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Three Phase Transmission Line Fault Detection System

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ABSTRACT: In the current scenario transmission line fault Detection is major and important issue. In transmission line 85-87% faults of power system occur in these overhead Transmission line. In this paper, we discuss about various Method to control the fault generated in transmission line and solve this in real time. The heart of this module is ESP32 Microcontroller and IOT based software this will detect the fault, and exact location of fault also which type of fault. It Will shows in display and software also be in this information is transmitted to the control room.

KEYWORDS: Power, IOT, 3 phase, system, Transmission.

I. INTRODUCTION

In the current time electricity is the most important part in human being and day to day life cycle. Faults on transmission line can be cause mechanical failure, excessive internal and external stresses, lightning strikes etc. In transmission line such type of fault three phase line to line fault, three phase line to ground fault, Double line to ground fault. Power system is classified into three main types like this, power generation, transmission and distribution transmission system is considered to main part of the power system. Current scenario as it lot supply and demand of transmission network. Due to the fault in transmission line disturb the supply of power to the consumer. There are some benefits to accurate fault detection system, because including less time to save electricity, low maintenance cost, save the electrical equipment's. In current time of India, A system is not detect the fault in real time these type of system lot of hazardous in transmission network. The fault detection system can be implemented for three phase electrical distribution system. A practical prototype system can be implemented for fault detection in power system. In this paper we shall discuss about transmission line fault. The main objective of this prototype model we try to make efforts less system to decreases human work and hazard. The electrical equipment. To boost the system stability, reliability and strong the economic growth. Here Dc supply is required for controlling board which is provided with the help of rectifier and transformer combination. We have used PT sensors to identify fault in their respective phases Relay is used to isolate the load at the time of fault we are using ESP32 as brain of system. So it is going to communicate with Wi-Fi modules as well as input and output devices Output switches are given to analog pin of ESP32 and display is connected to digital pin of ESP32 so, when fault occurs, ESP32 gives output to relay and supply is interrupted. We are using 8266 Wi-Fi module. So information about fault is received on our mobile or pc using this project, we can know the fault type and we can save electrical components from damaging.

II. METHODOLOGY

Here we show prototype model or 3p fault detection, so we make the fault line by using switches. We know that impedance of line is increases with increase in length. So we use resistance combination in senses, for each phase different set of resistance is used for each phase one relay is use to isolate the load at the time of fault which give exact length of fault occur on line. The mastermind of our project is ESP32 Microcontroller. The DC supply is require for controlling board. Which is provides with the help of rectifier and transformer combination. The term LCD stands for Liquid Crystal Display. It is a kind of electronic display module used in various applications, such as various circuits and devices such as mobile phones, calculators, computers, televisions, etc. Output switches is given analog pin or ESP32 Microcontroller and display is also connected to digital output pin of ESP32. So when we move fault it indicate of display with exact distance, and at a same time ESP32 give output to MP rally and it disconnect load from supply. This all thing happen as soon as fault is occur in line. Due to proper program insert in Arduino IDE on a based. This Dc voltage is then given to the Microcontroller via active low switches S1, S2, S3 and S4. Relay is used to isolate the load at the time of fault we are using ESP32 as brain of system. So it is going to communicate with Wi-Fi modules as well as input and output devices Output switches are given to analog pin of ESP32 and display is connected to digital pin of ESP32 so, when fault occurs, ESP32 gives output to relay and supply is interrupted. We are using 8266 Wi-Fi module

Active low switches indicates that the circuit or we can say the signal is going to perform assigned function only when its logic level. By pressing this switch creates the same effect as line to ground fault on the line.

In this project we proposed IoT based real time fault sensing and locating fault. We take power supply, 3.3.v power supply to operating of module. We arrange three phase transmission line structure and three phases R-Y-B. Then this use of supply and activate module. ESP32 is connected to power supply ESP32 is act as brain. We use Wi-Fi module these indicate and sense which type of fault and then provide the information in this system, we have introduced an improved way to detect faults. ESP32 is working as the brain of our system. Relays are used for protection because relays isolate the load at the time of fault. In case, there is any network problem, we have using LCD display. So that, one can see fault information in the control room.

• **BLOCK DIAGRAM:**

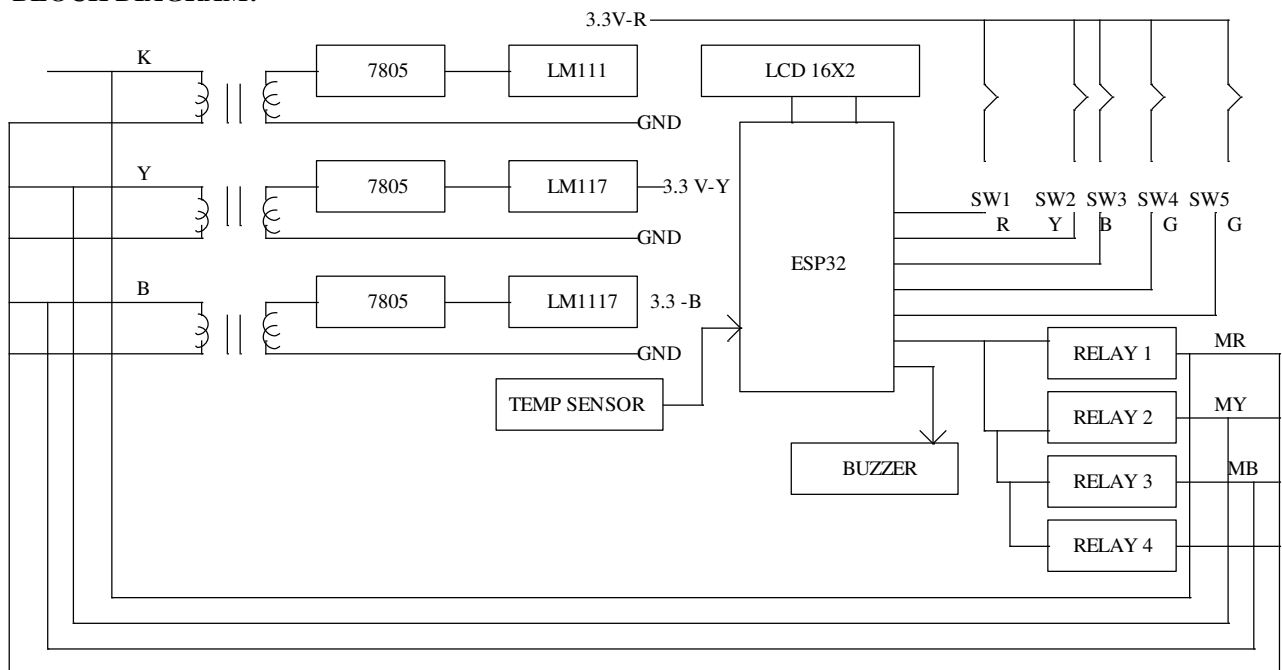


Fig 1: Block diagram

III. CONCLUSION

Proposed system is concerned with overhead transmission lines. It suggests the way to detect and locate the LG type fault on the transmission line. In this paper a model design to solve the problems faced by consumer by using ESP32 and IOT software. We can easily detect the type fault and solve it and there distance in real time, this prototype model is very effective. The project it will help in future it can be used as reference in future for implementing the base protection system in transmission line system. This system it will control or signalling the mobile app this called IOT based system. This system shows the exact fault location and fault clearing is very quick this features making this project very unique and useful in future.

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