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# Energy Management using GTBS Sensor Network for Society Automation

Rucha Mehta<sup>1</sup>, Dr. A. N. Gaikwad<sup>2</sup>

<sup>1,2</sup>Department of Electronics & Telecommunication Engineering Zeal College Of Engineering & Research Pune, India

**Abstract:** *we as humans have used technology to make almost everything faster, easier also safer to use than ever before. While there have been extensive use of technology in industry and work place in general, very little has been done towards society automation using internet. Society automation is becoming simple due to its numerous profits. Home automation related to the control of home application and domestic features by local networking or by automatic control. The wireless sensor networks are highly being used to control electric appliances. The work focuses on concept of home application where the monitoring and control operations are facilitating through smart devices installed in residential buildings.*

**Keywords:** VB, GTBS, Temperature sensor, Android Application, WSN

## I. INTRODUCTION

The internet may be an emerging topic in the world but it's not a new concept. It is say that service and personal care wireless mechatronic systems will become more and more easier at home in the near future and will be very helpful in assistive healthcare particularly for the elderly and disabled people [2]. Buildings consume almost 70% of the total electricity generated in the US alone.

Their share of energy utilities is projected to increase even further as compared to residential society, Industry, And transportation. The concept was simple but powerful. If all objects in daily routines were equipped with identifiers and wireless communication, these objects could be communicated with each other and be managed by computers. In a article for the RFID Journal Ashton wrote. Wireless sensor networks (WSNs) have become very important because of their ability to monitor and manage situational information for various intelligent services. Due to those advantages, WSNs has been used in many fields, such as the military, industry, environmental monitoring, and healthcare [3][5].

### A. Problem Statement

Automation is the use of various control system for operating different equipment. The biggest benefit of automation is that it saves labor, and also it is very useful in saving energy and materials and to improve quality. Society automation systems face four main challenges; these are high cost of user, inflexibility and difficulty in achieving security. The main motto of his work is to design and build a society automation system using internet that is capable of controlling and monitoring most of the society appliances through an easy manageable web interface. The proposed system has a great use, by using internet technology interconnect its distributed sensors to society automation server.

## II. LITERATURE REVIEW

Analysts estimate that 50 billion devices will get connected to the wifi by 2020. In this use of Internet users, things and cloud services connect using the Internet graphs to enable new use cases and new industry models across multiple users and appliances For home electrical applications in real time smart sensor monitoring and controlling the system is designed and developed in this paper. In this the electrical parameters of household application such as current and power are monitored and by considering this the consumed power Is calculated.

The society Automation system that uses internet technology System consists of three main components; web server, which presents software core that controls, and monitor home and hardware mount which provides appropriate mounting to sensors and actuator of home automation system. The paper was designs smart society network explain and standard practices for demand response and load management Smart sensor Energy applications needed in a smart energy based residential or light Commercial effect They introduced the proposed society energy control systems design that provides helpful services for users and demonstrate its implementation using a real tested.

### III. PROPOSED METHODOLOGY

In this system using rf modem it is possible to collect and analyze new data faster and more accurately. Sensor is a device which detects, measures and records the signal or the data and send to the processor.

#### A. Building Section

Below blocks for society section RFID reader: The user has to show the RFID tag to RFID reader. the  $\mu$ c reads the 10 digit RFID number and compares it with the database stored in internal memory. If password is going to match then access is granted ,if not match it indication is given to pc via rf communication.

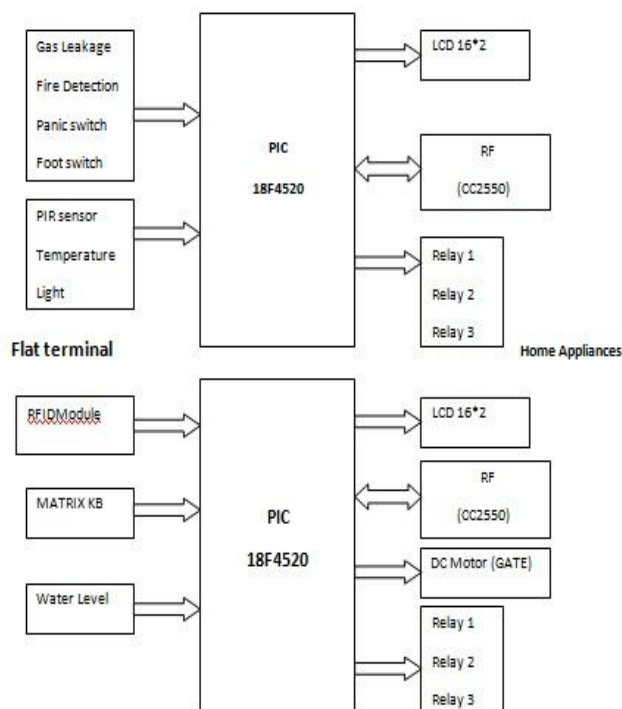


Figure 1: Block diagram of Society Automation system

#### B. Temperature Sensor

Temperature sensor is used to measure the body temperature of a patient. We can measure temperature more accurately than a using a thermistor. The LM35 generates a higher output voltage than thermocouples and may not require that the output voltage be amplified. The LM35 series are precision integrated-circuit temperature sensors, whose output voltage is linearly proportional to the Celsius temperature. The LM35 is operates at  $-55^{\circ}$  to  $+120^{\circ}\text{C}$ .

Features of LM35 Temperature Sensor:

- 1) Calibrated directly in  $^{\circ}$  Celsius (Centigrade)
- 2) Suitable for remote applications
- 3) Low cost due to wafer-level trimming
- 4) Low self-heating,
- 5)  $\pm 1/4^{\circ}\text{C}$  of typical nonlinearity

#### C. Flat Section

FIRE -FOR DETECTING ANY FIRE IN THE FLAT  
 GAS - FOR DETECTING ANY GAS LEAKAGE  
 FOOT S/W- FOR INTRUDER ALERT  
 PANIC S/W-FOR INHOUSE PATIENT

#### D. Rf Modem

RF Modem is a transceiver module which provides easy to use RF communication at 2.4 GHz. It can be used to transmit and receive data at multiple baud rates from any standard CMOS/TTL source. This module is a direct line in replacement for your serial communication it requires no extra hardware and no extra coding to turn your wired communication into wireless one. It works in

Half Duplex mode i.e. it provides communication in both directions, but only one direction at same time (not simultaneously). This switching from receiver to transmitter mode is done automatically.

1) *Applications*

- a) Wireless Sensor Network.
- b) Wireless Device Control.
- c) Wireless Data Transfer.
- d) Home Automation.
- e) Robotics.

E. *Wsn Protocol*

Here we are reconfiguring the wsn using rf. here we are considering 1 master and 2 slaves structure. in this network the master will continuously scan for both the slaves. If both are in range it will gather the data directly from slaves. but if any of the slaves going out of range of receiver then the master will reconfigure the network and read the data using an intermediate slave as repeater to receive the data. (Co-operative communication) using nearest neighbor protocol the master will find the shortest path to destination

F. *Gtbs Protocol*

Here we are implementing the task based sensing. many applications in wsn have redundant data, which means that the data does not change very fast. a motto is characterized by another parameters that is type of smart sensing for number of smart sensing devices, period of sensing and the intended nodes (nodes required to sense data). So sending the same data again and again results in Wastage of Network energy which in turn reduces network life time. Also we are designing an Android Application through which we can monitor the WSN sensor data on the android mobile. The android device is connected to the WSN via Bluetooth modem. Once the connection is established the Android App will display all the data on the GUI of APP.

G. *Hardware Requirements*

- 1)  $\mu$ C: PIC 18F4520
- 2) Sensors: Gas (MQ6), Fire (Bimetallic strip), Panic / FOOT Switch
- 3) Interface: RF Tans-receiver (CC2550)
- 4) Display: 16\*2 LCD

H. *Software Requirements*

- 1) Embedded C
- 2) MPLAB IDE, HT-PIC Compiler

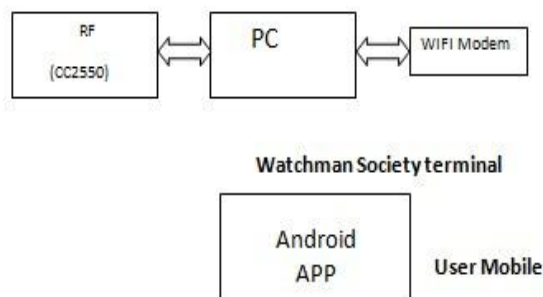


Figure 3.2: Receiver Diagram

**IV. ADVANTAGES**

- A. Effective way for attaining (Project application), High degree of automation
- B. Cost-effective
- C. Easy To use
- D. Android GUI (User Friendly)



## V. CONCLUSION

A smart sensor network for monitoring and control of society automation is designed. The developed system effectively monitors and controls the smart sensor network. The society automation is using wifi has been experimentally proven to work easily by connecting easy appliances to it and the applications were successfully controlled automatically through internet. High level of security can be achieved with the use of automation

## VI. ACKNOWLEDGMENT

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## REFERENCES

- [1] Nagender Kumar Suryadevara, Subha Chandra Mukhopadhyay, Sean Dieter ,Tebje Kelly and Satinder Pal Singh Gill, "WSN based smart sensors and actuators for power management in intelligent buildings", IEEE Transactions on mechatronics, Vol. 20, No. 2, April 2015.
- [2] A. Alhalafi, L. Sboui, R. Naous, B. Shihada, "gTBS: A green Task-Based Sensing for energy efficient Wireless Sensor Networks," in Conference on Computer Communications Workshops. IEEE, 2016, pp. 136 – 143.
- [3] P. Liu, W. Gueaieb, S. C. Mukhopadhyay, W. Warwick, and Z. Yin, "Guest editorial introduction to the focused section on wireless mechatronics", IEEE /ASME Transaction on Mechatronics, vol. 17, no. 3, pp. 397 to403,Jun.2012.
- [4] Singhvi, A. Krause, C. Guestrin, "Intelligent Light Control using Sensor Networks," Proc. of the 3rd international conference on Embedded networked sensor systems (SenSys 2005), 2005..



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