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IVRS for Three Phase Motor Control using GSM with Android Application

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Abstract-Some wise scientist once said that control system is a system where we can shut down the machine whenever we want. That's the difference between controlled and uncontrolled machine. Our project is about make this control system efficient and dynamic. As the name suggest control is for controlling the motor from remote place, look over its operating conditions, and get feedback from the motor itself. Our target is to control the motor from distant place by mobile DTMF tone and also get feedback by SMS while it is in ON or OFF condition. It will also detect the fault if any like dry run, under voltage, SPP, over voltage, etc. We are also operating the motor using Android Application. We also ensure the safe operation of the motor by detecting the voltage of the source and ensure feedback from system while it is over or under voltage. GSM network is everywhere in our country that's why we choose GSM network to operate our motor also transferring feedback information through it. We also use GSM network because if we use it then we don't need to establish extra equipment for networking.

Keywords-Interactive Voice Response System (IVRS); Global Systems for Mobile Communication (GSM); dual Tone Multiple Frequency (DTMF) ; Short Message Service (SMS) ; Sequential Phase Protection (SPP).

I.INTRODUCTION

This Project is a very good example of embedded system as all its operations are controlled by intelligent Software inside the microcontroller. The aim of this project is to control i.e. to ON/OFF, control different motors , the electrical or electronic appliances connected to this system from anywhere in the world .For this purpose user can use any type of Mobile. This way it overcomes the limited range of infrared and radio remote controls. Using the convenience of SMS, this project lets you remotely control equipment by sending plain text messages, and also the motor can be control using Android Application. In a similar vein to email, messages are stored and forwarded at an SMS centre, allowing messages to be retrieved later if you are not immediately available to receive them. Motor can be control by voice call and SMS only by entering the password. It will provide the information in the regional language so that any ordinary person can handle that system. It displays the fault occurred in the system through LED's and accordingly send the SMS to the registered numbers.

II.EXISTING SYSTEM

2.1. GSM Based Motor Monitoring and Speed Control-

In this paper, the design aspects of an embedded device which can control up to 8 devices by sending a specific SMS message from a mobile phone are presented. This controller is extremely handy at places wherewe have to control the ON and OFF switching of the devices but no wired connection to that place is available.To implement this, a GSM modem is connected to a programmed microcontroller which would receive the SMS from a reference cell phone .The control signal part of the received SMS is extracted and is changed to microcontroller-preferred format. A PC which is connected to the microcontroller using a serialcommunication through RS232 can be used for monitoring and transmission of the control signals to themodem. The monitoring is also done by interfacing a LCD to the microcontroller AT commands were used for controlling the functionality of modem's (Global Systems for MobileCommunication) is vastly used because of its simplicity in both transmitter and receiver design, can operate at 900 or 1800MHZ band, faster, more reliable and globally network. Here the system is capable of controlling the motor by receiving control message from an authorized mobile number. Microcontroller is the heart of this system, which controls the overall operation of this system. System is always alert for receiving SMS from valid number and that message can be displayed on the LCD (Liquid Crystal Display). In the project work undertaken, GSM technology based automatic control system is designed to monitor and control speed of an Induction motor/DC motor and also performs necessary operation like start, stop, reverse the rotation ext.[1]

2.2 GSM Based Device Control-

These system will be operated through a voice call such that by pressing a key the motor will become on and off accordingly. The system will also send the SMS to the user giving the present status of the motor. The advances in the technologies related to wireless communication has led to the emergence of severalengineering designs to aid the human requirements. As all know Agriculture play a significant role in developing country like India and implementing mobile communication for facilitating farmers is the basic idea of this project. Thus with the creeping interests in the wireless and GSM based projects, they came up with this idea of developing a simpler, multipurpose, cost-effective design to control the on-off mechanism of various devices in the field via short message service(sms). [4]

III.PROPOSED SYSTEM

3.1 Working

The signal conditioning block is use to make voltage within the positive range which can be read by the ADC which is in microcontroller. The SPDT relay is used as a switch, to ON/OFF the motor. The microcontroller continuously monitor the RYB phase and if voltage is under, over voltage or not within the range then it will OFF the motor & send the corresponding message to user through GSM modem. LED's are used for corresponding indication like dry run, SPP, power on, etc. aP89170 is used for sound recording(clip).

3.2 Block Diagram

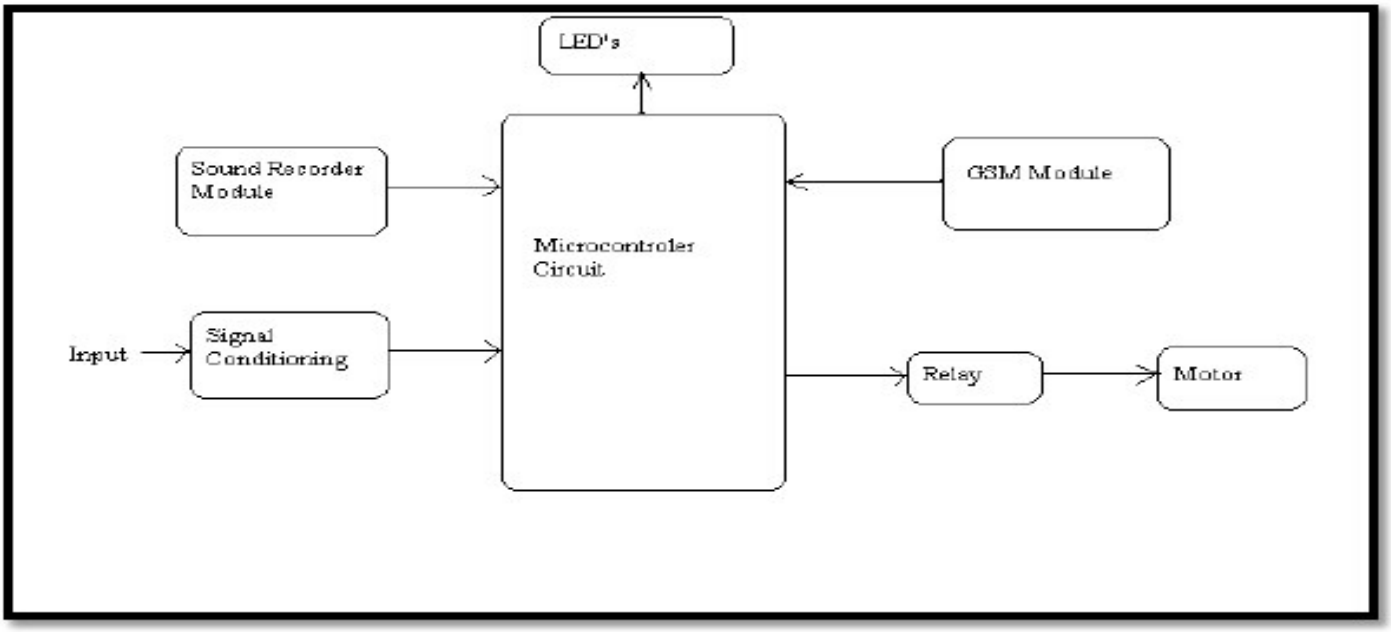

Figure 1.Block Diagram

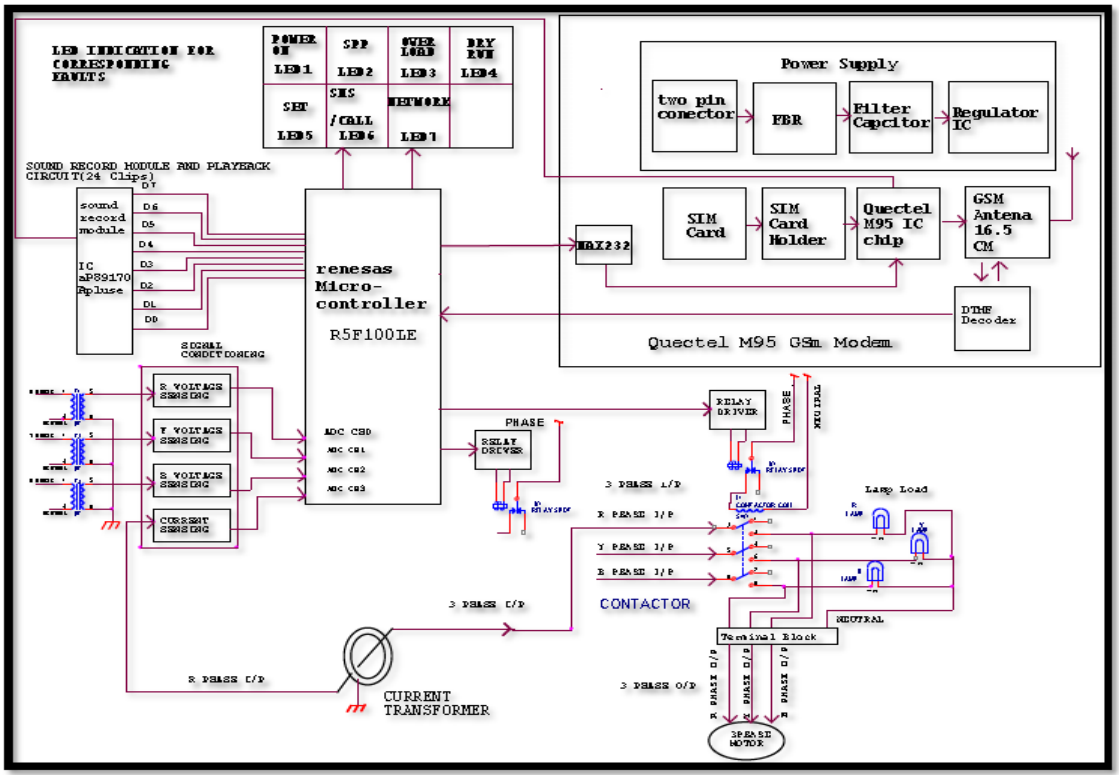

Figure 2. Circuit Diagram

III.FUTURE SCOPE

- The project has been developed by considering the future need of the requirement.
- The present model of the project can be used for the small Motor.
- The system can be made battery operated.
- The system programming can be made simple.
- We can add LCD display to display the Parameter.

IV.CONCLUSION

Design such a project and implement it, we gather great practical experience. We tried to implement ourtheoretical knowledge successfully. This course teaches us about the far difference between theoretical and practical knowledge. This project increases our ability to work as a group and it helps us in future life. But we face severalproblems because of unavailability of quality goods, technical support and inexperience. Despite that weenjoyed our work very much and successfully finished that work in perfection. In this dynamic world motor isthe most convenient and useful tool in industry. Large rated motor required flexible control and protection. We hope our project can bring dynamic change in our industrial level motor controlling system.

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