Quectel M-95 Gsm Modem Software Testing With Device Control

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Abstract: **The main objective for designing the project is that to develop user friendly testing software. That's benefits minimum time required for testing Quectel M95 GSM modem. Quectel M95 GSM modem use in industrial starter motor which is our company requirement. Quectel M95 GSM Modem because previous GSM series SIM300 &SIM 900 having lot of problem first common problems found in that series. Modem initialization time is very high in SIM300 & SIM 900. It takes approximately 5 to 10 minutes for initialization where Quectel M95 GSM Modem it takes only 1 minutes time for initialization.**

Keywords: GSM, SMS, Quectel M95, Renesas Microcontroller, LEDs, Two Layered PCB board.

I. INTRODUCTION

Some wise scientist once said that control system is a system where we can shut down the machine whenever we want. In control system GSM modem play a very important role. A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves. Like a GSM mobile phone, a GSM modem requires a SIM card from a wireless carrier in order to operate. In industries the GSM based control systems are worked by the Quectel M95 GSM modem. Before manufacturing starter motor its need to test the Quectel M95 GSM modem for better result. This chapter introduces need, motivation for designing Quectel M95 GSM modem. Furthermore, it also explores the report organization.

GSM is a global system for mobile communication GSM is an international digital cellular telecommunication. The GSM standard was released by ETSI (European Standard Telecommunication Standard) back in 1989. The first commercial services were launched in 1991 and after its early introduction in Europe; the standard went global in 1992.

Since then, GSM has become the most widely adopted and fastest-growing digital cellular standard, and it is positioned to become the world's dominant cellular standard.

Today's second-generation GSM networks deliver high quality and secure mobile voice and data services (such as SMS/ Text Messaging) with full roaming capabilities across the world.

The Global System for Mobile Communication (GSM) network is a cellular telecommunication network with a versatile architecture complying with the ETSI GSM 900/GSM 1800 standard. Siemen's implementation is the digital cellular mobile communication system D900/1800/1900 that uses the very latest technology to meet every requirement of the standard.

II. LITRATURE SURVEY

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Now a days most likely used GSM modems are SIM 300 and SIM 900 that are triband and quad band GSM modem respectively. Comparing with newier version of GSM modem i.e Quectle M95 GSM modem is compact in size, Ultra low power consumption and extended temperature range.

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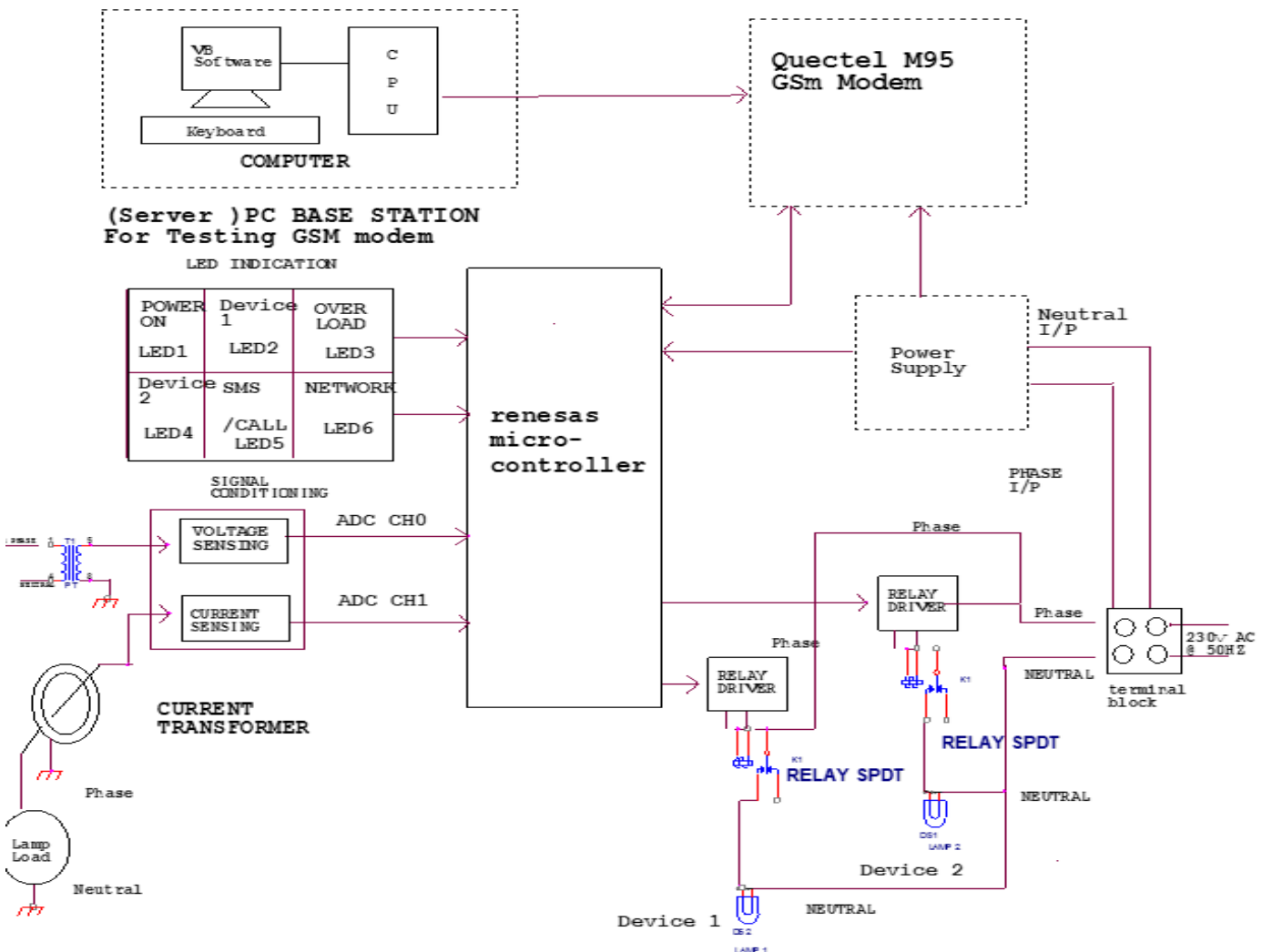
III. SYSTEM ARCHITECTURE

Fig. 1 System Architecture

A. Hardware Description

a) Renesas Micro controller

The RENESAS MCU is True Low Power Platform (as low as 66 μa/mhz, and 0.57 μa 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.

b) LED indication

(a) Power ON/OFF
When external power supply to controller green led will glow and it is show power is given to unit.

(b) OL (RED): Over Load Fault.
When current is flowing from circuit beyond settable range this led will glow.

(c) SMS/CALL(RED): Communication Indication
When user call or sending SMS to unit this led will automatically ON.

(d) NETWORK(RED): Network Indication
When SIM card detect and mobile tower range is there this led will glow.

c) Max232 IC:-

Max232 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 and also from controller to Pc. It is also used to shift the voltage level low to high a vise a versa.

d) Current Transformer (CT):-

This Device is mainly used to monitor the Current .The CT is used To set the Starting Current of the Motor.

e) GSM Modem

The GSM modem of Quectel M95used Since it Has very Good Range an Accuracy As compared With SIM 300 and SIM 900.

f) Power Supply (440V-0.5A)

When we give single phase supply to GSM base controller for external power green led will glow and it is show power is given to unit.

g) Relay

Here we have used the relay to Switch the Motor On an 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.

IV. RESULT ANALYSIS

A. Design of quectel m95 GSM

Fig. 2 Design of quectel m95 GSM

There is a starter motor connected to pcb board. When the user will switch off the connection manually the motor will be off and led will not glow.
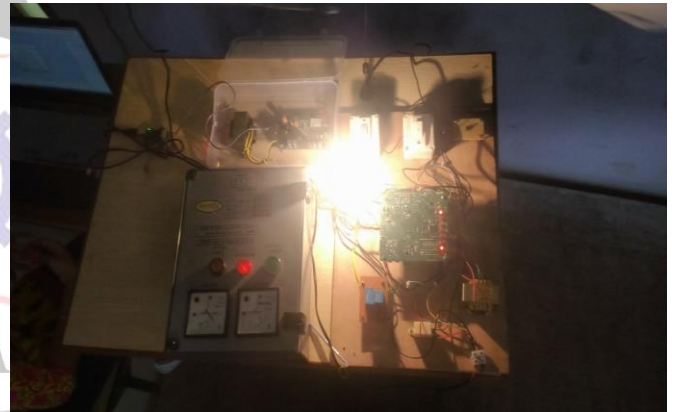
B. Output of quectel m95 GSM modem

Fig. 3 Output of quectel m95 GSM modem

When the user will turn on the motor through commands then the led will glow.

C. Serial port connection

Fig:4 serial port connection

The PCB board is used for serial port connection and the Quectel m95 gsm modem is used for message send and receive.

D. PCB Board

Fig. 4 PCB Board

The PCB board consist of leds and the leds will glow when the motor is on. There is a step down transformer of 9V.

E. Starter Motor

Fig. 6 Starter Motor

Starter motor has voltage 230V. The motor is used to start the 3 phase single phase or 3 phase motor.

V. CONCLUSION

Here we have implemented the product to test the unit on single phase and 3 phase motor. Quectel M95 modem is used on PCB board for sending and receiving message.

Some wise scientist once said that control system is a system where we can shut down the machine whenever we want. In control system GSM modem play a very important role. Various aspects related to our course of study as well as practical knowledge of electronic equipment's and communication. We became familiar with software analysis, designing, implementation, testing and maintenance concerned with our paper.

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