DISTANCE CALCULATION FOR UNDERGROUND CABLE FAULT

ABSTRACT

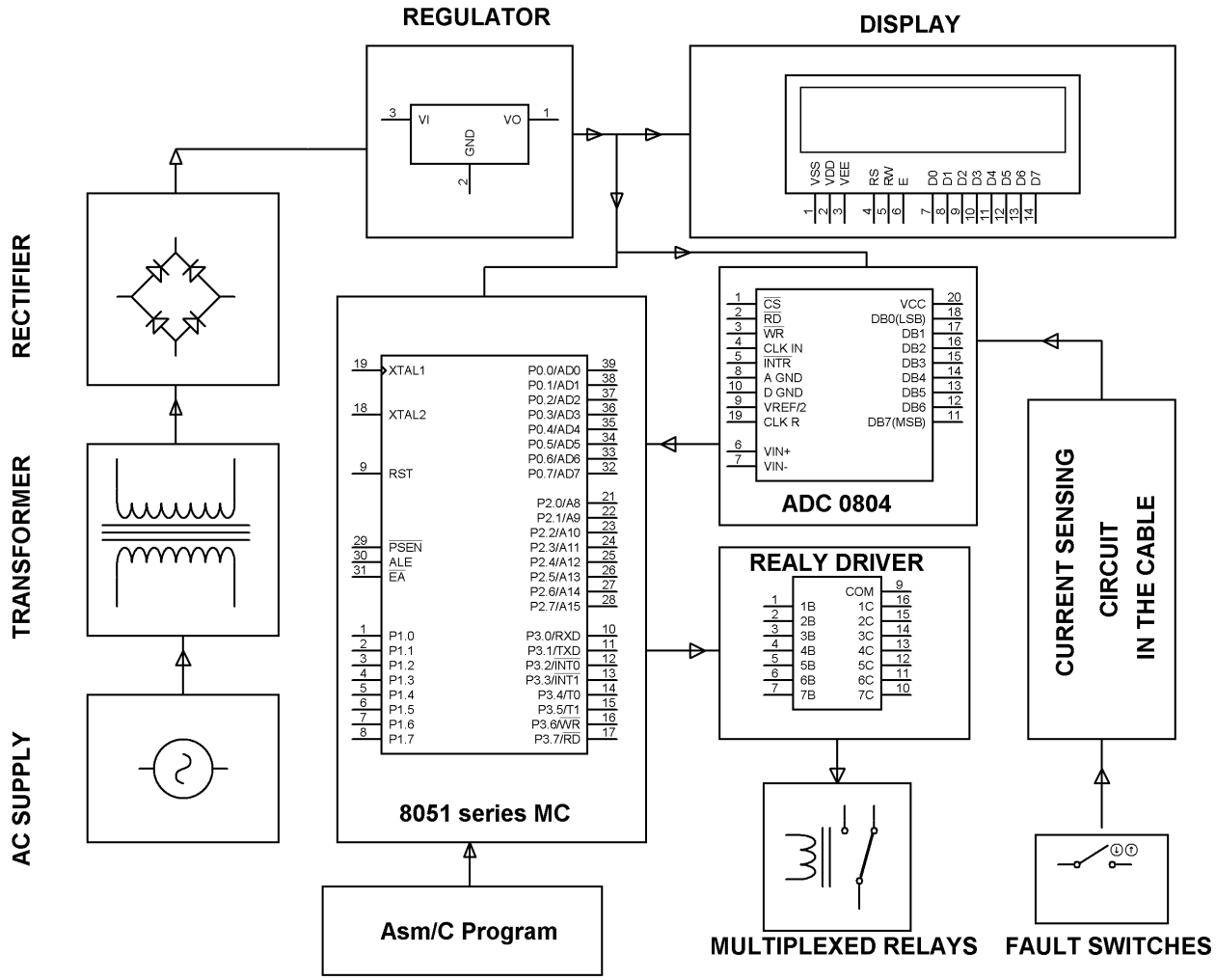
The objective of this project is to determine the distance of underground cable fault from base station in kilometers. The underground cable system is a common practice followed in many urban areas. While a fault occurs for some reason, at that time the repairing process related to that particular cable is difficult due to not knowing the exact location of the cable fault. The proposed system is to find the exact 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 ADC to develop precise digital data which the programmed microcontroller of 8051 family would display in kilometers.

The project is assembled with a set of resistors representing cable length in KM's and fault creation is made by a set of switches at every known KM to cross check the accuracy of the same. The fault occurring at a particular distance and the respective phase is displayed on a LCD interfaced to the microcontroller.

Further this project can be enhanced by using capacitor in an ac circuit to measure the impedance which can even locate the open circuited cable, unlike the short circuited fault only using resistors in DC circuit as followed in the above proposed project.

BLOCK DIAGRAM:



HARDWARE REQUIREMENTS:

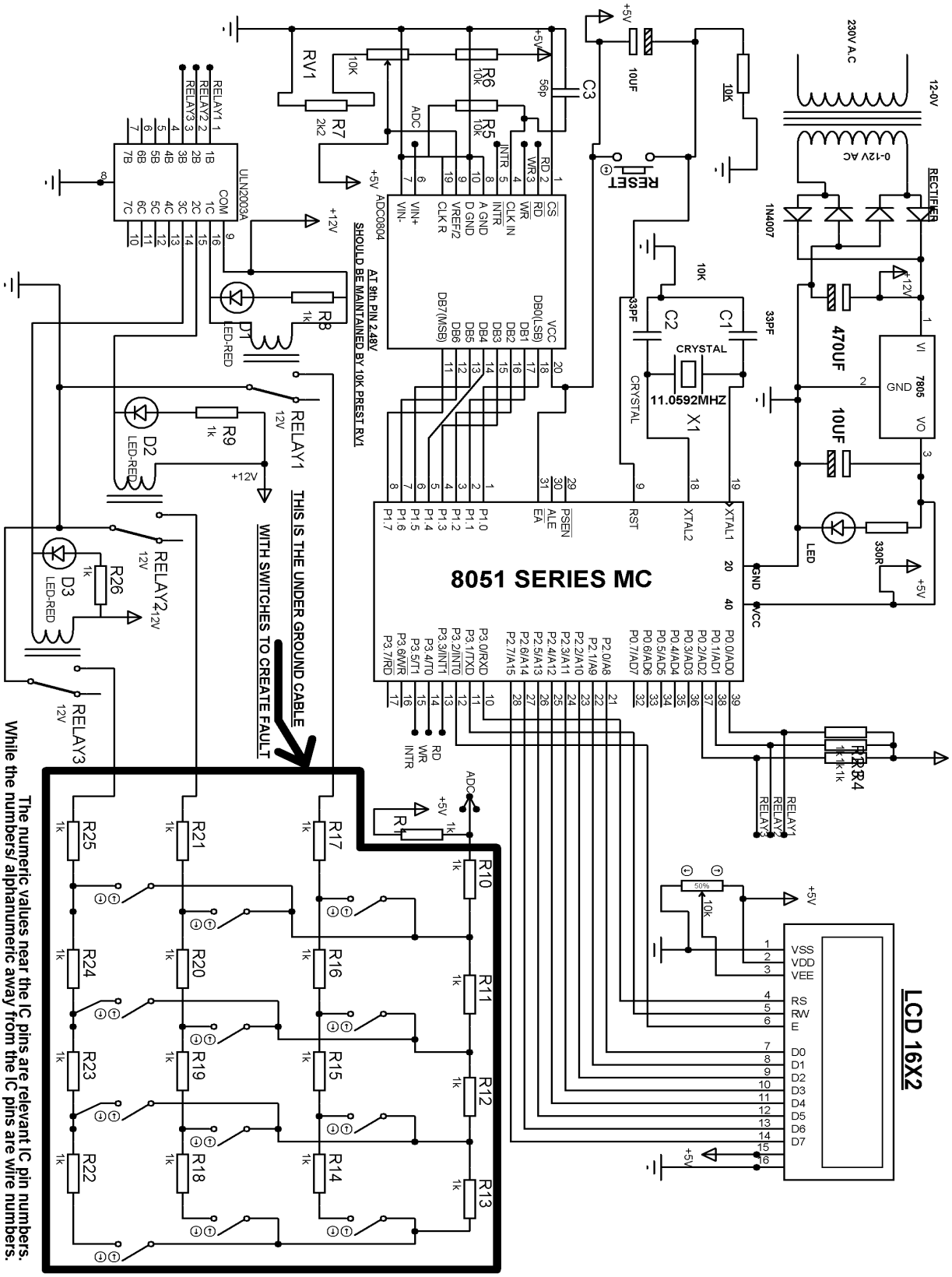
8051 series Microcontroller, LCD, Crystal, ADC, Relays, Relay Driver IC, Transformer, Diodes, Voltage Regulator, Resistors, Capacitors, LEDs, slide switches.

SOFTWARE REQUIREMENTS:

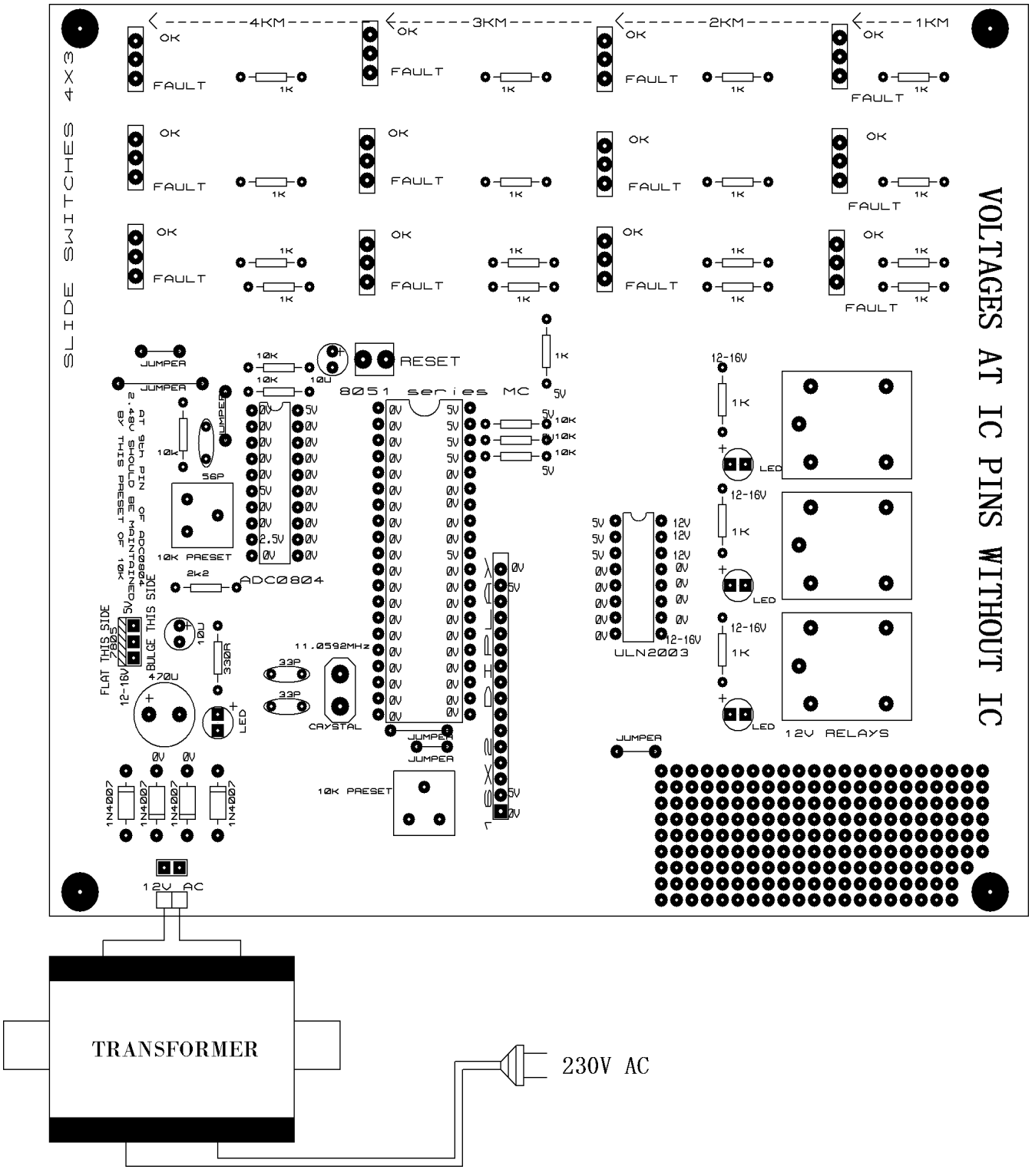
Keil Compiler

Language: Embedded C or Assembly.

Circuit diagram



PCB artwork



Component Name	Quantity	Checked
Resistors		
1K	20	
10K	6	
2.2K	1	
330R	1	
10K PRESET	2	
Capacitors		
33pF Ceramic	2	
56pF Ceramic	1	
10uF/63V	2	
470uF/35V	1	
Integrated Circuits		
AT89S52	1	
ADC0804	1	
ULN2003	1	
7805	1	
IC BASES		
40 PIN BASE	1	
20 PIN BASE	1	
16 PIN BASE	1	
Diodes		
LED-RED	4	
1N4007	4	
Miscellaneous		
12V RELAY	3	
CRYSTAL 11.0592MHz	1	
2-PIN PUSH BUTTON	1	
SLIDE SWITCH	12	
LCD 16X2	1	
FEMALE BURGE 16-PIN	1	
MALE BURGE 16-PIN (INCLUDED IN LCD)	1	
FEMALE BURGE 2-PIN (For Transformer)	1	
MALE BURGE 2-PIN	1	
TRANSFORMER 0-12V	1	
POWER CORD	1	
HEAT SINK	1	
SCREW NUT FOR HEAT-SINK	1	
ASSEMBLED PCB (WORKING)	1	
PLAIN PCB	1	

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We will mail you within 24hours from the time you mail us.

Name of the student & phone number

PROJECT NAME

Group member1 Group member 3

Group member 2 Group member 4

Group member 5

College name Branch

Note to make your kit /project

You need basic knowledge & logic of components /soldering /disordering /breadboard circuiting/PCB designing/etching.

1. You can download the projects from our website makeitortakeit.in and get started to build one, we help you with the basics of know & how.
2. You can purchase the complete do it yourself kit & assemble it.
3. At the last moment, If you are short on time /if your project is not giving output!!!!!! Readymade project kit is available.
4. **Training (optional)** available if you want us to help u in your projects, it includes.
    - 7 sessions, (timing mutually decided).
    - hands on training on breadboard circuiting ,soldering,desoldering,pcb making ,how to use instruments
    - Stepwise guidance you build your project right from the scratch **.
    - complete documentation/references(hard & soft copy)
    - Plotting and Implementing Scale Model.
    - Troubleshooting.
    - Programming of Controllers
    - PCB Software tool, Hardware Cutting, Drilling and Etching