [3] K. Yang, M. Hicks, Q. Dong, T. Austin, and D. Sylvester, "A2: Malicious hardware," in *Proc. IEEE Symp. Secur. Privacy*, San Jose, CA, USA, May 2016, pp. 18–37.
- [4] C. A. Kamhoua, M. Rodriguez, and K. A. Kwiat, "Testing for hardware trojans: A game-theoretic approach," in *Decision and Game Theory for Security*, (Lecture Notes in Computer Science), vol. 8840. Cham, Switzerland: Springer, 2014, pp. 360–369.
- [5] M. Rostami, F. Koushanfar, and R. Karri, "A primer on hardware security: Models, methods, and metrics," *Proc. IEEE*, vol. 102, no. 8, pp. 1283–1295, Aug. 2014.
- [6] R. S. Chakraborty and S. Bhunia, "Security against hardware trojan through a novel application of

design obfuscation,” in *Proc. Int. Conf. Comput.-Aided Design (ICCAD)*, New York, NY, USA, Nov. 2009, pp. 113–116.

[7] J. Rajendran, M. Sam, O. Sinanoglu, and R. Karri, “Security analysis of integrated circuit camouflaging,” in *Proc. ACM SIGSAC Conf. Comput. Commun. Secur.*, 2013, pp. 709–720.

[8] J. Rajendran, O. Sinanoglu, and R. Karri, “Is split manufacturing secure?” in *Proc. Conf. Design, Autom. Test Europe, DATE*, vol. 13, 2013, pp. 1259–1264.

[9] R. Dura, S. Hidalgo, R. Quijada, A. Raventos, and T. Francesc, “The use of digital image processing for IC reverse engineering,” in *Proc. 11th Int. Multi-Conf. Syst., Signals Devices (SSD)*, Feb. 2014, pp. 1–4.

[10] D. E. Dilger. (Jan. 14, 2016). *Apple A9 Chip fab TSMC*.