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UNDERGROUND CABLE FAULT DISTANCE LOCATOR BY USING MICROCONTROLLER

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ABSTRACT:
This paper conclude that the underground cable fault location model by using microcontroller. The purpose of project is to identify the cable fault distance from initial position in terms of kilometer. By using simple method of ohm's law. when any fault occur like short circuit or open circuit hence the voltage loss is increases with the length of fault into the cable, due to this current is varies. Cable is represented by using set of resister. And DC voltage is applied at one side of wire and fault is find due to change in voltage. For the calculation of the distance microcontroller is mainly used. So fault distance is show on the liquid crystal display [LCD].

KEYWORDS: Fault location, Underground cable, 89S52Microcontroller, Fault detection, Location methods.

INTRODUCTION

In previous cable whether conditions like heavy rainfall, snow are affected on them. Some adverse whether condition like storm, pollution as well as rain not affected on underground cable. But fault is occur in cable then it complicated to indicate the fault and its distance. So we will find out the fault distance in underground cable.

Now the world is faster and digitalized due to this our project detect fault location in the form of digital signal. In urban place cable fault identify system is mostly used. Due to some reason fault is produce in this time identify fault in underground cable is more complex due to not know the exact location of fault.
Cable fault are follows:-

- Weakness in the underground cable.

- Breaking of conductor.

- Due to isolation is damage.

- Due to frication wear of cable.

1.1] Fault in the cables are classified into two groups:

1] Open circuit fault:
This fault more efficient than short circuit fault. Because while fault is create then current in cable becomes zero.
This fault is occur due to breaking of the conductor in cable this will possible when more than one conductor is cut.

2] Short circuit fault:-
When two or more wire are cut and join with each other then short circuit is occur then current in cable becomes maximum end resistance is minimum.
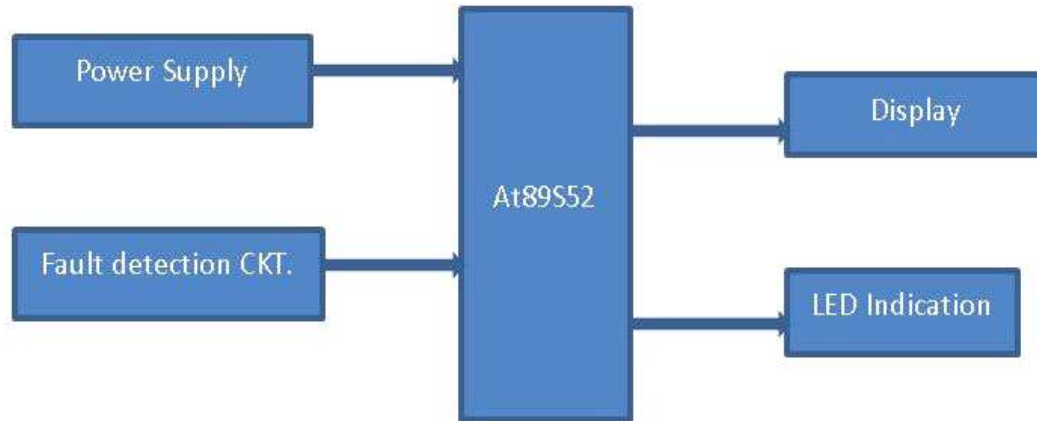
BLOCK DIAGRAM

Fig. Block Diagram of Underground Cable Fault Distance Locater using 89S52.

BLOCK DIAGRAM DESCRIPTION

Our project depend on ohm's law.in that DC voltage is fed to one end of cable and voltage flow into the series resister according to length of fault of cable current would varies, this happens due to short circuit into two wires. When we give the DC voltage to the cable and fault is created with the help of switch with known kilometer. Voltage drop varies respectively into series resistor then this voltage drop provide to controller to display fault in kilometer. This project consist cable length in KM with a set of resistor and also use switches to create fault at some KM which can be known to check crass accuracy. This project proposed of underground cable fault distance locater using 89S52 controller.

This model divided into four part:

1] Controlling part.

2] Cable part.

3] DC power supply part.

Dc voltage produce using bridge rectifier, regulator, step-down transformer and also AC supply of 230v.The cable is made of using resistor with switches. set of resistors used to indicates the current cable current sensing part and switches are used to creation of fault in cable. Then controlling part is consist of 89S52 controller which used to calculate the important calculation corresponding fault distance. Next part is display part which including LCD display which is connected to controller. It used to display fault in terms of distance into the cable at the particular phase.
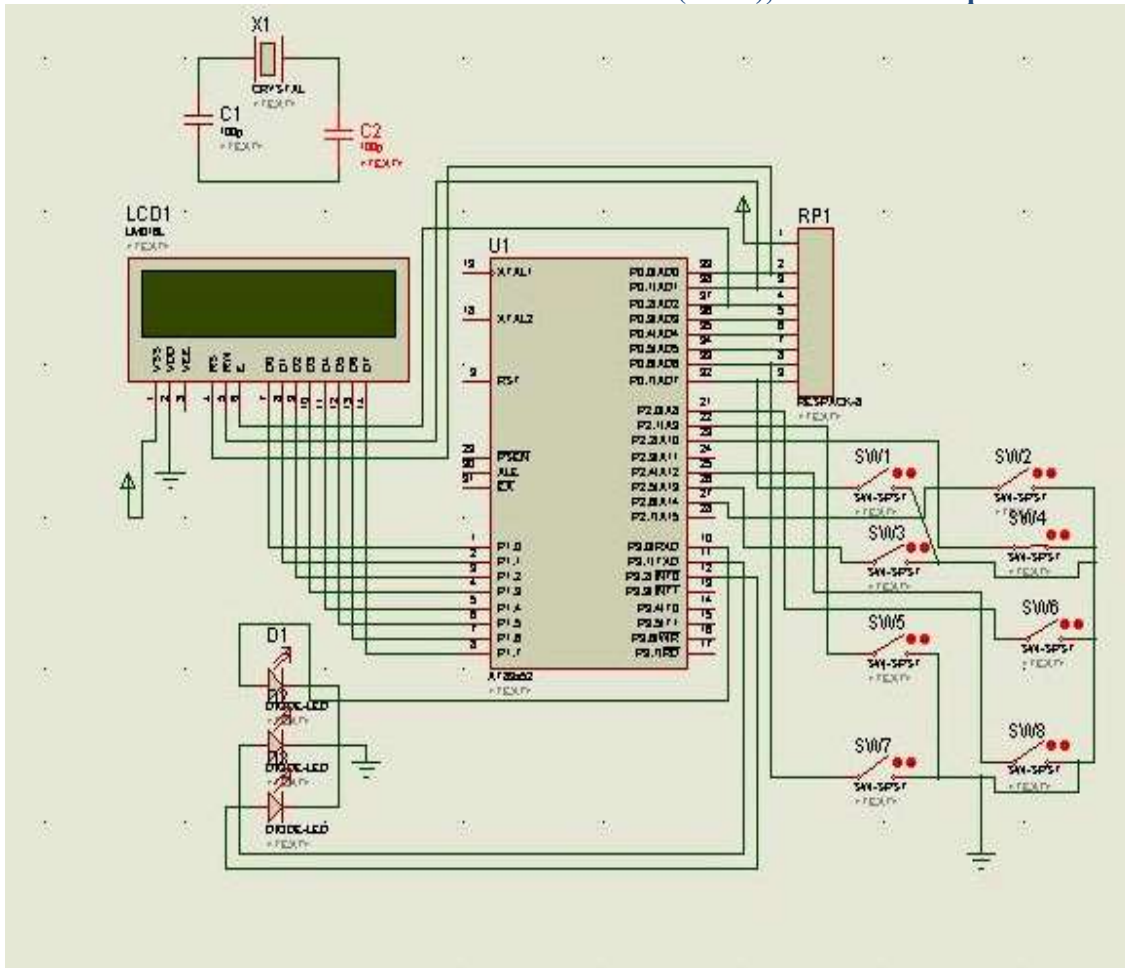
CIRCUIT DIAGRAM

Fig. Circuit Diagram.

ADVANTAGES

1] Low maintenance.

2] Efficiency is high.

3] Public safety is improve.

4] It is useful for all type of underground cable.

CONCLUSION

In this paper we can find exact location of fault in the underground cable in KM with the help of 89S52 microcontroller as well as we used a simple concept of ohm's law, hence fault can be easy detect and repaired.

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