Password Control Multi Line Circuit Breaker Using IoT

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Abstract— Security is the prime disquiet in our everyday life while playing out any action. In the present situation, inadvertent demise of lineman is regularly perused and prove. Toward this path, a wellbeing measure to safe watch the administrator is discovered extremely essential investigating the present working style. The electric lineman security framework is intended to control the control board entryways and electrical switch by utilizing a secret word for the wellbeing. Basic electrical mishaps to lineman are on the ascent amid electric line fix might be because of absence of correspondence and co-appointment between the support staff and electric substation staff. The proposed framework gives an answer that guarantees wellbeing of lineman. In this proposed system the control (ON/OFF) of the electrical lines lies with line man in IOT. This project is arranged in such a way that maintenance staff or line man has to enter the password in mobile or webpage 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 password and comfortably repair the electrical line, and after coming to the substation line man switch on the supply to the particular line by entering the password.

Keywords— Security, Arduino microcontroller, Internet of Thing

I. INTRODUCTION

Power System blame is characterized as unwanted condition that happens in the power framework. These bothersome conditions, for example, short circuit, current leakage, ground short, over current and over voltage. Power framework security is the most critical prerequisite in the modern or residential electrical to keep hardware from harm cause by spillage flow. The venture is intended to control an electrical switch by utilizing a secret phrase for the security of electric man. Basic electrical mishaps to line men are on the ascent amid electric line fix because of absence of correspondence and co-appointment between the upkeep staff and electric substation staff.

What's more, this venture is likewise intended to control an electrical switch with help of a secret phrase as it were. A keypad is associated with the undertaking to enter the secret key. Line man can kill the supply and serenely fix it, and come back to the substation, at that point turn on hold by entering the right secret key. The framework is completely controlled by a microcontroller from Arduino. A framework keypad is interfaced to the microcontroller to enter the secret phrase. The entered secret word is contrasted and the secret key created. On the off chance that the secret phrase entered is right, just, the line can be turned ON/OFF. The secret phrase based electrical switch can likewise be actualized in programmed entryway locking framework for giving high security. And furthermore can be actualized to control

electronic apparatuses to spare the power. The utilization of correspondence systems builds the effectiveness of the remote-controlled items or gadgets. The GSM innovation associates the end gadget from remote and gives a chance to control. The proposed ease Arduino controlled GSM message based anchored secret key worked control board and electrical switch ON/OFF is the most appropriate system in keeping the wounds or demise of working men hanging in the balance by any inadvertent charging of line un intentionally. The unapproved access of the anchored frameworks is averted by approval secret key or login for the security reason. The absence of correspondence and co-appointment between the support staff and the electric substation staff can be limited. This framework gives an answer for guarantee the security of the upkeep staff.

II. RELATED WORK

Electric lineman assurance utilizing client variable secret phrase based electrical switch: An electrical switch is a naturally worked electrical change intended to shield an electrical circuit from harm caused by over-burden or short out. Its fundamental capacity is to recognize a blame condition and intrude on current stream. In contrast to a wire, which works once and after that must be supplanted, an electrical switch can be reset (either physically or naturally) to continue typical activity. At the point when worked

physically we see lethal electrical mishaps to the line man are expanding amid the electric line fix because of the absence of correspondence and coordination between the support staff and the electric substation staff. With the end goal to maintain a strategic distance from such mishaps, the breaker can be so planned to such an extent that just approved individual can work it with a secret key. Here, there is additionally an arrangement of changing the secret word. The framework is completely controlled by the 8 bit microcontroller of 8051 family. The secret word is put away in an EEPROM, interfaced to the microcontroller and the secret key can be changed whenever not at all like a settled one consumed forever on to the microcontroller. A keypad is utilized to enter the secret key and a hand-off to open or close electrical switch, which is shown by a light. Any wrong endeavor to open the breaker (by entering the wrong secret key) an alarm will be activated, demonstrated by another light.

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III. METHODOLOGY

Arduino is an open-source arrange used for building equipment adventures. Arduino involves both a physical programmable circuit board (oftentimes suggested as a microcontroller) and a touch of programming, or IDE (Integrated Development Environment) that continues running on your PC, used to create and exchange PC code to the physical load up. The Arduino stage has turned out to be very prominent with individuals simply beginning with

hardware, and all things considered. Not at all like most past programmable circuit sheets, the Arduino does not require a different bit of equipment (called a software engineer) with the end goal to stack. Also, the Arduino IDE utilizes a streamlined form of C++, making it less demanding to figure out how to program. At last, Arduino gives a standard shape factor that breaks out the elements of the miniaturized scale controller into a more available bundle.

Algorithm
Function Action (Mode, Load, termination)
  local variables: scores, a vector the same size as Load, all 0
repeat
for each load do
On [load] ← get-On (load, mode)
end
     for each load do
          Off [load] ← (Off [load])
     end
     state ← update function (On, Off)
     scores ← Performance-Function (Load, Mode)
 until termination (Mode)
 return scores

Internet of things (IOT) is a system of physical articles. The web isn't just a system of PCs, however it has developed into a system of gadget of all kind and sizes, vehicles, advanced cells, home apparatuses, toys, cameras, therapeutic instruments and modern frameworks, creatures, individuals, structures, all associated ,all conveying and sharing data dependent on stipulated conventions with the end goal to accomplish keen rearrangements, situating, following, safe and control and even close to home constant web based observing , online redesign, process control and organization. The password based circuit breaker control system is a system that access only specified password to control the circuit breaker. The system is fully controlled by the controller. A matrix keypad is interfaced to the microcontroller to enter the password while a relay driver IC is used to switch ON/OFF the loads through relays. The power supply consists of a step down transformer 230/12V, which steps down the voltage to 12V AC. This is converted to DC using a Bridge rectifier. The ripples are removed using a capacitive filter and it is then regulated to +5V using a voltage regulator 7805 which is required for the operation of the microcontroller and other components. This system has an arrangement such that a password is required to operate the circuit breaker (ON/OFF). Line man can turn off the supply and comfortably repair it, and return to the substation, then turn on the line by entering the correct 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. Activation/deactivation of the circuit breaker is indicated Through IOT.
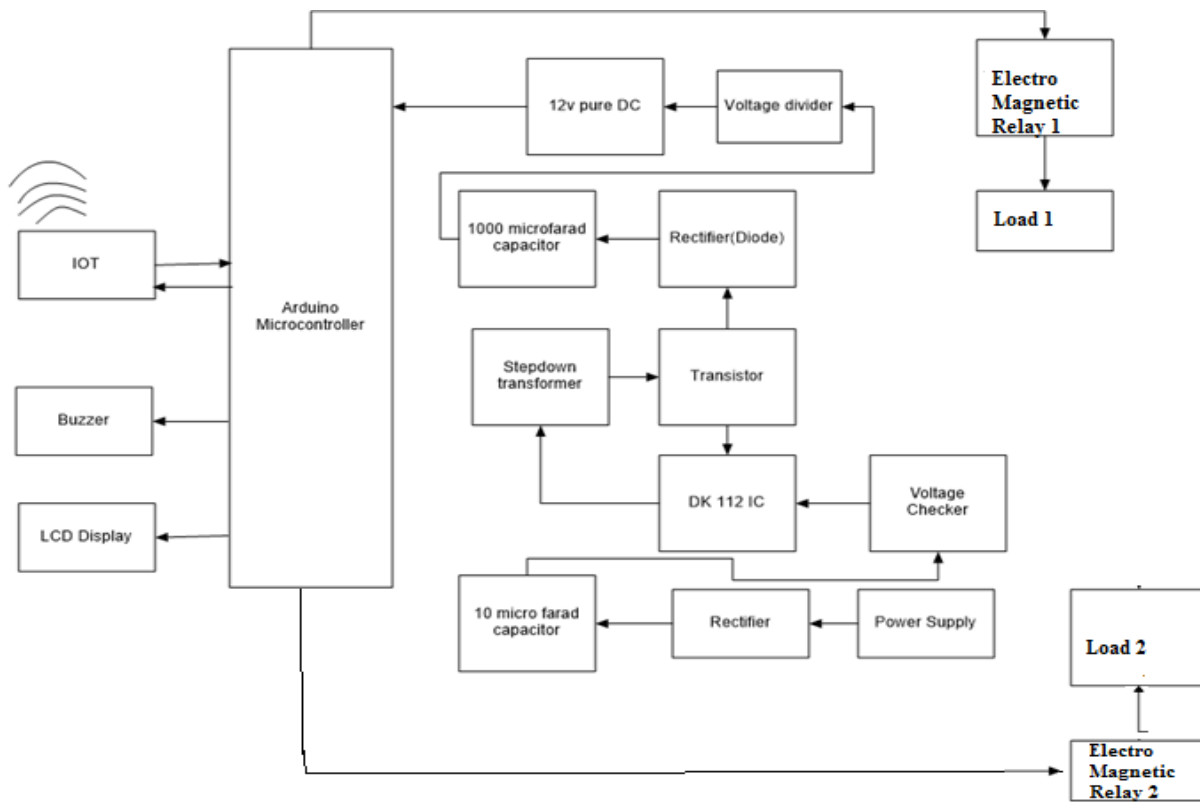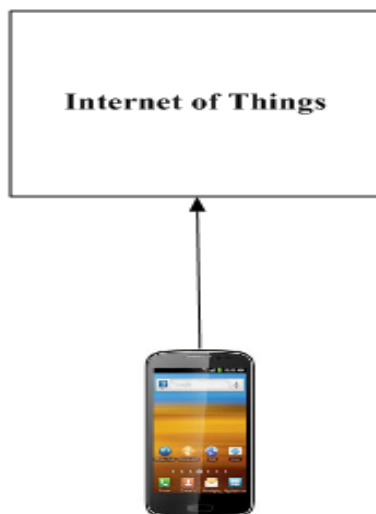
Fig 1: Block diagram

Fig 2: Monitor Unit
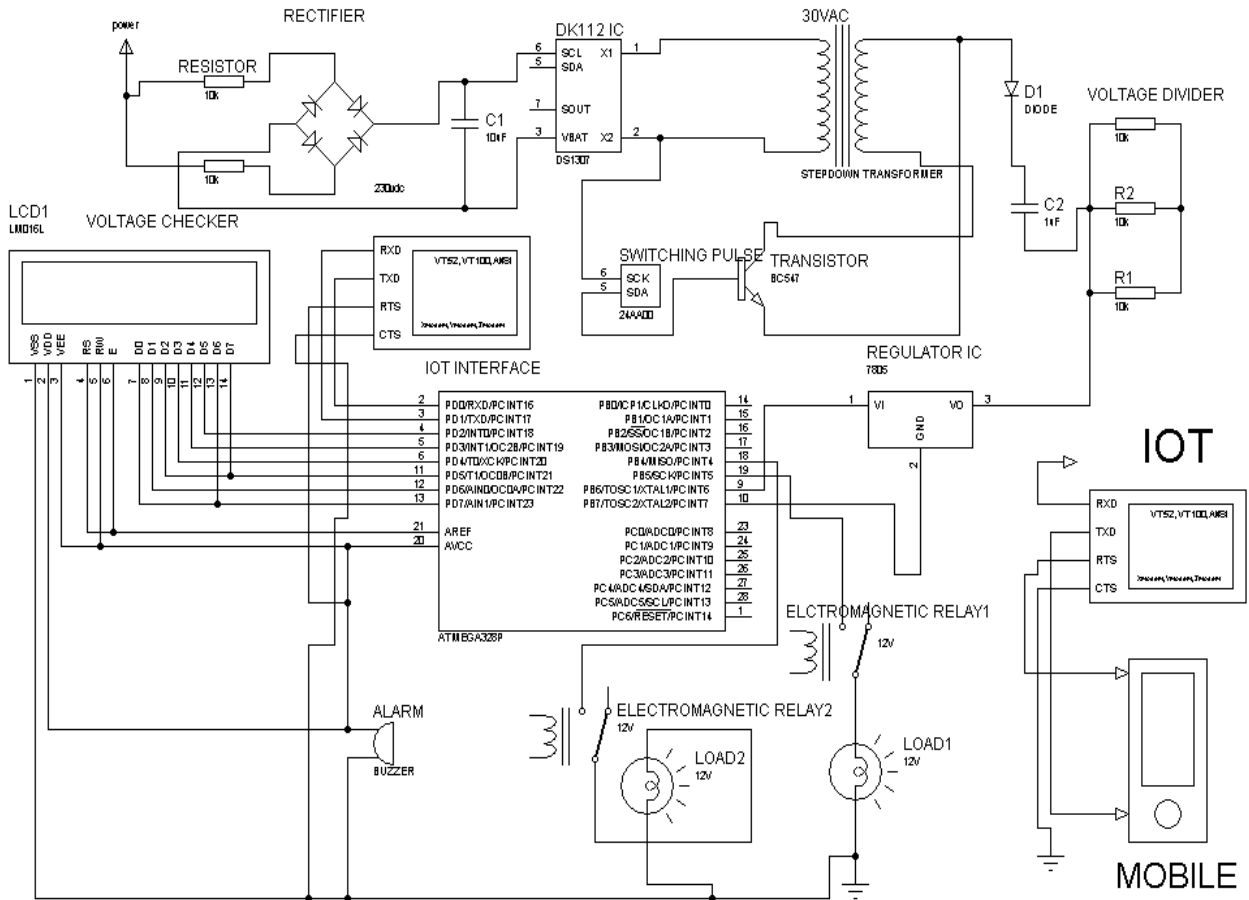
PASSWORD CONTROL MULTI LINE CIRCUIT BREAKER USING IOT

Fig 3: Circuit Diagram

Code
```
const int inPin =7;
const int inPin1 =6;
const int inPin2 =5;
int sensorValue1=0;
int sensorValue=0;
int sensorValue2=0;
const int ledpin=13;
void setup() {
Serial.begin(9600);
pinMode(ledpin,OUTPUT);
pinMode(inPin,INPUT);
pinMode(inPin1,INPUT);
pinMode(inPin2,INPUT);
}

void loop()
{
sensorValue=digitalRead(inPin);
if(sensorValue == HIGH  )
{
 Serial.println("A");
 digitalWrite(ledpin,HIGH);
 delay(3000);
}
else
{
 Serial.println("No Signal");
 digitalWrite(ledpin,LOW);
 delay(3000);
}

sensorValue1=digitalRead(inPin1);
if(sensorValue1 == HIGH  )
{
```

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```
Serial.println("B");
digitalWrite(ledpin,HIGH);
delay(3000);
}

else
{
Serial.println("No Function");
digitalWrite(ledpin,LOW);
delay(3000);
}
sensorValue2=digitalRead(inPin2);
if(sensorValue2 == HIGH  )
```

```
{
Serial.println("C");
digitalWrite(ledpin,HIGH);
delay(3000);
}

else
{
Serial.println("No Resource");
digitalWrite(ledpin,LOW);
delay(3000);
}
}
```

IV. RESULTS AND DISCUSION

Comparison between Existing and Proposed Technique:

| S.no	Method	Author Name	Pros	Cons
1	InfraRed	N. Han, J. Kan, W. Li and J. Zhang,	The proposed system is able to monitor device fault accurately, automatically, and remotely in all condition, which lays foundations for applications of wireless sensor networks in device fault monitoring.	More Time taken to detect the fire. Less security.
2	RadioFrequency	S.J. Hook and G.C. Hulley	This thesis, presents a new approach dedicated to device fault detection and based on wireless sensor network and fuzzy logic that performs a real-time monitoring system in order to detect device fault.	High labour intensity. Poor Efficiency.
3	Bluetooth	A. Fu, Z. Guo, G. Sun and D. Wang	The collected information is the input variables of the fuzzy logic of the system applied to detect device faults. So, it will send real-time alarm messages.	High risk. High Cost to establish labour intensity.
4	IOT & AI	Proposed by me	In our approach, To investigate device fault detection monitoring to detect the device fault in a beginning step.	Our implementation result provide the 75% accuracy only.

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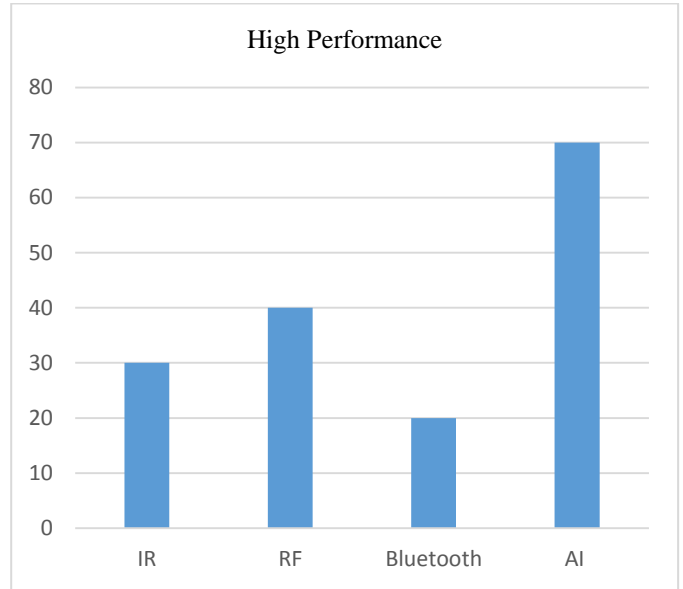
Device Fault Detection
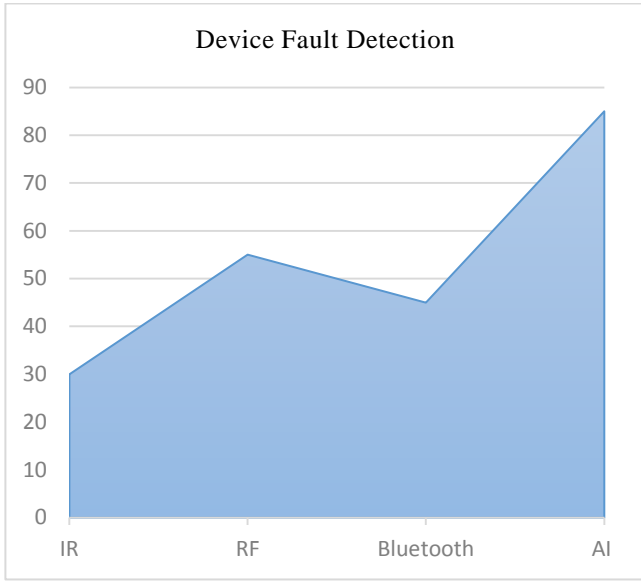
Fig 4: Device Fault Analysis

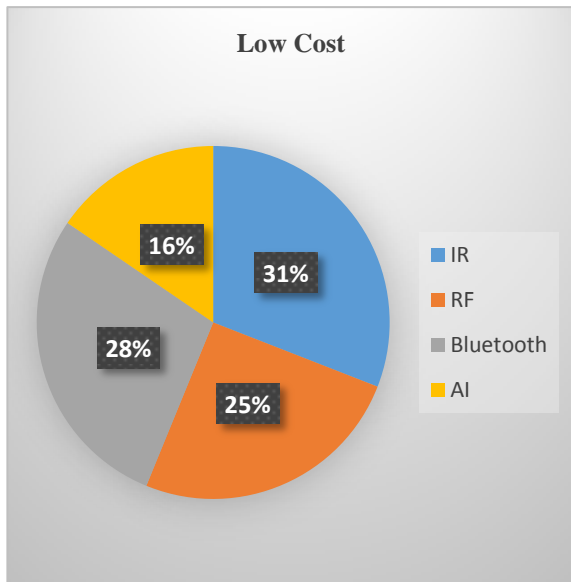**High Performance**

Fig 6: Performance Analysis

Low Cost

Fig 5: Cost Analysis

V. CONCLUSION

The ARDUINO microcontroller, GSM and IoT based work exhibit the security of the lineman as exchanging ON/OFF of electrical switch and opening or shutting of control board entryway is improved the situation the motivation behind fix or upkeep. The technique beats the inadequacy of existing arrangement of line clearance opening and shutting demand for the line. This venture can be utilized to guarantee the wellbeing of the upkeep staff e.g. line man. The line can be just on/off by the line man. This framework gives a plan with the end goal that a secret phrase is required to work the electrical switch (ON/OFF). Line man can kill the supply and safely fix it, and after that turn on hold by entering the right secret phrase. Since it has the office of changing the secret word, individual can give any secret phrase of his will and have his work done more secure.

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