Android Application For Single Phase Motor Control Using IVRS & GSM System.

Prof. U.R. Patole(M-Tech), Mr. Maheshkumar M. Jangid**,** Mr. Rahul P. Matere, Mr. Jayesh D. Patil,Mr. Rohit K. Vadnere & Mr. Jitendra S. More

[1]*Assistant Professor, Computer Department,S.V.I.T Chincholi,Nashik,Maharashatra,India.*
[2,3,4,5,6] *BE Student, Computer Department,S.V.I.T Chincholi,Nashik,Maharashatra,India.*

ABSTRACT

To manage the motor from some large distance mobile IVRS and conjointly get feedback by SMS whereas it's in ON or OFF co-ordinate. This is a very classy example of embedded system as all its operations are controlled by clever software inside the microcontroller. This ensure good operation of the motor by detecting the voltage of the source and get feedback from system while it is over or under voltage And Fault Tolerance also get detected. Remote control systems are a very useful way to control and monitor devices rapidly and effortlessly. This paper keeps in front of us a new architecture for remote control of farming devices and provides security to the irrigation through Android application. Proposed system makes use of latest android technologies which allow remote control of the agricultural motor, pesticides thereby making a farmer's work much clear and less dependent of the conditions of weather. As outcome of this paper an Android application running on a smart phone having android operating system, connected to the server via GSM .

Keyword : - *GSM Modem, IVR , Single phase motor, Sensor*

1.Introduction

The aim of this project is to control i.e. to ON/OFF control of 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, such as "abcdn1", "abcdnaf3","abcdf57n142'-all of which can be pre-programmed into the controller and easily remembered later.

Short Message service(SMS) is defined as a text-based service. That enables up to 160 characters to be sent from one mobile phone to another. 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. Unlike voice calls, SMS messages travel over the mobile network's low-speed control channel. "Texting', as its also known, is a fast and convenient way of communicating. In fact, SMS has taken on a life of it's own, spawning a whole new shorthand language that's rapidly many industries have been quick to make use of this technology, with millions of handsets currently in use. As new models with "must have" features hit the market, older models become virtually worthless and if not recycled, end up in land. With this in mind, we've designed the project to work with Quectel M95 GSM modem.

The unit can be installed at all places where controlling is needed for signal phase motor. It will and measure. The controller displays the fault occurred in the system though LED's and accordingly send the SMS to the

registered numbers, so that the user will be aware of the current status motor. Also the system will be providing the information in the regional language so that any ordinary person can handle that system.

2. Literature Survey

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 where we 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 micro controller which would receive the SMS from a reference cell phone .The control signal part of the received SMS is extracted and is changed to micro controller-preferred format. A PC which is connected to the micro controller using a serial communication through RS232 can be used for monitoring and transmission of the control signals to the modem.

The monitoring is also done by interfacing a LCD to the micro controller AT commands were used for controlling the functionality of modems (Global Systems for Mobile Communication) is vastly used because of its simplicity in both transmitter and receiver design, can operate at 900 or 1800 MHZ 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. Micro controller 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.

3. System Design

3.1 Architecture

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). 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 worlds number one micro controller supplier and manufacturer Here we have used Renesas -Microcontroller for monitoring the different parameters and making decision. The RENESAS MCU is True Low Power Platform (as low as 66 A/MHz, and 0.57 A for RTC +LVD),Supply voltage is 1.6 V to 5.5 V operation, 16 to 512 Kbyte Flash, 41 DMIPS at 32 MHz, for General Purpose Applications.

3.2 Modules

A. Motor Status Module-

Whenever the irrigation system of a farmer is working there is a need of a live status of running system because in case whatever fault is happens or motor is shutdown because of some reasons or voltage is recently increase or there is some difficulty in water level for all that purpose there is a need of live status through this module a farmer can get all the kind of information regarding his motor and by using this information farmer can

take a necessary action so the reliability of a system can be maintained by using this module. this is the most exclusive module for users point of view because system damage can be prevented by this module.

B. User Setting Module-

We provide user setting in this module .only authorised user can access the irrigation system for this purpose we set the password for the protection of our irrigation system so the unauthorised user can access the system.

C. GSM-SIM Registration Module-

The overall system should be working on GSM i.e. Global System for mobile communication so re we are using this network for our system we need a genuine mobile number to which user is familiar. User need to register his specific mobile number in the system through which he can allow maximum users for using this system that means the register mobile number can allow maximum mobile number to handle the system. there is a need of some kind of encryption for this for security purpose so we are using normal encryption algorithm and create a public key in encryption algorithm so we are set a specific password for user by using this password he can enter in a system so in this way the overall sim registration is done.

3.3 Working:

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 LEDs and accordingly send the SMS to the registered numbers. the design aspects of an embedded device which can control up to 8 devices by sending a specifies SMS message from a mobile phone are presented. This controller is extremely handy at places whenever 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.

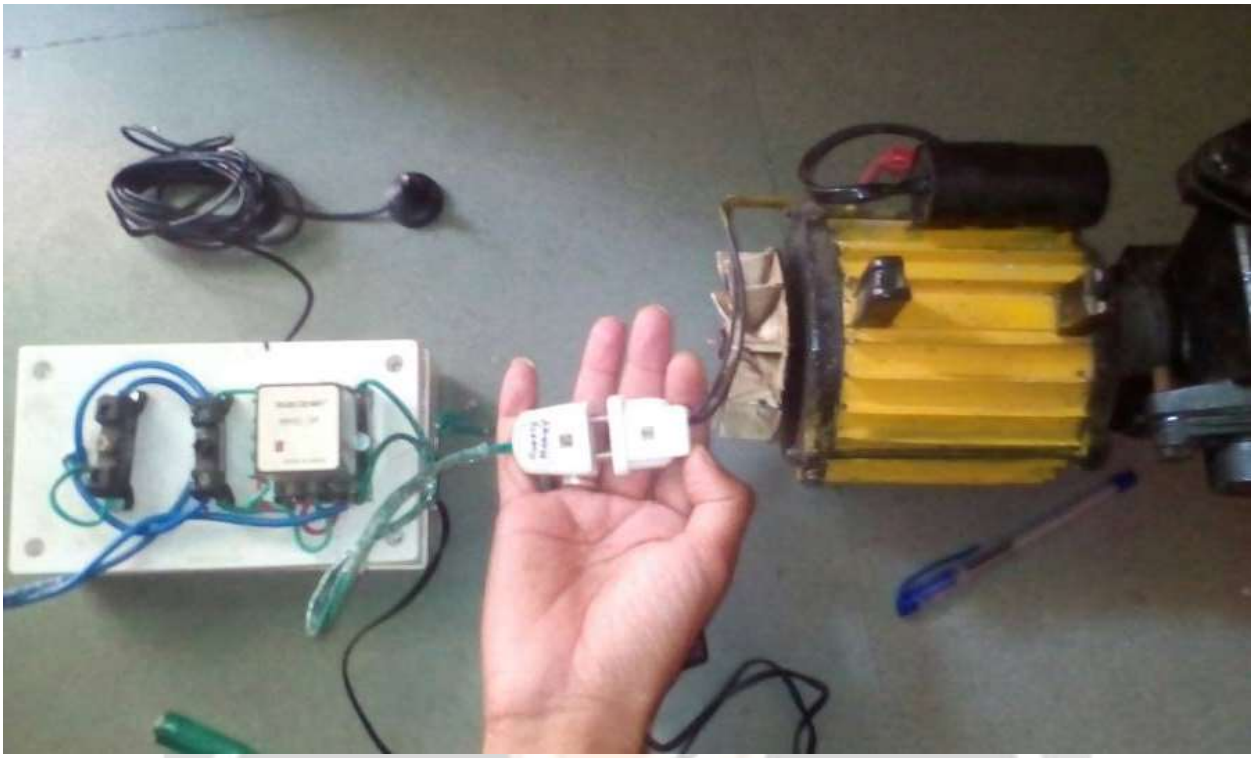

Fig 3.3.1 : Working of single phase motor

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4.Snapshots

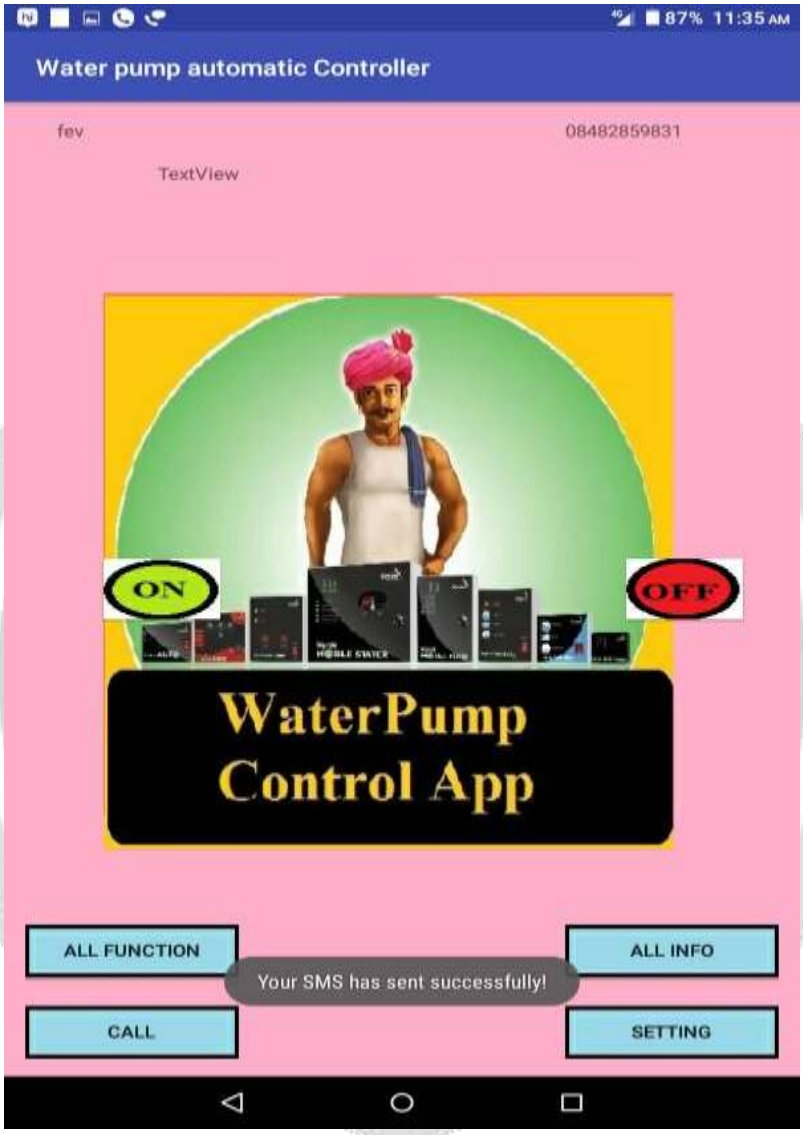

Fig.4.1: Application Front View

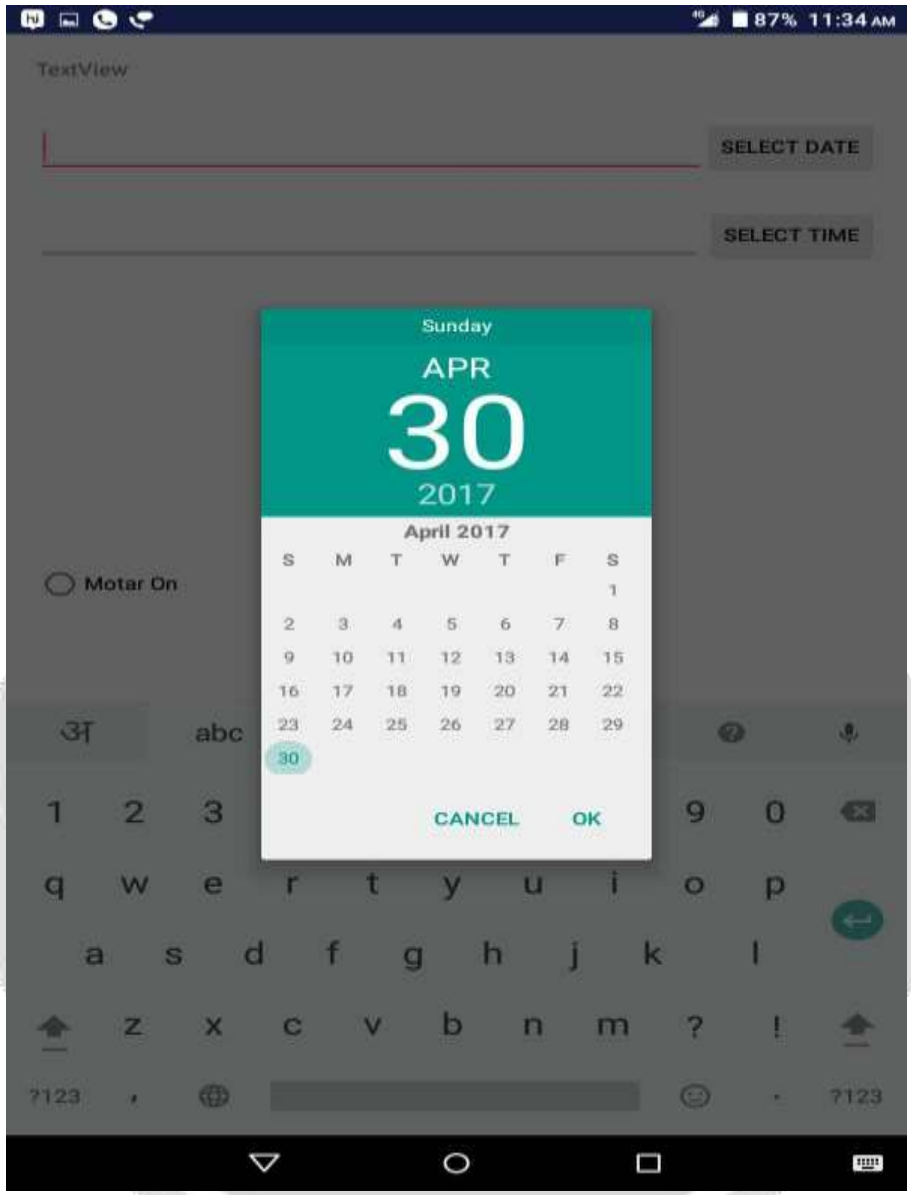

Fig.4.2: Scheduler

5.Conclusion

In this way we have concluded this proposed system is user friendly and easy to handle. This system is easy to handle and gives the fast response to user whenever he needs it. The additional feature is the most easy user interface user can easily handle all the system through his voice he just need give the command through his android smart phone and all system should follow his commands. most preferable feature is the error detection system any kind of error will display on the users smart phone. and also so a voltage level should be managed through the current transformer and potential transformer manages the current and voltage level as per the need of system so through this the percentage of system damage will decreases. Most importantly the connectivity there is no requirement of internet connectivity or with connectivity here this system works on GSM so there is no any problem of connectivity.

6.Future Scope

The system specification shows the description of the function and the performance of system and the user. The scope of our project GSM Based control system is immense. The future implications of the project are very great considering the amount of time and resources it saves. The project we have undertaken can be used as a reference or as a base for realizing a scheme to be implemented in other projects of greater level such as weather forecasting, temperature updates, device synchronization, etc. The project itself can be modified to achieve a complete Home Automation system which will then create a platform for the user to interface between himself and the household.

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