



# A REVIEW ON FAULT DETECTION IN THREE PHASE TRANSMISSION LINE USING ARDUINO UNO

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**ABSTRACT** - In our daily life the requirement of electrical applications increases and therefore the efficient and effective management of electrical transmission system required. Electrical environment will have lots of disturbance in nature, due to natural disasters like storms, cyclones or heavy rains transmission and distribution lines may lead to damage. The electrical wire may cut and fall on ground, this leads to very harmful for human beings and may become harmful in rainy seasons or in a critical weather condition in a transmission line faults may occur. So detect the faults and reliable and robust communication like Arduino uno technology inserted of many communication used. This technology save human life and also prevent the harm produced during short circuit. This electrical danger by providing the fault detection and automatically stops the electricity to the damaged line and also conveys the message to the electricity board to clear the fault

**Key Words** : Arduino uno module , LCD ,Relay ,LED ,Bridge rectifier ,Capacitor (1000)micro farad ,Driver Transformer, resistor 1kohm ,Diode, Potentiometer,

## I. INTRODUCTION

Now a days electricity are very important in our life .In the power system there are various types of the fault occurs due to natural calamity. Due to short circuit or fault is more saviour in power system which could damage electrical equipment. So this fault should be remove as soon as possible. Line to ground fault is biggest task for electrical engineer's to find the exact location of the fault .so fault may be identified by designing of programmable software which would installed in the Arduino uno. It will shows the exact location of the fault and types of fault. The special protection schemes that could be beneficial by using communication scheme to increase the accuracy & reliability. There are some examples of fault over loading solid faults that is



Single line to ground, double line to ground, line to line, three phase short circuit Faults), over voltage & under voltage fault.

## II. METHODOLOGY

First of all make the code and install it in Arduino uno • Use resistor three transmission line created. And four moving switches per phase are used to create fault • And for that code is written as if fault is occurred due to 1st moving switch in R phase then LCD will display the NF RYB phase red yellow blue LED is used CIRCUIT DIAGRAM

### 2.1 ARDUINO UNO

The Arduino UNO is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6-analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with AC-to-DC adapter or battery to get started. The UNO differs from all preceding boards in that it does not use the FTDI USB-to serial driver chip. Instead, it features the ATmega16U2 (Atmega8U2 upto version R2) programmed as a USB-to serial converter.

### 2.2 APPLICATIONS

- 1] Industrial fault detection system
- 2] It is used in distribution and transmission fault detection system
- 3] It can be used in mines

### 2.3 ADVANTAGES

- 1] Arduino based technology provides major sophistications & flexibilities.
- 2] Minimizes human interface.
- 3] Improve the system availability and performance

## III. CONCLUSION

In the project various faults have been simulated to develop an automatic tripping mechanism for the three phase supply system while temporary fault and permanent faults occur. Here relay used for the fault analysis. Short duration fault back to the supply to the load immediately called as temporary trip while long duration shall result in permanent trip.



### III. RESULT

Fault may be detected and remove early by knowing the exact location of the fault by designed the programmable software which would be installed in the Arduino UNO. It will be shows the output on the lcd display including the location of the fault will be line to line. The arrangement of the components is as shown in the circuit diagram the result is obtained by creating fault across slide switch numbering as shown in circuit diagram.

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