Innovative Journal for Opportunities and Development in Science & Technology,
Volume 3,Issue 2, March.2023
Paper Id: – IJ2023V3I2 -1A-E,
ISSN 2582-6026

A REVIEW ON TRANSMISSION LINE FAULT DETECTION USING GSM

[1]Gadhe Prasad Dashrath, [2]Turakane Akash Arun, [3]Karpe Tejas Vijay, [4]Dahe Jalindar Valmik

[5]Atul B. Pawar

[1]UG Scholar, Electrical Engineering Dept., SND COE, Yeola (Babhulgaon)
[2] UG Scholar, Electrical Engineering Dept., SND COE, Yeola (Babhulgaon)
[3] UG Scholar, Electrical Engineering Dept., SND COE, Yeola (Babhulgaon)
[4] UG Scholar, Electrical Engineering Dept., SND COE, Yeola (Babhulgaon)
gadheprasad@gmail.com

ABSTRACT- There are numerous distinct elements that make up the electric power system. One of these is the transmission system, in which power is delivered to consumers via transmission lines from generating plants and substations. Both approaches might experience various malfunctions, which are known as "Faults." When the insulation of the system fails at any point, a fault is simply described as a collection of unfavourable but unavoidable happenings that can momentarily upset the stable condition of the power system. A short circuit, or fault, is also said to have happened if a conducting object makes touch with a bare power conductor. The reasons of faults are numerous and include lighting, wind damage, trees encroaching on transmission lines, and collisions between cars or aeroplanes. Poles or transmission towers, birds cutting power wires, or acts of vandalism. The purpose of this study was to examine the causes and consequences of defects in overhead transmission lines. We'll talk about a few of the numerous defect sources and fault detection techniques. The equipment in the power system is severely damaged as a result of these problems. In India, it is typical for the supply systems to have faults that are LG (Line to Ground), LL (Line to Line), or 3L (Three Lines). These faults in the three phase supply system might impact the power system.

KEYWORDS: distribution lines, short circuit fault, sag detector, GSM

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 3,Issue 2, March.2023
Paper Id: – IJ2023V3I2 -1A-E,
ISSN 2582-6026

I. INTRODUCTION

1.1 METHODOLOGY

A Three Phase Line Fault Detection is a device which provides visual indication & remote detection of the abnormal condition on electrical power distribution system.. While patrolling of this fault it can be detected by indication lamps on RYB phase. In recent, impedance relay or distance relays are used to detect and cleared the fault, but this system requires long time to calculate the distance using the impedance & the pre-fault current relay, till to reach the fault location and repair the faulty phase, the system will be in OFF state and the supply to the consumers is unreliable

Open circuit faults:- These faults occur due to the failure of one or more conductors. The most common causes of these faults include joint failures of cables and overhead lines, and failure of one or more phase of circuit breaker and also due to melting of a fuse or conductor in one or more phases. Open circuit faults are also called as series faults. These are unsymmetrical or unbalanced type of faults except open circuit fault

Short circuit faults:- A short circuit can be defined as an abnormal connection of very low impedance between two points of different potential, whether made intentionally or accidentally. These are the most common and severe kind of faults, resulting in the flow of abnormal high currents through the equipment or transmission lines. If these faults are allowed to persist even for a short period, it leads to the extensive damage to the equipment. Short circuit faults are also called as shunt faultspply to the load.

These faults are caused due to the insulation failure between phase conductors or between earth and phase conductors or both. The various possible short circuit fault conditions include three phases to earth, phase to phase, single phase to earth, two phases to earth and phase to phase. In single line to ground fault, fault occurs between any one of the three lines and the ground. In double line to ground fault, fault occurs between any two of the three lines and the ground. In line to line fault, fault occurs between any two lines. When fault occurs, there is an abrupt change in voltage. This change in voltage may cause serious damages to the system if not corrected in time. So immediate step of fault correction is isolation of the faulty part from the rest of the system. Programs uploaded in Arduino UNO kit to detect faults from the underground cables. When a fault occur in the underground cables, we can find out faults through Arduino controller kit. LCD display which displays the faults in Kilometre. In this project we created faults manually. The value of the resistance is depends upon the length of the cable. In here resistance is the leading role of the project. If any deviation occurs in the resistance, the value of the voltage will be changed that particular point is called FAULT. We are finding out those faults.

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 3,Issue 2, March.2023
Paper Id: – IJ2023V3I2 -1A-E,
ISSN 2582-6026

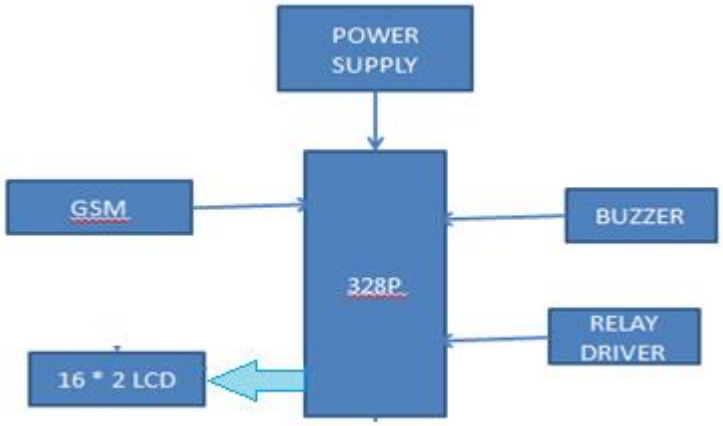

Fig. 1 - Block Diagram

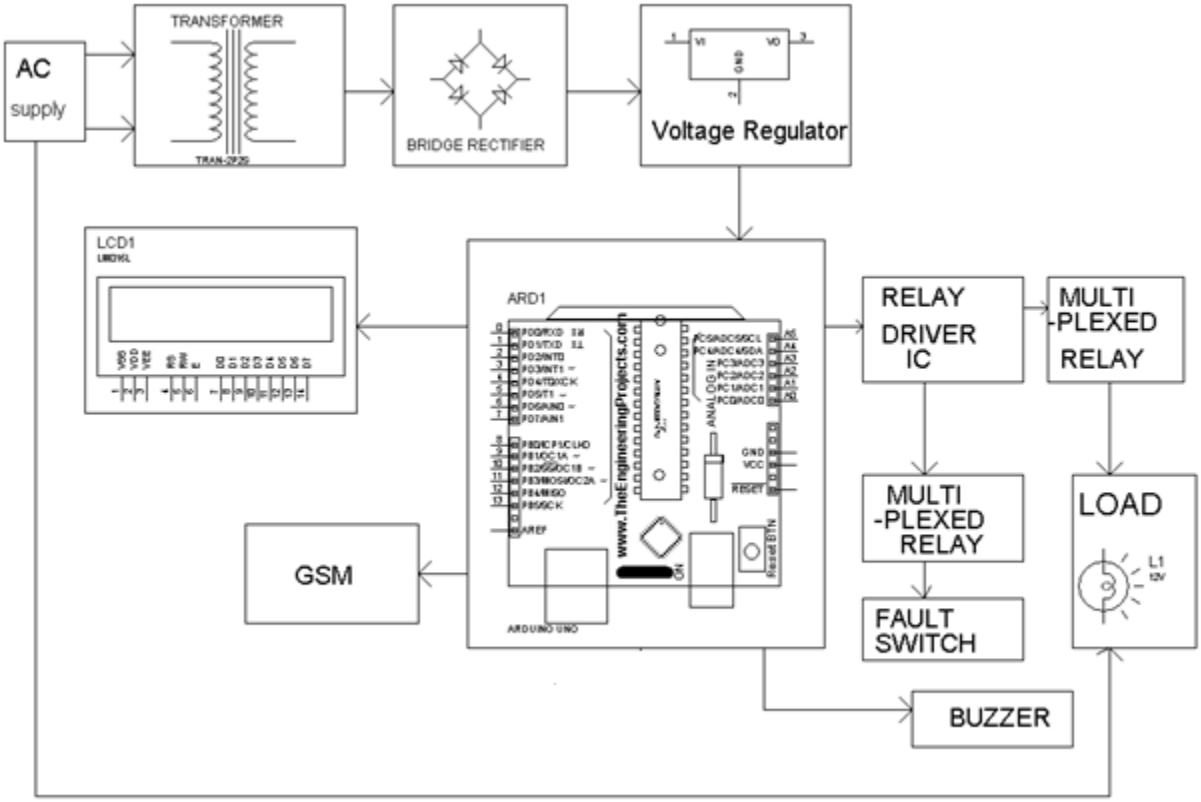

Fig. 2 - Circuit Diagram .

.

Innovative Journal for Opportunities and Development in Science & Technology,
Volume 3,Issue 2, March.2023
Paper Id: – IJ2023V3I2 -1A-E,
ISSN 2582-6026

II. HARDWARE DETAILS

1. Ac supply : this is 230 v 50 hz supply connected to the transformer .it is basically a input voltage .
2. Transformer 12 v :

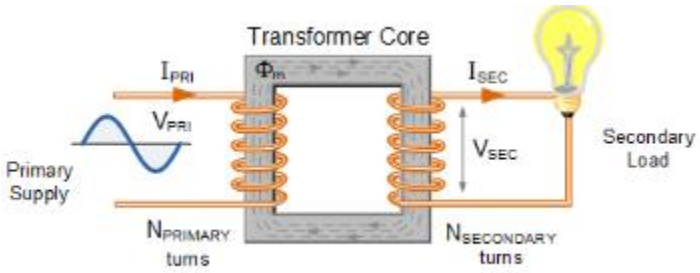

Fig. 3 - Transformer

here we are using a 12 v step down transformer , thus the our system is basically a electronic component based so they required a power inn between the 3.3v-5v so that we need to step down the upcoming current for the safety of components .

3. Rectifier unit :

Fig. 4 - Rectifier unit

is used to convert the ac supply into the dc so that working of electronic component is basically on dc source .

4. Voltage regulator :

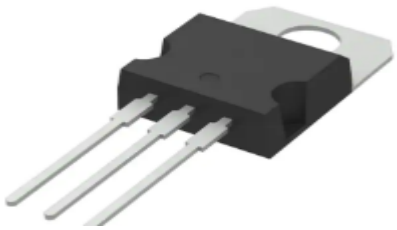

Fig. 5 Voltage regulator

we here using 12v and 5v voltage regulator so that wwe can get the 5 voltage to our electronic component so the devices can get their required voltage .
This 5v supply is then passed to the ardiuno ,which is required voltage for the device .

5. 328p :

Fig. 6 - 328p

It is the microcontroller of the system we can say heart of the system the overall system is then having feedback of working from the controller

6. GSM : t

Fig.7 - GSM

The gsm model send a messages to the mobile device about the current situation of the fault detected or not .

7. Relay driver IC :

Fig.8 - Relay driver IC

ISSN 2582-6026

8. Buzzer :

Fig. 9 Buzzer

III. CONCLUSIONS

The four quadrant operation of the dc drive is successfully implemented and the output voltage in the regenerative mode is boosted more than the supply voltage. This boost in voltage is compared in terms of the intensity of light of the regenerative load (bulb)The model shows good results in an applied voltage range of 100-150V.. The system is designed to send a SMS alerts to the authorized person Then the fault detection exceeds the predefined limits.

REFERENCES

[1] GURUPRASAD P. SALI, MOHINI J. DESHMUKH, MRUNALINI S. WANKHEDE, BIPASA B. PATRA, "SMART IOT AUTOMATION FOR ADVANCED HOME SECURITY", INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH IN ELECTRICAL AND ELECTRONIC ENGINEERING (IJEREEE), VOL 6, ISSUE 4, IFERP, APRIL 2020, ISSN (ONLINE) - 2395-2717, PP.1-6, DOI: 01.1617/VOL7/ISS4/PID45820

[2] DHAWALE, VISHVADEEP J., VISHAL DAKE, AND PRAFULLA A. DESALE. "BLOCKING THE DISTANCE RELAY 3RD ZONE OPERATION DURING POWER SWINGS BY DTLR ENHANCEMENT IN MATLAB/SIMULINK." INTERNATIONAL JOURNAL OF ELECTRONIC AND ELECTRICAL ENGINEERING. VOL. 7. NO. 7. INTERNATIONAL RESEARCH PUBLICATION HOUSE, 2014. 757-765.