



Cable Fault Identification by using GSM

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Abstract:

The objective of this project is to determine the distance of underground cable fault from base station in kilometers. The underground cable system is a common practice followed in many urban areas. While a fault occurs for some reason, at that time the repairing process related to that particular cable is difficult due to not knowing the exact location of the cable fault. The proposed system is to find the location of the fault. The project uses the standard concept of Ohms law i.e., when a low DC voltage is applied at the feeder end through a series resistor (Cable lines), then current would vary depending upon the location of fault in the cable. In case there is a short circuit (Line to Ground), the voltage across series resistors changes accordingly, which is then fed to an Analog to digital conversion (ADC) to develop precise digital data which the programmed microcontroller of 8051 family would display in kilometers.

I. INTRODUCTION

The objective of this project is to determine the distance of underground cable fault from base station in kilometers. The underground cable system is a common practice followed in many urban areas. While a fault occurs for some reason, at that time the repairing process related to that particular cable is difficult due to not knowing the exact location of the cable fault. The proposed system is to find the location of the fault.

SOFTWARE TOOLS USED:

1. Embedded C programming language
2. KEIL IDE for writing the program for micro controller
3. PROLOAD for dumping
4. ORCAD to draw the schematic diagram

HARDWARE USED:

1. AT89s52 Micro Controller

2. Power supply
3. LCD Display
4. ADC0808
5. Resistors
6. Switches

II. OVERVIEW OF PROJECT

2.1 BASIC OPERATION :

The project uses the standard concept of Ohms law i.e., when a low DC voltage is applied at the feeder end through a series resistor (Cable lines), then current would vary depending upon the location of fault in the cable. In case there is a short circuit (Line to Ground), the voltage across series resistors changes accordingly, which is then fed to an Analog to digital conversion (ADC) to develop precise digital data which the programmed microcontroller of 8051 family would display in kilometers.

2.2. Block diagram:

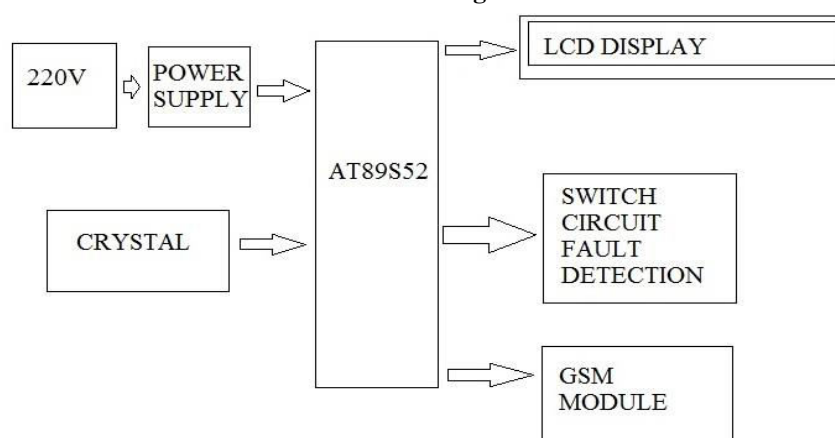


Figure.1. Block Diagram

HARDWARE DESCRIPTION OF THE PROJECT:

The basic circuit diagram of the project describes the necessary connections that are to be made while designing the hardware module of the project. They are:

Power supply
Transformer

Microcontroller
GSM Modem
Switches
Switch interface

GLOBAL SYSTEM FOR MOBILE COMMUNICATION (GSM): Global system for mobile communication (GSM) is a

globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-European mobile cellular radio system operating at 900 MHz. It is estimated that many countries outside of Europe will join the GSM partnership.

4.1. Description:

GSM, the Global System for Mobile communications, is a digital cellular communications system, which has rapidly gained acceptance and market share worldwide, although it was initially developed in a European context. In addition to digital transmission, GSM incorporates many advanced services and features, including ISDN compatibility and worldwide roaming in other GSM networks. The advanced services and architecture of GSM have made it a model for future third-generation cellular systems, such as UMTS.

STEPS FOR KEIL SOFTWARE (Steps For Executing The Keil Programs):

1. Click on the Keil uVision Icon on DeskTop
2. The following fig will appear
3. Click on the Project menu from the title bar
4. Then Click on New Project
5. Save the Project by typing suitable project name with no extension in u r own folder sited in either C:\ or D:\
6. Then Click on Save button above.
7. Select the component for u r project. i.e. Atmel.....
8. Click on the + Symbol beside of Atmel
9. Select AT89C52 as shown below
10. Then Click on "OK"
11. The Following fig will appear
12. Then Click either YES or NO.....mostly "NO"
13. Now your project is ready to USE
14. Now double click on the Target1, you would get another option "Source group 1" as shown in next page.
15. Click on the file option from menu bar and select "new"

16. The next screen will be as shown in next page, and just maximize it by double clicking on its blue boarder.
17. Now start writing program in either in "C" or "ASM"
18. For a program written in Assembly, then save it with extension ". asm" and for "C" based program save it with extension ".C"
19. Now right click on Source group 1 and click on "Add files to Group Source"
20. Now you will get another window, on which by default "C" files will appeared
21. Now select as per your file extension given while saving the file
22. Click only one time on option "ADD"
23. Now Press function key F7 to compile. Any error will appear if so happen.
24. If the file contains no error, then press Control+F5 simultaneously.
25. The new window is as follows
26. Then Click "OK"
27. Now Click on the Peripherals from menu bar, and check your required port as shown in fig below
28. Drag the port a side and click in the program file.
29. Now keep Pressing function key "F11" slowly and observe.
30. You are running your program successfully

III. PROJECT PROCEDURE

- 1).give the 230v supply to the transformer of the project kit .
- 2).insert the sim in GSM modem on the kit .
- 3)send a dummy message to the that sim present on the GSM module .
- 4) than it registered the mobile number it shows on LCD display
- 5) simultaneously it gives the message to the mobile where the dummy message send .
- 6)and create the fault by using resistance switch by open switch at any R,Y,B at any distance of the cable
- 7) than buzzer is on and it sents the to the registered mobile
- 8) fault is cleared than buzzer as well as messages are off.

IV. PROJECT RESULTS

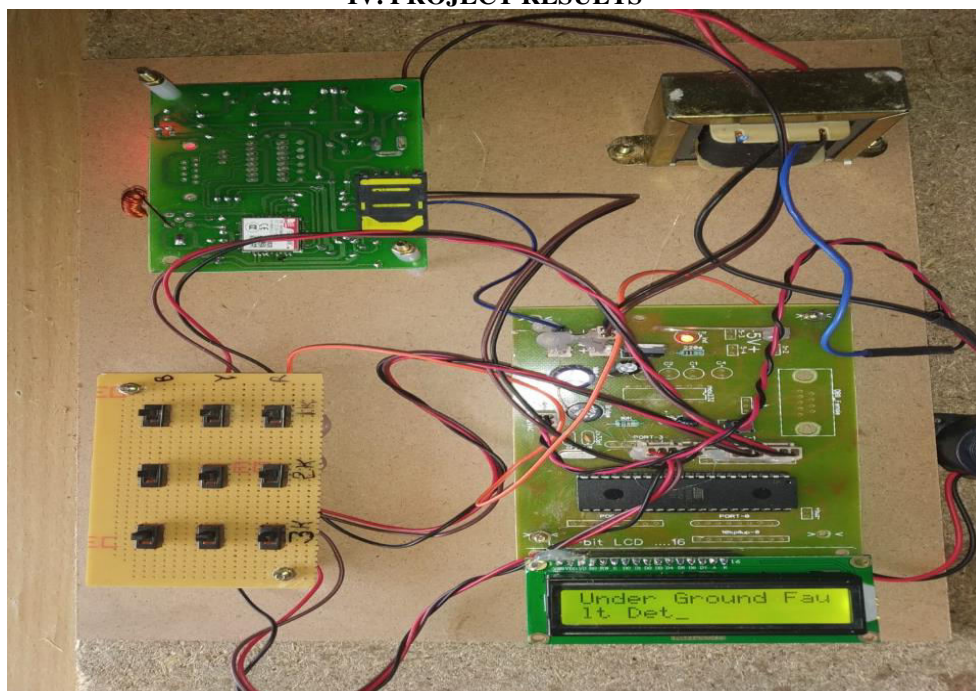


Figure.2.

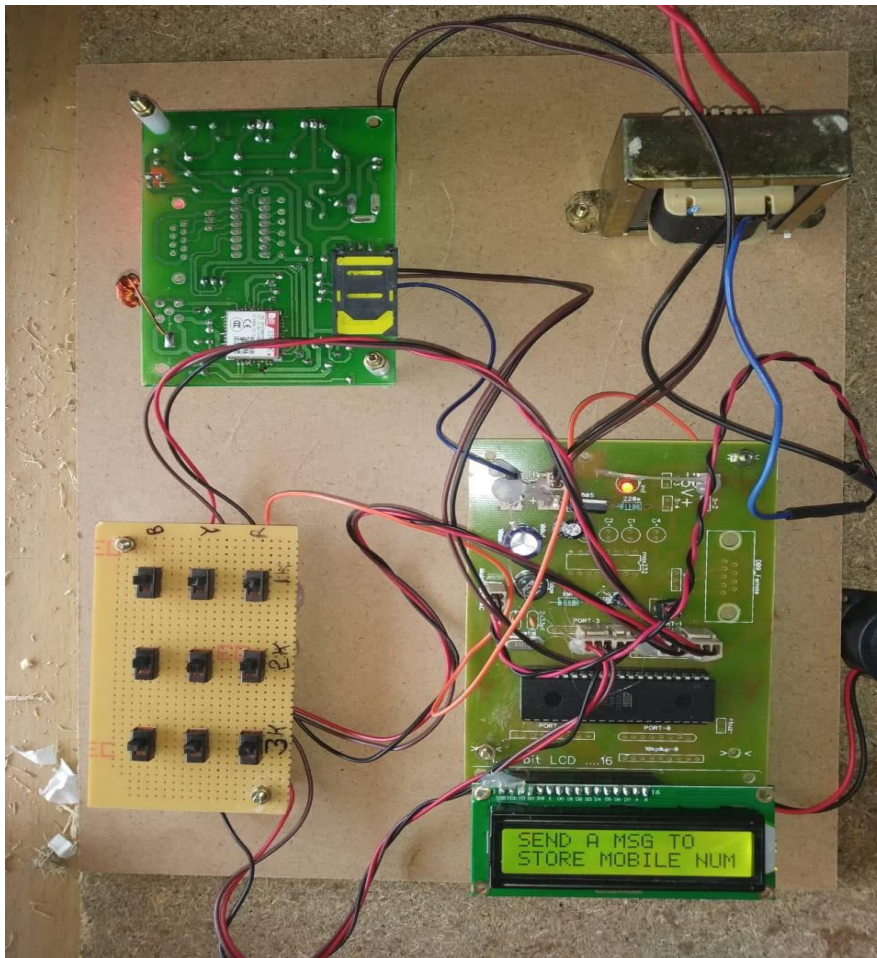


Figure.3.

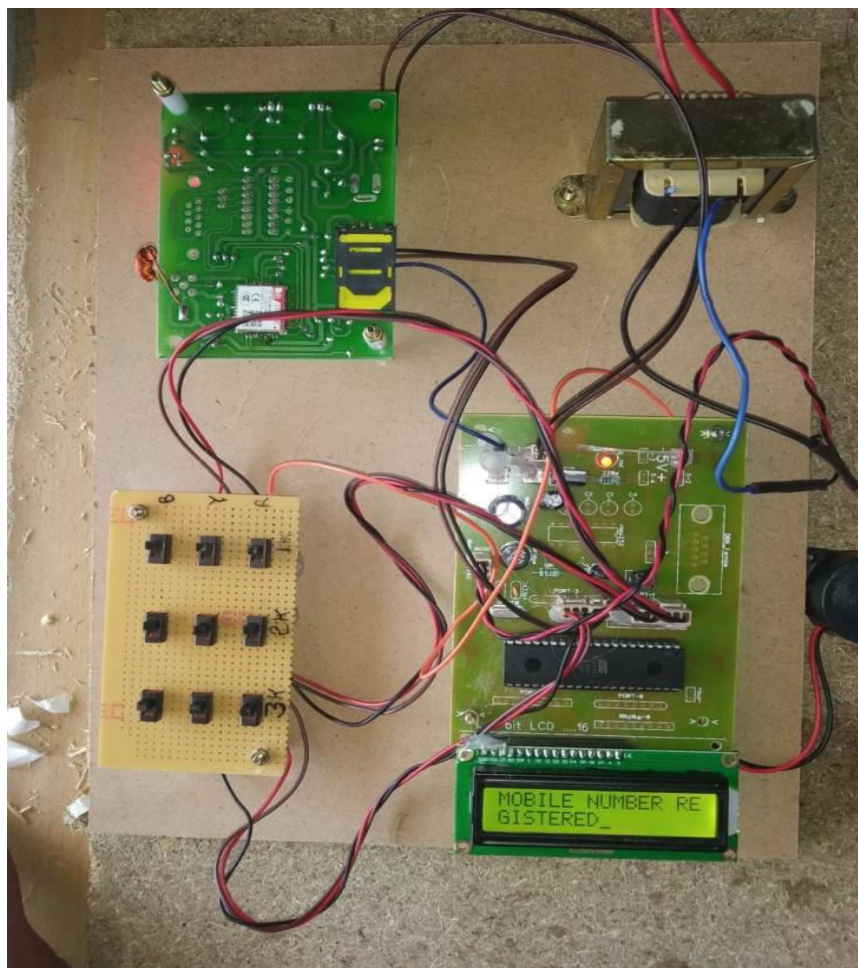


Figure .4.

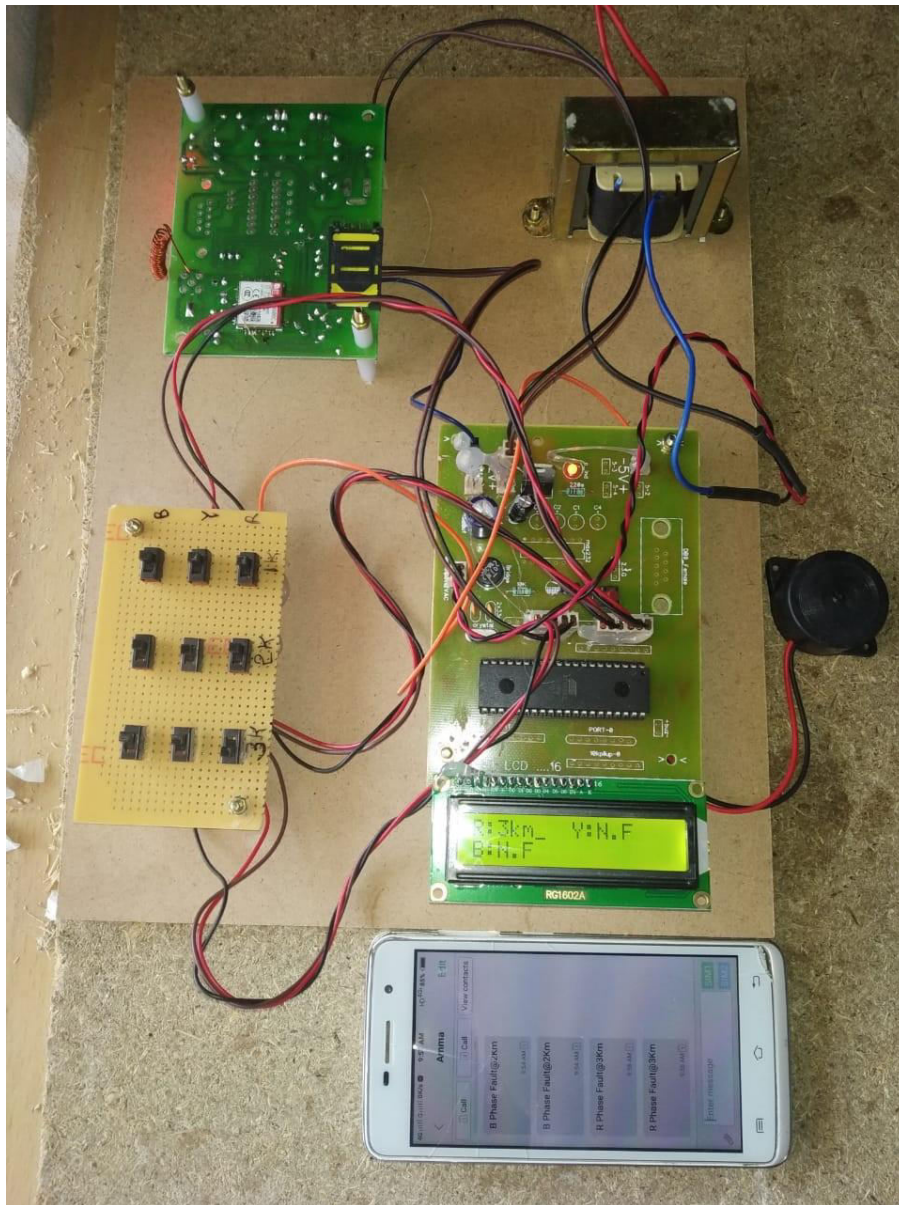


Figure.5.

IV. CONCLUSION:

Hence, the objective of this project is to determine the distance of cable fault from base station in kilometers. The underground cable system is a common practice followed in many urban areas. While a fault occurs for some reason, at that time the repairing process related to that particular cable is difficult due to not knowing the exact location of the cable fault. The proposed system is to find the location of the fault. Hence by using this project we can made the corrections of cable faults through global system for mobile communication (GSM). at open circuit and short circuit condition. either underground cable system and overheads.

V. REFERENCES

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