IoT Based Circuit Breaker using Password

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Abstract: *Now a day Electrical accident to the lineman is increasing while repairing electrical line due to lack of communication between the electrical substations & maintenance staff. The project use a solution to this problem to line & safety in this proposal system control ON, OFF of electrical lines lies with lineman this project arranges in such a way that maintenance staff are lineman as enter the password to on off electrical line now if there is any fault in electrical line then lineman will switch off power supply through line by entering the a password and comfortable repair the electrical line & after coming to the substation lineman switch on the supply to the particular line by entering the password.*

Keywords: GSM, Password Security, Circuit Breaker Control, Lineman Circuit

I. INTRODUCTION

The project is designed to shut down a power supply when it is required to the maintenance. In this project, the electric devices are controlled by GSM MODEM that receives the SMS and decodes it. A mobile we have to send SMS. This SMS received by GSM Modem. GSM Modem will be operate at commands that SMS decode by Microcontroller According to SMSM it will take action. For Ex. I will send SMS like * pole 1 on # this SMS received by GSM Modem & given Microcontroller. Microcontroller will decode the SMS turn on the relay one. if we send SMS like *POLE 1 OFF# this SMS received by GSM modem and given to microcontroller.

II. LITERATURE SURVEY

Electrical lineman protection using user changeable password based a circuit breaker is an automatic operate electrical switch designed to protect an electrical circuit for damage cost by overload or short circuit its basic function is to detected a fault condition and inter put current flow. Unlike a fuse which operated once & the must be replaced, a circuit breaker can be rest to resume normal operation when operated manually we see fatal electrical accident to lineman are increasing during electrical line repair due to lack of communication & co-ordination between the maintenance staff & electric substation staff.

III. OBJECTIVES

The projects major goal is to assist in the control of electrical lines through the use of password. Due lack of communication between the electrical substations and maintenance employees, lineman accidents are on the rise while repairing electrical line. This initiative provides the solution to this challenge, ensuring the safety of lineman. The lineman is in charge of controlling (ON/OFF) the electrical lines in the suggested system; our project will be constructed in such a way that it will prioritize the lineman safety.

IV. BLOCK DIAGRAM
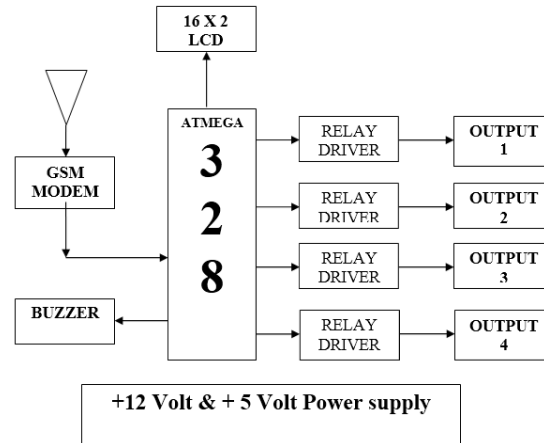
V. COMPONENTS

1. Microcontroller board Atmega 328
2. Buzzer
3. Power supply
4. GSM MODEM
5. Relay driver
6. Relay

VI. WORKING

6.1 Microcontroller Board

Ardunio is an open source platform used for building electronics Project. Ardunio consist of both a physical programmable circuit board & pieces of software, or IDE (Integrated development Environment) that runs on your computer used to write and upload computer code to the physical board the Ardunio platform has become quite popular with just starting off with electronics, and good reasons. Unlike most previous programmable circuit board the Ardunio does not need pieces of hardware called a programmer in order to load new code on to the board u can simplify user USB cable. Additionally the Ardunio IDE (use a simplified version of C++), making to learn a program finally Ardunio standard form factor that break out the function of the Microcontroller into the more package. The Ardunio hardware & software was designed for artist, designer, hackers, and anyone interested in creating interactive object of Environments, The Ardunio can interact with Button LED, Motors, Speaker, GPS Unit, Camera the Internet & even Smartphone or T.V. This flexibility combined with the fact that the Ardunio software is free, The hardware board are pretty cheap, and both software and hardware are easy to learn as lead to large community of user who have contributed code & realise instruction variety of Ardunio based project.

6.2 Buzzer

In this project we are using buzzer as output device. When SMS is received the buzzer turns on for some time. Again when SMS is read then buzzer turn s on for some time again when SMS is deleted then Buzzer turns on for some time.

6.3 Power Supply

For our project we require +5volts & +12Volts supply.+ 5Volts is given to microcontroller board.+ 12 Volts are used for GSM MODEM .

6.4 GSM Modem

GSM MODEM is wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial up modem. The main difference between them is that a dial up modem sends and receive data through a fixed telephone

line. while a wireless modem sends and receives data through radio waves like GSM Mobile phone, A GSM Modem requires A sim card from a wireless carrier in order to operate GSM modem can be external unit or a PCMCIA card, (also called PC Card).An external GSM Modem is connected to a PC through a serial cable, a USB cable, Bluetooth or infrared. Like a GSM Mobile phone. A GSM Modem requires a sim card from a wireless carrier in order to operate

6.5 Relay Driver

In our project we have turned ON/OFF electric device the electric supply of operating on higher voltage therefore we have to use relay and for driving relay we have to use transistor as switch to ignores the relay.

6.6 Relay

The relay take advantage of the fact that when electricity flow through a coil it becomes & electromagnetic coil attract a steel plate, which is attached to switch. So the switch motion O/OFF controlled by current flowing to the coil or not respectively. Very useful features of a relay is that can be used to electric isolate different part of a circuit it will allow low voltage circuit (e.g.5 volt DC) to switch power in high voltage circuit. Hundred voltage AC or more.

VII. CONCLUSION

By performing this project we can say that this project is used to operate the electrical devices from very far distance. We can control the devices from any location of the world just by sending SMS. The best application is turn ON any electric application e.g Electric pump ON-OFF control. We can control electrical pump from anywhere of word. Therefore the farmer can operate the pump from his home. This project is based on GSM i.e SMS.

REFERENCES

[1]. Electric linemen safety system with OTP based circuit breaker IJRET International Journal of research in Engineering and technology volume special issue.

[2]. Electric linemen safety using microcontroller with GSM MODEM IJSRD International journal for scientific.