

# Smart Android App for Controlling Single Phase Motor

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**Abstract** - Some intelligent expert 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 suggested the automatic control is for controlling the motor from remote place, look over its operating conditions; get response from the motor itself. Our goal 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. We also ensure the secure operation of the motor by detecting the voltage of the source and ensure feedback from system while it is over or under voltage. Again we also get these feedbacks by SMS as well. 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. To transmit feedback signals we use GSM modem at the motor end also generate control signal by mobile DTMF because it is very easy to produce DTMF by mobile station and send response SMS by Modem as well. In industrial sector we hope our project is become handy and cost effective to operate motor and give its protection.

**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 paper is a very good example of embedded system as all its operations are controlled by intelligent software inside the micro controller. 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 Preprogrammed 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 center,

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 its 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 landfill. With this in mind, we've designed the project to work with Quectel M95 GSM modem.

## II. EXISTING SYSTEM

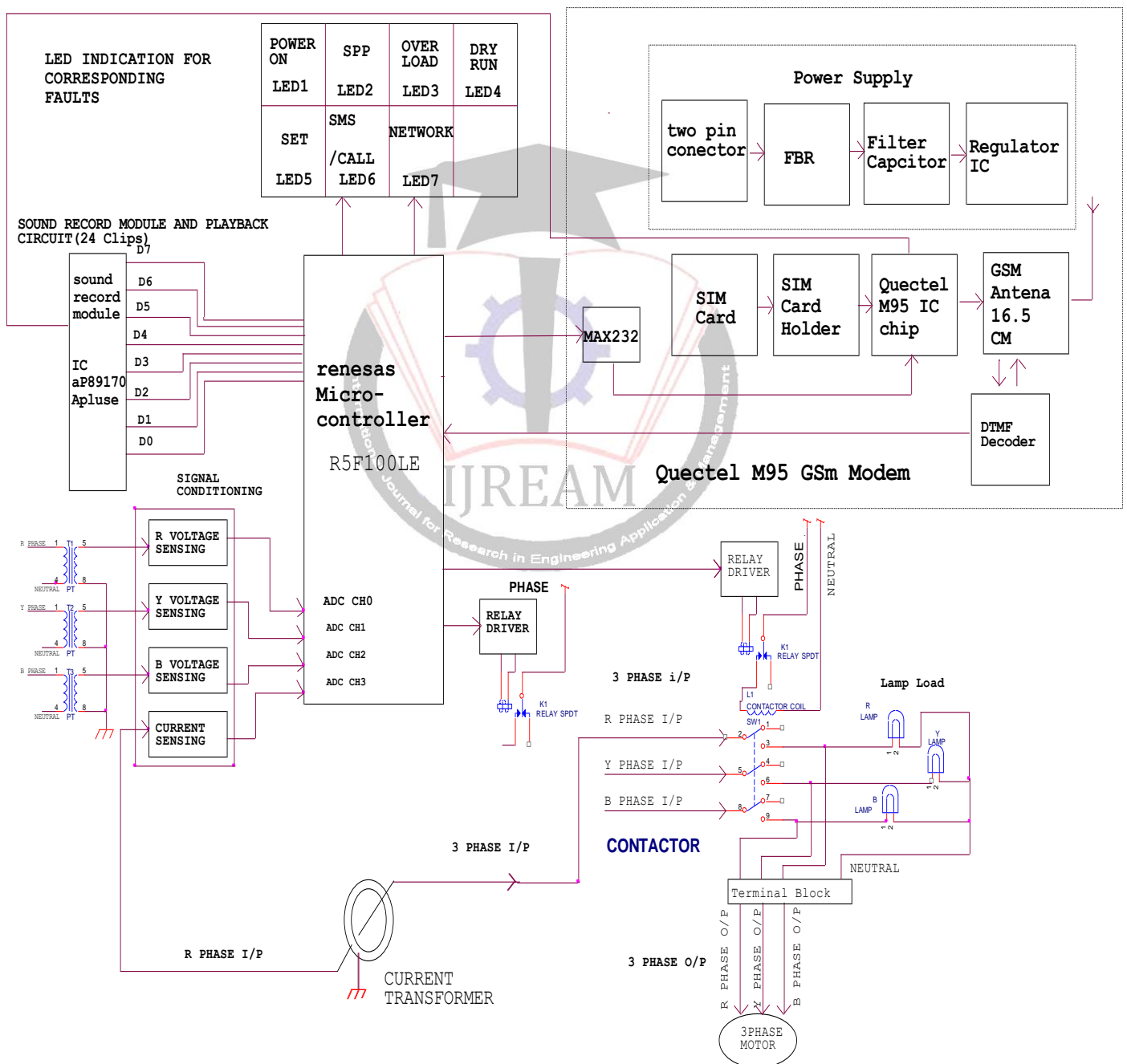
The existing system is used to control i.e. to ON/OFF control of different motors, the electrical or electronic appliances connected to this system from anywhere in the world. For this purpose user can use any type of Mobile.

This way it overcomes the limited range of infrared and radio remote controls. Using the convenience of SMS and Phone calls, this project lets you remotely control equipment by sending text messages and 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 on one mobile phone to another. In fact, SMS has taken on a life of its 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.

### III. PROPOSED SYSTEM

The main objective of project is to reduce the farmer Efforts. Our project is about make this control system efficient and dynamic. As the name suggested the automatic control is for controlling the motor from remote place, look over its operating conditions; 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. 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. Again we also get these feedbacks by SMS as well.

#### IV. SYSTEM DESIGN

System Diagram Description Each Block:-

##### 1. Renesas Micro controller

The RENESAS MCU is True Low Power Platform (as low as 66  $\mu$ A/mHz, and 0.57  $\mu$ 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

##### 2. Max232 IC

Here in this project we have used the Max232 IC But the IC is in SMD Package so it is very small in size due to that it require less space.

The Max232 is used to transmit the Pc data to the Microcontroller 89S52 and also from controller to Pc. It is also used to shift the voltage level low to high a vice-versa.

##### 3. Apluse a89170

This IC is mainly used for the Sound Recording and it is OTP IC that is one time programmable IC. The capacity of this IC to store the Sound Clip is 170sec.

The IC we Are using is DIP Package so it requires more Space as compare to the Maxx232

##### 4. Current Transformer (CT)

This Device is mainly used to monitor the Current .In Our Project we have used the CT with Rating 5Amp - 5Ma. The CT is also used To set the Starting Current of the Motor.

##### 5. GSM Modem

Here we have used the GSM modem of Quectel M95 since it has very Good Range an Accuracy as Compared With sim 300 and sim 900.

We have used the Extended Antenna Which Will help to get the Range in the rural area.

##### 6. Power Supply (440V-0.5A)

According to the Market Survey of the Project we have seen that the same Product present in the Market have Separate Power supply But in our project we have taken the same three Phase Power Supply Which we are giving to the Motor.

##### 7. RELAY

Here we have used the relay to Switch the Motor On off we have used Leone Company relay which operates on 6V DC its Function is SPDT that is single pole Double Throw and it has magnetic coil in it.

#### V. CONCLUSION

Design such a project and implement it, we gather great practical experience. We tried to implement our theoretical 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 several problems because of unavailability of quality goods, technical support and inexperience. Despite that we enjoyed our work very much and successfully finished that work in perfection. In this dynamic world motor is the 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.

#### 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 maximum torque Motor. The system can be made battery operated. The system programming can be made simple. We can add LCD display to display the Parameter.

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