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# REVIEW PAPER ON WATCHWORD BASED CIRCUIT BREAKER

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## ABSTRACT

Nowadays, the cutting-edge strength gadget offers with large strength community in addition to related electric system. During the electric fault or quick circuit, the strength community will be afflicted by a excessive strain of fault cutting-edge in them which can also additionally damage the system perpetual. For preventing the strength networks and system, the fault cutting-edge needed to be very cleared from the gadget as speedy as possible. To triumph over this problem, the proposed gadget watchword primarily based totally circuit breaker offers a option to make certain lineman security. In this task, the manage (ON/OFF) of the electric strains lies with lineman. This task is ready in the sort of manner that renovation team of workers or lineman has to go into the watchword to ON/OFF the electric line.

Now, if there may be any problem with inside the electric line, then the lineman will manage the strength deliver to the road through urgent the watchword and thankfully restore the electric line, and after coming to the exchange lineman activate the deliver to the unique line through urgent the watchword. Separate watchwords are allotted for each electric line.

*Watchword words: Current, Electrical Equipment, Stress, Lineman*

## 1.  INTRODUCTION

Security is the top problem in our each day life. Everyone wishes to be stable as plenty as possible .The electric powered line guy protection machine is designed to govern a circuit breaker through the use of a watchword for the protection of electrical guy. Critical electric injuries to line guys are at the upward thrust at some point of electric powered line restore because of loss of communique and co-ordination among the preservation workforce and electric powered substation workforce. This proposed machine affords an  answer that guarantees protection of preservation workforce, i.e., line guy. The manipulate to show on or off the road may be maintained through the road guy handiest due to the fact this machine has an association such that a watchword is needed to function the circuit breaker (on/off). The machine is completely managed through a microcontroller from AVR family. A matrix watchwordpad is interfaced to the microcontroller to go into the watchword. The entered watchword is as compared with the watchword generated. If the watchword entered is correct, handiest then the road may be grew to become ON/OFF. To restore a selected segment of the electrical deliver line, the lineman desires to flip off the deliver to that line. A command to the machine. Then the machine responds to him the use of the LCD show to go into the watchword. Then the machine generates a watchword and it is going to be ship to the phone (the no of that is saved withinside the program).The watchword primarily based totally circuit breaker also can be applied in automated door locking machine for offering excessive security. And additionally may be applied to govern digital home equipment to shop the power.

## 2.  LITERATURE REVIEW

Electric lineman safety the use of consumer changeable watchword primarily based totally circuit breaker: A circuit breaker is an mechanically controlled electric transfer designed to protect an electrical circuit from harm resulting from overload or brief circuit. Its primary feature is to come across a fault circumstance and interrupt present day flow. Unlike a fuse, which controlled as soon as after which have to be replaced, a circuit breaker may be reset (both manually or mechanically) to renew everyday operation. When operated manually we see deadly electric injuries to the road guy are growing all through the electrical line restore because of the dearth of conversation and coordination among the preservation group of workers and the electrical substation group of workers. In order to keep away from such damages , the breaker may be so designed such that best legal individual can perform it with a watchword. Here, there additionally a provision of convert the watchword. The gadget is absolutely managed with the aid of using the arduino microcontroller. A watchwordpad is used to go into the watchword and a relay to open or near circuit breaker, that is indicated with the aid of

using a lamp. Any incorrect try to open the breaker (with the aid of using coming into the incorrect watchword) an alert could be actuated, indicated on LCD display.

**BLOCK DIAGRAM**

The schematic diagram mainly consist of mainly three parts are listed below

- Power Supply
- Arduino Uno
- Matrix Password pad.
- SPDT Relay Module
- LCD Display
- Electrical Bulb

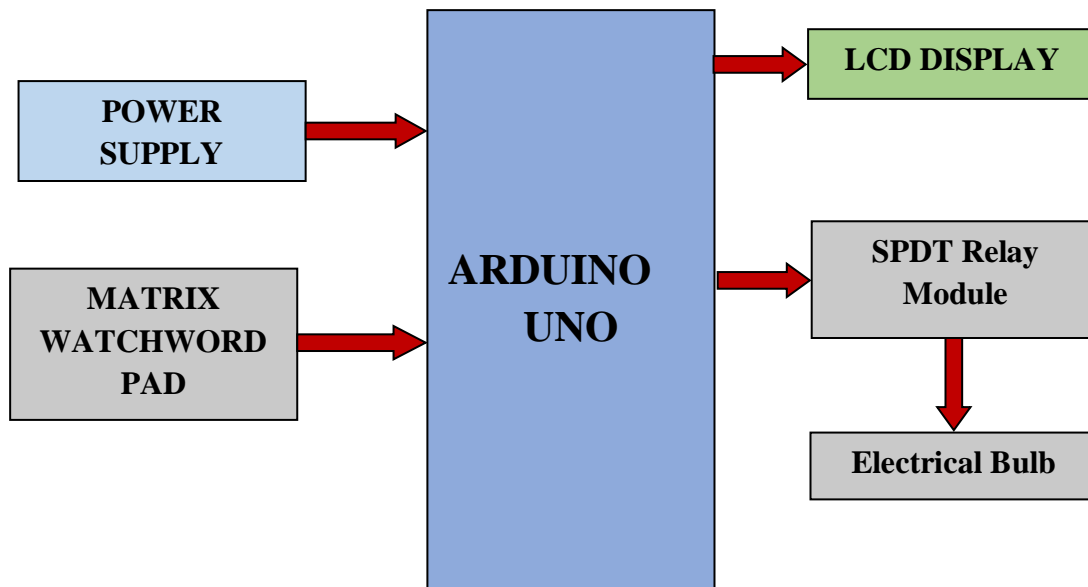These parts are explain in Hardware section



**Figure 1:  Block Diagram of Watchword Based Circuit Breaker Using Arduino**

## 3.   HARDWARE COMPONENTS

| Sr. No. | Components Name | Quantity |
|---------|-----------------|----------|
| **1.** | Arduino Uno | **1** |
| **2.** | 16x2 LCD Display | **1** |
| **3.** | 4x4 Matrix Password pad | **1** |
| **4 .** | SPDT Relay Module | **1** |

**Table 1:- Table of Components**

**COMPONENTS DESCRIPTION**

**1.    Arduino Uno**

Arduino Uno is a microcontroller board primarily based totally at the ATmega328P (datasheet). It has 14 virtual i/p and o/p pin (of which 6 may be used as PWM outputs), 6 analog inputs, a sixteen MHz quartz crystal, a USB connection, a electricity jack, an ICSP header and a reset buttons. It incorporates the entirety had to guide the microcontroller; absolutely join it to a laptop with a USB cable or electricity it with an AC-to-DC accessory or "battery to get started". You can tinker together along with your UNO with out warring an costly amount of approximately doing some thing wrong, worst case state of affairs you could update the chip for some greenbacks and begin over again. Uno way one in Italian and became selected to mark the eject of Arduino Software (IDE) 1.zeros. The Uno board and model 1.zero of Arduino Software (IDE) had been the given difference of Arduino, now advanced to more moderen releases. The Uno board is the primary in a sequence of USB Arduino forums, and the reference version for the Arduino platform; for an in depth listing of current, beyond or old forums see the Arduino index of forums.



**Figure 1: Arduino uno**

## 2.    16x2 LCD DISPLAY MODULE

An LCD includes glass panels, with the liquid crystal fabric sandwiched in among them. The internal floor of the glass plates are covered with obvious electrodes which outline the character, symbols or styles to be displayed. Polymeric layers are found in among the electrodes and the liquid crystal, which makes the liquid crystal molecules to hold a described orientation angle.



**Figure 2: 16x2 LCD Display**

The LCD's are light-weight with just a few millimeters width. Since the LCD's devour much less energy, they may be like minded with low energy digital circuits, and may be powered for lengthy durations. The LCD doesn't generate mild and so mild is wanted to study the show. By the use of backlighting, examine is practical withinside the dark. The LCD's have lengthy existence and a huge running temperature range. Changing the show length or the format length is exceedingly easy which makes the LCD's extra person friendly. The LCD show includes lines, sixteen characters according to line this is interfaced with the AT89S52 microcontroller.

## 3.    4x4 Matrix Password pad

**Figure 3: 4x4 Matrix Passwordpad**

Most of the packages of embedded structures require codewordpads to take the man inputs, specifically in case wherein an utility calls for greater quantity of  watchword. With easy construction and clean interfaced process, matrix codewordpads are changing everyday push-buttons through supplying greater inputs to the person with the lesser I/O pins. As a Human Machine Interface (HMI) codepad performs a first-rate function in essential microprocessor and microcontroller primarily based totally initiatives and equipment's.

**4.    Spdt relay module**



**Figure 4: Spdt Relay Module**

A relay an electromagnetic tool that is used to isolate circuits electrically and join them magnetically. They are very usefully tool and permit one circuit to interchange every other one whilst they're finished separated. A Relay motive force IC is electromagnetic transfer with a view to be used on every occasion we need to apply a low voltage circuit to interchange a mild bulb ON and OFF that is linked to 220V mains supply. The required modern to run the relay coil is greater than may be provided with the aid of using diverse incorporated circuits like Op- Amp, etc.

## 4.    CONCLUSION

Circuit breaker cans paintings on a unmarried given acknowledged watchword. The watchword to function may be modified and machine may be operated effectively with the modified watchword. No various character will reclose the breaker as soon as the modified watchword is given into machine apart from the individual that had modified it. It offers no scope of watchword stealing. It is powerful in offering protection to the operating staff. It is reasonably priced and it could be without problems installed.

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