

# Implementation of GSM Technology For Billing And Home Security Applications

*1.NR Ngarjuna Reddy,Ph.D Student,2.Dr,Santh CM,Professor,  
1.Department of CSE,KLUniversity,Vijayawada,India.  
2.Department of CSE,SPCE,Bangalore,India.  
nrnagarjunareddy@gmail.com*

*Abstract: The innovation of e-metering (Electronic Metering) has experienced quick mechanical headways and there is expanded interest for a dependable and effective Automatic Meter Reading (AMR) framework. This paper displays the outline of a basic minimal effort remote GSM vitality meter and its related web interface, for robotizing charging and dealing with the gathered information comprehensively. The proposed framework replaces conventional meter perusing strategies and empowers remote access of existing vitality meter by the vitality supplier. Likewise they can screen the meter readings consistently without the individual going by every house. A GSM based remote correspondence module is incorporated with electronic vitality meter of every substance to have remote access over the utilization of power. In this framework the vitality meter perusing will be send to the client with specific interims. Notwithstanding this procedure, the client can switch on or off the gadget from anyplace through sms, additionally this framework gives security, it contains gas sensor and smoke sensor at whatever point any smoke or fire identified quickly it sends ready messages for gas spillage and fire discovery to the comparing individual utilizing Global System for Mobile Communication.*

*Keywords :- Energy meter, Smoke sensor, Fire sensor, GSM, SPDT hand-off*

## I.INTRODUCTION

Electrical force has ended up basic to human survival and advancement. Aside from endeavors to take care of developing demand, robotization in the vitality appropriation is additionally important to upgrade individuals' life standard. Customary meter perusing by human administrator is wasteful to meet the future private advancement needs. So there is expanded interest for Automatic Meter Reading (AMR) frameworks which gathers meter readings electronically, and its application is extending over modern, business and utility environment. Electronic utility meters are a vital step towards computerizing the utility metering process. Computerized utility meters have numerous new elements that lessen the expense of utilities to clients and the expense of conveying utilities to the utility supplier. The onset of country zap gives chances to new and more effective metering innovations to be actualized. Customary electro-mechanical meters, still broadly utilized today, are inclined to float and mechanical nature of the parts in these meters. Accumulation of meter readings is additionally wasteful, in light of the fact that a meter peruser needs to physically be nearby to take the readings. This strategy for gathering of meter readings turns out to be more risky and immoderate when readings must be gathered from immense, and regularly scattered country ranges. Meter perusers are hesitant to endeavor to go to such regions and will frequently submit mistaken units at the highest point of high structures and extravagance lodging plots, conventional meter perusing is exceptionally wasteful. There exists chance for missing bills, nonappearance of buyer and so on. Despite the fact that these customary meters were supplanted with more proficient electronic vitality meters these issues still continues. So a framework which will give the bill in clients versatile will be more appropriate in the present situation. Here another strategy for post paid electronic vitality metering is presented in this paper which will naturally sense

the utilized vitality, records these perusing persistently, then sends it to the charging point through the current GSM system. At long last in the wake of handling the gathered information bill is created utilizing an electronic framework programming and it is send web situated once the information is overhauled, the enrolled clients and power can screen and break down the produced bill of any month by settling down anyplace on the planet.

Presently a days such a variety of commercial enterprises, houses, shopping centers are losing their riches because of short out issue. With a specific end goal to beat the issue this paper additionally contains gas and smoke sensors which gives high security, at whatever point a short out happens or some other spillages, for example, smoke and fire and instantly gives a ready message through a GSM. In this framework the vitality meter perusing will be send to the client with specific interims. Notwithstanding this procedure, the client can switch on or off the gadget from anyplace through sms, additionally this framework gives security by sending ready messages for gas spillage and fire location. All through the paper it gives a high security furthermore we can deal with our energy usage from wherever through our cellular telephone.

## II.PROPOSED WORK

GSM based Home Security comprises ARM System, GSM Module, LCD , SPDT transfer, smoke sensor and Gas sensor. The Energy meter is associated with ARM7 and ready messages will be send through GSM (Global System for Mobile Communication) . The devoted GPIO interfaces can be associated with control circuit for the identification of an assortment of status information. The piece outline of the terminal board is appeared in Figure 1.

At the point when building up an innovation that may supplant one which has been being used for over thirty years, not just the key issue should be tended to, however added

usefulness and answers for different snags displayed by the past innovation should be tended to. Notwithstanding existing meter perusers and different managers need to acknowledge the quality and adequacy of the proposed system. The building test is to build up an item that can serve as remote framework substitution for the metering and charging framework as of now being used. This accentuation that the meter a work in progress needs to work under the old circumstances and perform all the past capacities, additionally have the capacity to extra capacities, without the need of supplanting all meters on the electrical framework all the while.

The created AMR framework comprises of three principle parts: a computerized GSM power meter introduced in each individual shopper unit, transmission office (SMS entryway), and charging server at the vitality supplier side

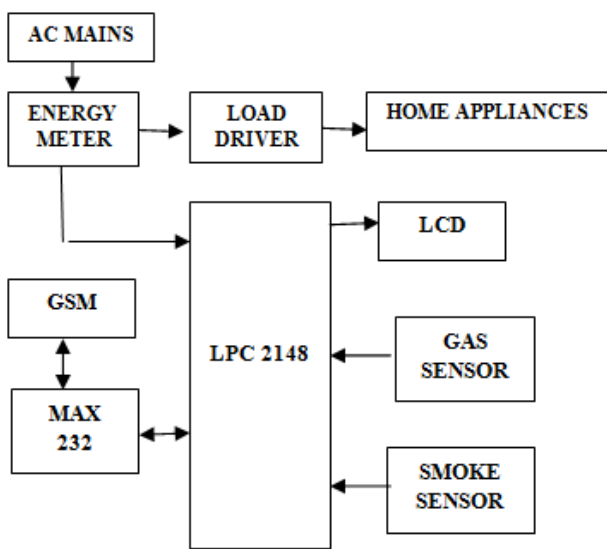


Fig.1 Block Diagram.

2.1. Energy Meter

A few transmission conventions in wired/remote way were acquainted so far with read advanced meters remotely at various regions of India. The Digital watt-hour meters are chip based meters which supplanted customary electromechanical meters.

Tele watt meters were actualized to transmit information on month to month premise to a remote focal office through a devoted phone line and a couple of modems. A chip/DSP-based meter is utilized as a part of this to quantify the power utilization of different clients in a local location. An expert PC at the control focus was utilized to send charges to a remote meter, which thus transmitted information back, utilizing the Power Line Communication (PLC) method. These systems were chiefly executed in territories that had an altered phone system. Bluetooth vitality meters were composed and actualized in a few territories where a few meters in close vicinity, discussed remotely with a Master PC. These are fundamentally intended for low power utilization. As they were working inside a short range (power class-subordinate: 1 meter, 10 meters, 100 meters) this system was not successful and executed just in territories with high populace density. So another methodology of utilizing a vitality estimation strategy that envelops the GSM

system as a mean of transmitting vitality information is more pertinent. The GSM system offers most scope in most created and creating nations. This technique is likewise compelling in rustic zones, which are not thickly populated, and in which, the vast majority don't have admittance to a settled phone system. So in a nation like India we have to concentrate more on this strategy as it can be actualized effortlessly and adequately as appeared in fig 3 & 4

2.2. A lookback at GSM Technology.

An utilized for portable terminals Supporting GSM services. A call from a GSM portable station information exchange paces of up to 9.6 kbit/s, together works in the 900MHz and 1.8GHz groups in Europe and the 1.9GHz and 850MHz groups in the US. The 850MHz band is additionally utilized for GSM and 3G as a part of Australia, Canada and numerous South American nations. By having fit range crosswise over the vast majority of the globe, GSM's worldwide meandering ability permits clients to get to the same administrations when voyaging abroad as at home. This gives shoppers consistent and same on genuine street systems is distinguished. This assessment ought to be especially valuable to specialists and experts in operations research, administration science, calculation of most brief ways is a critical undertaking in numerous system and transportation related investigations. The improvement, computational testing, and proficient usage of most limited way calculations have stayed vital examination subjects inside related teaches, for example, operations.

IV. CONCLUSION

Different electronic meters have been produced are as yet being created. However the utilization of GSM in this specific framework gives various favorable circumstances over techniques that have been beforehand utilized. Information transmission is charged at standard SMS rates, in this way the charges are not taking into account the length of information transmission. The cost proficient transmission of readings guarantees that power utilization qualities can be transmitted all the more much of the time to a remote station. The ramifications of having the capacity to transmit readings all the more regularly are that vitality utilities will have the capacity to create convenient bills, better comprehend vitality request designs, oversee meter disappointments all the more proficiently and oversee misrepresentation better.

The created framework is very compelling in the sense it can wipe out the disadvantage of serial correspondence. i.e despite the fact that it needs affirmation of the sent SMS it is not influencing framework execution. On the off chance that a message is missing then likewise as the framework is tolerating the aggregate quality next time which incorporates the lost substance. Keeping in mind get ready bill the framework is tolerating the most extreme utilization esteem. These executions make the outlined framework special and compelling contrasted with the past proposition.

The framework likewise postures considerably less of a danger since human cooperation has been minimized. The created bill is accessible as SMS at the season of era itself and printed copies are accessible to the shopper as postal mail. A delicate duplicate can be send to the shoppers email if customer is enlisted with his email address .The same thought can be extended to water and gas meter perusing framework by appropriate change. The outlined web

entryway choices can be added to the current site page of any vitality supplier worldwide and it can be facilitated for open.

The framework can be adjusted by utilizing most recent SPI metering ICs which will give more parameters. By utilizing the Microchip three stage IC MCP3909 the same thought can be reached out to three stage frameworks too. Power component change alternatives can be included future. By including an introduction message choice at the season of establishment the meter time can be overhauled from the server. On the off chance that vitality supplier will include online installment alternatives in the facilitated site page, moment installment by the customer from anyplace on the planet is additionally conceivable.

### REFERENCES

- [1] Yujun Bao and Xiaoyan Jiang, "Design of electric Energy Meter for long-distance data information transfers which based upon GPRS", ISA 2009. International Workshop on Intelligent Systems and Applications, 2009.
- [2] H.G.Rodney Tan,C.H. Lee,V.H.Mok,"Automatic power meter reading system using GSM network", The 8<sup>th</sup> International Power Engineering Conference (IPEC 2007).
- [3] Vivek Kumar Sehgal,Nitesh Panda, Nipun Rai Handa, "Electronic Energy Meter with instant billing",UKSim Fourth European Modelling Symposium on Computer Modelling and Simulation.
- [4] Bharath P, Ananth N, Vijetha S, Jyothi Prakash K. V. ,"Wireless automated digital Energy Meter", ICSET 2008.
- [5] P.K. Lee and L.L. Lai, Fieeee, "A practical approach to wireless GPRS on-line power quality monitoring system", Power Engineering Society General Meeting, 2007.
- [6] Subhashis Maitra, "Embedded Energy Meter- A new concept to measure the energy consumed by a consumer and to pay the bill", Power System Technology and IEEE Power India Conference, 2008.
- [7] T El-Djazairy, B J Beggs and I F Stewart, " Investigation of the use of the Global System for Mobile Communications (GSM) network for metering and load management telemetry", Electricity Distribution. Part 1: Contributions. CIRED. 14th International Conference and Exhibition on (IEE Conf. Publ. No. 438).
- [8] Li Kaicheng, Liu Jianfeng, Yue Congyuan, Zhang Ming. "Remote power management and meter-reading system based on ARM microprocessor", Precision Electromagnetic Measurements Digest, 2008. CPEM 2008. Conference on Digital Object Identifier.
- [9] M.P Praveen, "KSEB to introduce SMS-based fault maintenance system", The Hindu News on 26/06/2011, <http://www.hindu.com>.