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IMPLEMENTATION OF MULTI-LANGUAGE BASED ANDROID APPLICATION FOR MOTOR CONTROL

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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 need. That's the difference between controlled and uncontrolled system. 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. 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 generate DTMF by mobile station and send feedback 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: DTMF tone, GSM network, SMS.

I. INTRODUCTION

This Project 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 applications connected to this system from anywhere in the world using Android application. For this purpose user can use any type of Mobile. This way it out-brave the limited range of infrared and radio remote controls. Using the vantage of SMS, this project lets you remotely control equipment by sending plain text messages, such as "abcdn1", "abcdnaf3", "abcdf57n142"– all of which can be per-programmed into the controller and easily remembered later.

Short Message Service (SMS) is defined as a text-based service. That enable up to 160 characters to be sent from one mobile phone to another. In a similar vein to e-mail, 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

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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. LITERATURE SURVEY

Prasad S. Kautkar,Kiran S. Kandalkar, Akash R. Raut, Vaibhav N. Baviskar, V. D. Badgujar[1] ”Multi-Language based Android Application for Motor Control”provide requirement analysis and design of algorithms and all object oriented models with respect to proposed system described in this study. Enck, W., Ongtang, M., McDaniel, P. [2], “A Study of Android Application Security” Android is an OS designed for smart phones.Depicted in Figure 1, Android provides a sandboxed application execution environment. A customized embedded Linux system interacts with the phone hardware and an off-processor cellular radio. The Binder middleware and application API runs on top of Linux. To simplify, an application’s only interface to the phone is through these APIs. Each application is executed within a Dalvik Virtual Machine (DVM) running under a unique UNIX uid. The phone comes pre-installed with a selection of system applications, e.g., phone dialer, address book. Applications interact with each other and the phone through different forms of IPC. Intents are typed inter-process messages that are directed to particular applications or systems services, or broadcast to applications subscribing to a particular intent type. Persistent content provider data stores are queried through SQL-like interfaces. Background services provide RPC and callback interfaces that applications use to trigger actions or access data. Finally user interface activities receive named action signals from the system and other applications. Binder acts as a mediation point for all IPC. Access to system resources (e.g., GPS receivers, text messaging, phone services, and the Internet), data (e.g., address books, email) and IPC is governed by permissions assigned at install time. The permissions requested by the application and the permissions required to access the application’s interfaces/data are defined in its manifest file. To simplify, an application is allowed to access a resource or interface if the required permission allows it. Permission assignment and indirectly the security policy for the phone is largely delegated to the phone’s owner: the user is presented a screen listing the permissions an application requests at install time, which they can accept or reject.Skurski and Swiercz [3] propose a control system based on VNC for Symbian OS smartphones. This system was designed to improve application testing systems in mobile devices due to the lack of resources in mobile devices and the high cost of test environments. Also the solution proposed could be used to perform remote configuration.As part of the Android platform exists the Android Debug Bridge (ADB) protocol [4] to provide debug functionality on devices. The platform integrates this protocol and it offers a service of server when is configured on the device.Other aspect to be considered is the remote visualization mechanisms that are useful for achieve a remote display of the devices. The most popular system designed to perform remote control of devices is Virtual Networking Computing [5]. There are a large number of implementations to this solution including applied to Android software stack. It has an open protocol and it is widely deployed in the open source community. This solution adapts very well to provide part of the functionality of the architecture, and it will be studied further.This paper focuses on the control of Android platforms. This is an open platform that allows to use other

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technologies (also open). In addition, Android platform allow the development of new ideas easily and test them with a set of open standards [6].The prototype generated as implementation of the proposed architecture will be provided also as free software. According to data released by Nielsen [7], half of the consumers who recently purchased a smartphone chose an Android smartphone.

III. EXISTING SYSTM

According to these conditions we search a solution of this problem. Then we come across the DAZZLE TECHNOLOGIES model.All induction motors require a starter to start the motor. The starter is used according to the motor ratings. Wireless three phase induction motor device can start the motor from long distance without using wire. This starter works with a mobile device. In this system a mobile works as a signal transmitter and other mobile is signal receiver. The mobile transmitter calls to receiver mobile. The call is automatically received by receiving mobile. When a numeric button is pressed during this time the transmitter mobile send a DTMF signal, this signal is received by receiving mobile and motor is started. And to stop the motor other specified button is pressed and motor get stopped.

Earlier we are looking into the face of future when we are talked about automated devices which could do anything on instigation of a controller, but today it has become a reality. An automated device can replace good amount of human working force. All induction motors requires a starter to starting the motor. The starter is used according to the motor ratings. Wireless three phase induction motor device can start the motor from long distance without using wire. This starter works with a mobile device. In this system a mobile works as a signal transmitter and other mobile is signal receiver. The mobile transmitter calls to receiver mobile. The call is automatically received by receiving mobile. When a numeric button is pressed during this time the transmitter mobile send a DTMF signals, this signals is received by receiving mobile and motor get started. And to stop the motor other specified button is pressed and motor get stopped. This starter has a controlling circuit that enables switching ON and OFF of Triacs. It can be used to switch motor from any distance. This circuit is based on the DTMF controller circuit. DTMF means “Dual tone multiple frequency”. The DTMF signals on mobile are used as control signals.

IV. PROPOSED SYSTEM

Text from your computer and tablet just like on your Smartphone! SMS is synced with your phone and uses your current Android phone number.

After installing Application on Android phone you can Perform Operation like Motor ON/OFF,Voltage HIGH/LOW, To Set Motor Current, To Change Password, To Get Motor Status on Site, To Load Factory Setting

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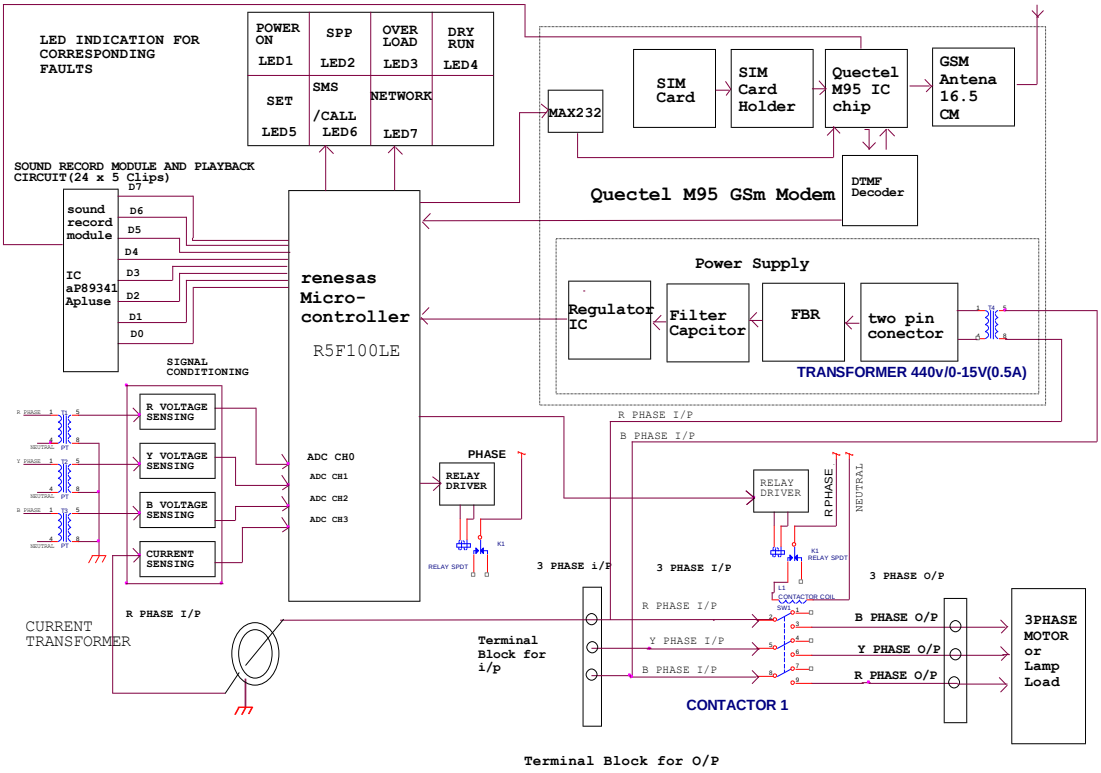
V. BLOCK DIAGRAM



5.1. Renesas Micro Controller

Renesas, the world's 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.

5.2. 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 Micro controller 89S52 and also from controller to Pc.It is also used to shift the voltage level low to high a vise a versa.

5.3.Apluse A89341

This IC is mainly used for the Sound Recording and it is OTP IC that is onetime programmable IC. The capacity of this IC to store the Sound Clip is 170sec.TheIc we Are using is DIP Package So it Requires more Space as compare to theMaxx232.

5.4. Current Transformer CT

This Device is mainly used to monitor the Current .In Our Project We haveused the CT with Rating 5Amp 5mA. The CT is Also used To set the StartingCurrent of the Motor.

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5.5. Gsm Modem

Here we have used the GSM modem of Quectel M95 since it has very good rangeanaccuracyas compared with sim 300 and sim 900. We have used the Extended Antenna which will help to get the Range in the rural area.

5.6. Power Supply (440v-0.5a)

According to the market surveys of the Project We have seen that the same product present in the market have separate power supply but in our project wehave taken the same three Phase Power Supply which we are giving to the motor.

VI. WORKING

MOTOR CONTROL VIA CALL

The MICROSTART GSM CONTROLLER has inbuilt Interactive Voice Response System (IVRS) controlled start/stop and remote monitoring. User can control the motor by voice call to the controller only by entering the password. While the call is on the motor starts if users presses 1 on his mobile, likewise stops if 3 is pressed, SMS of present state is received if 3 is pressed and a present status/condition of the motor can be heard if 9 is pressed. Also the user can change the password by pressing 7 and entering new password when asked from the unit.

MOTOR CONTROL VIA SMS

The Motor can be Started/Stopped by sending SMS through any mobile with the commands mentioned below having user settable password protection. If any fault occurs to the motor, controller will send SMS to the registered numbers in the unit. If any fault occurs the controller will send an SMS which contains current fault status to 3 mobile numbers stored in the Controller. The control SMS are as below.

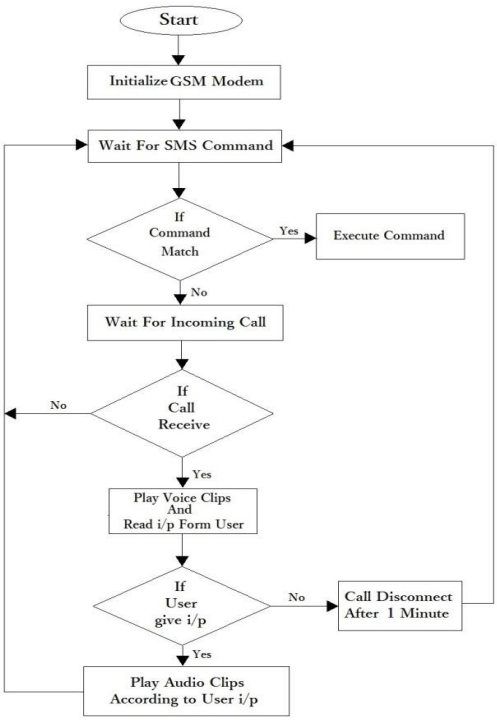

Fig.1: Flowchart of working of given system.

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VII. RESULTS AND DISCUSSION

The result of this project is that the Suitable for three phase pumps up to 25HP, Its available in 3 languages like Marathi/Hindi/English, It Can be operated in 3 modes such as GSM/AUTO/MANUAL as well as Can get Live Motor operation Status available via SMS as Motor ON/OFF status, Live Fault, phase voltages and current drawn per phase.

VIII. 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.

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