International Journal of Advance Research in Science and Engineering
Vol. No.5, Special Issue No. (02), March 2016
www.ijarse.com
IJARSE
ISSN 2319 - 8354

PILGRIM AUTOMATION

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ABSTRACT

Every season about 30 lakh people gather at Makkah and In MahaKumbhMela 90 lakh people come for pilgrimage. Millions of pilgrims arrive every year to different places for religious reasons all over the countries. Managing this large number of pilgrims from different nations and various cultures in a short period of time is not easy at transport terminals like airports, railway stations and bus stations. The main purpose of this project is to track and identify the pilgrimage.In this, we present a solution based on RF technology to help the Hajj or kumbhmela authorities in the identification of pilgrims as well as in crowd control.

Keywords: PIC microcontroller, RF module, GSM module, IR sensor.

I. INTRODUCTION

In addition, due to the many steps that a pilgrim has to go over and the different agencies that he/she needs to deal with, pilgrims satisfaction for the services provided may not be at major religions phases and also their safety. Therefore, it is important to improve the current system in order to increase pilgrims' satisfaction and to increase the efficiency of the management system. It needs to utilize new technological solutions to increase the efficiency of the process of receiving, guiding, and managing pilgrims.We have developed a Pilgrim Identification System that employs a watch unit and visual basic application running on a PC. A watch unit carried by a pilgrim that stores pilgrim data can be used for identification, as a Hajj permit, to access medical history during an emergency, and as e-purse.

II. LITERATURE SURVEY

The paper is wireless sensor Network for pilgrim tracking done by Mohamed Mohandas, Mohamed Haleem, Mohamed Deriche, and KaviarasuBalakrishnan. Here in the existing model pilgrims tracking is done by wireless sensor network, we want to modify it since, if it is not in range the pilgrim cannot be tracked. For the efficient tracking we are using additional hardware to efficient tracking.

- **Detailed Problem Definition**

For the pilgrims tracking using the existing model is not up to the mark. The problem encountered in this model are out of range problem, heavy traffic density, network hanging and interference. To overcome this problem we have come up with some changes.

- **Solution methodology**

The solution methodology is very simple. For the efficient we have made minor changes in the model. For the out of range and heavy traffic density problems we are adding a simple GSM module To overcome Network hanging and interference we are using GSM module (or) CDMA module depending upon the country. [6]

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III. MODELING AND DEVELOPMENT OF SYSTEM

3.1 Block Diagram

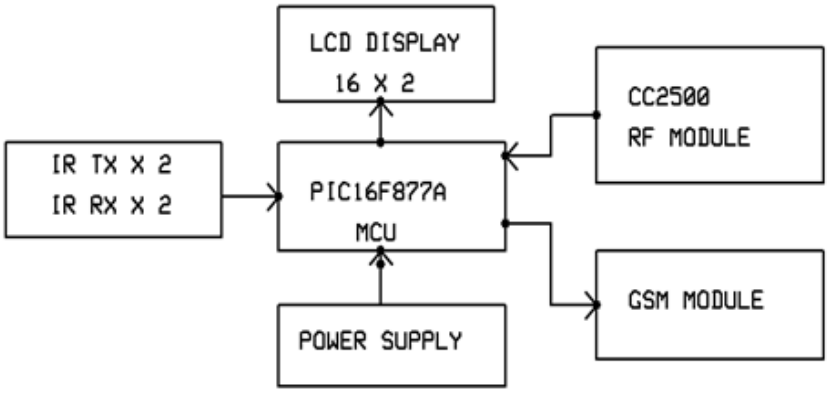

Figure 1 block diagram of door unit

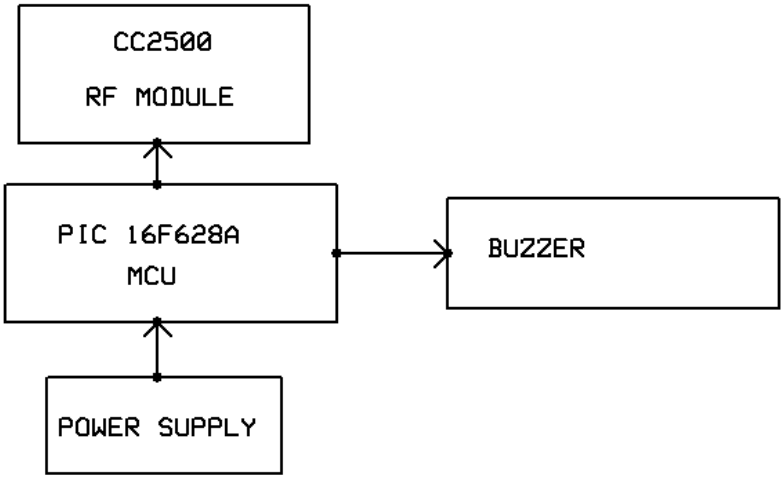

Figure 2 block diagram of watch unit

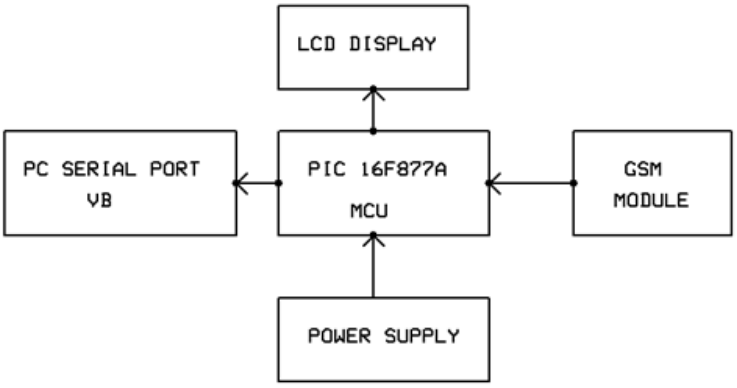

Figure 3 block diagram of server unit

3.1.1 Pic Microcontroller

The PIC microcontroller is a heart of our project.

- **Introduction of PIC Microcontrollers**

PIC stands for Peripheral Interface Controller given by Microchip Technology to identify its single-chip microcontrollers. These devices have been very successful in 8-bit microcontrollers. The main reason is that Microchip Technology has continuously upgraded the device architecture and added needed peripherals to the microcontroller to suit customers' requirements.[1]

3.1.2 Lcd Display

One of the most common devices attached to a microcontroller is LCD display. Some of the most common LCDs connected to the many microcontrollers are 16x2 and 20x2 displays. This means 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively.

3.1.3 Ir Sensor

The principle of IR sensor is totally based on change in resistance of IR receiver which is similar to LDR (light dependent register) and reflection of light. Here in this sensor we connect IR receiver in reverse bias so it gives very high resistance if it is not exposed to IR light. The resistance in this case is in range of Mega ohms but when IR light reflected back and falls on IR receiver. The resistance of receiver it comes in range between hundreds ofohm to kilos of ohm. We convert this change in resistance to change in voltage. Then this voltage is applied to a comparator IC which compare it with a threshold level if voltage of sensor is more than threshold then output is high else it is low which can be used directly for microcontroller.[2]

3.1.4 cc 2500 Rf Module

Itis a transreceiver module which provides easy of 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.

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3.2 Circuit

Diagram

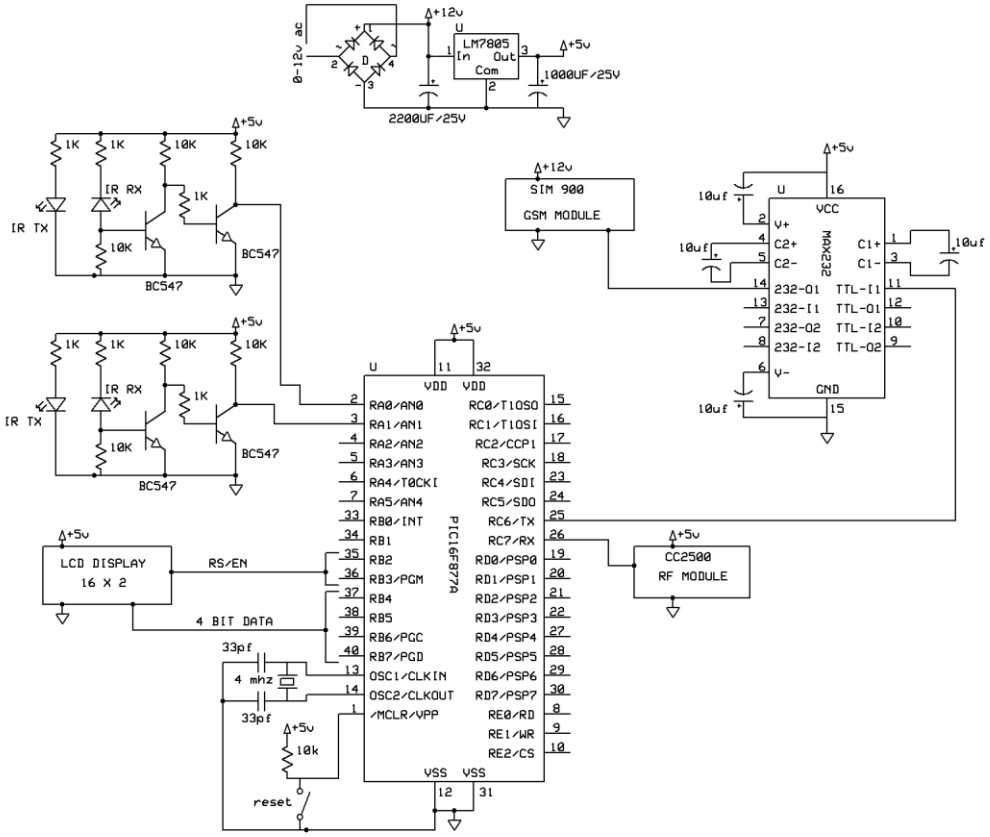

Figure 4 circuit diagram of door unit

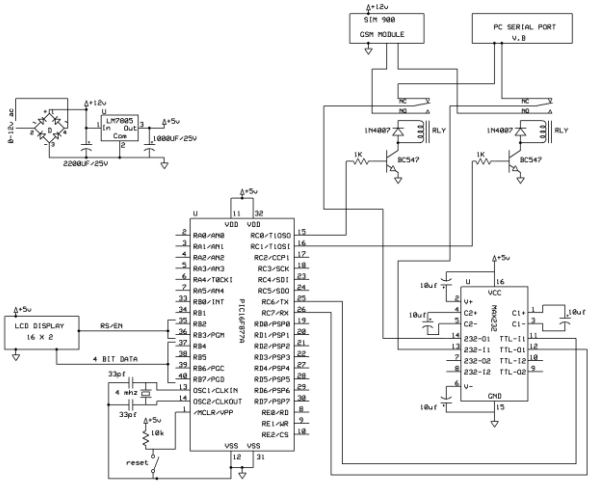

Figure 5 circuit diagram of server unit

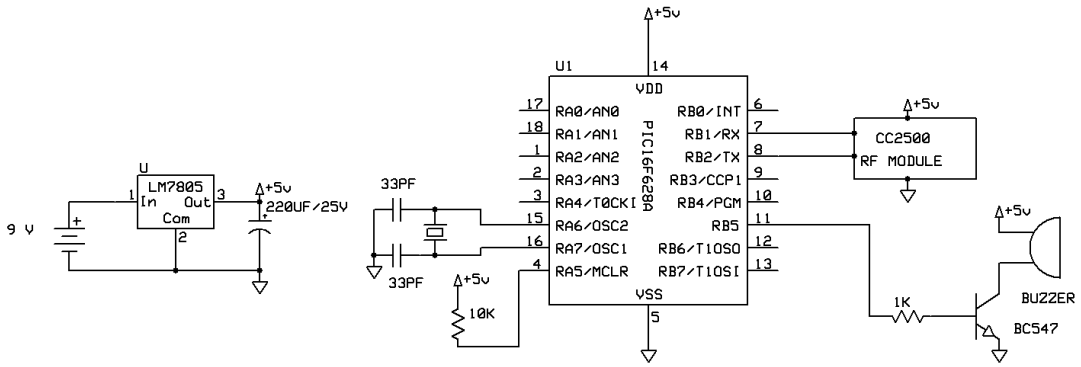

Figure 6 circuit diagram of watch unit

3.3 Working

IR1 Receiver and transmitter and IR2 receiver and transmitter is used for person's entry or exit. Door and watch data of IR sensor is in 0/1 form. Microcontroller have three counters one for entry count , second for exit count and third for sum (total) count.

Door unit: After count process, door unit will receive data from watch unit which one is persons ID after receiving data door unit will send the data with person's ID to server unit via GSM.

Server unit: GSM module will send the data to microcontroller and it will read the data and display it on LCD and send it to PC.

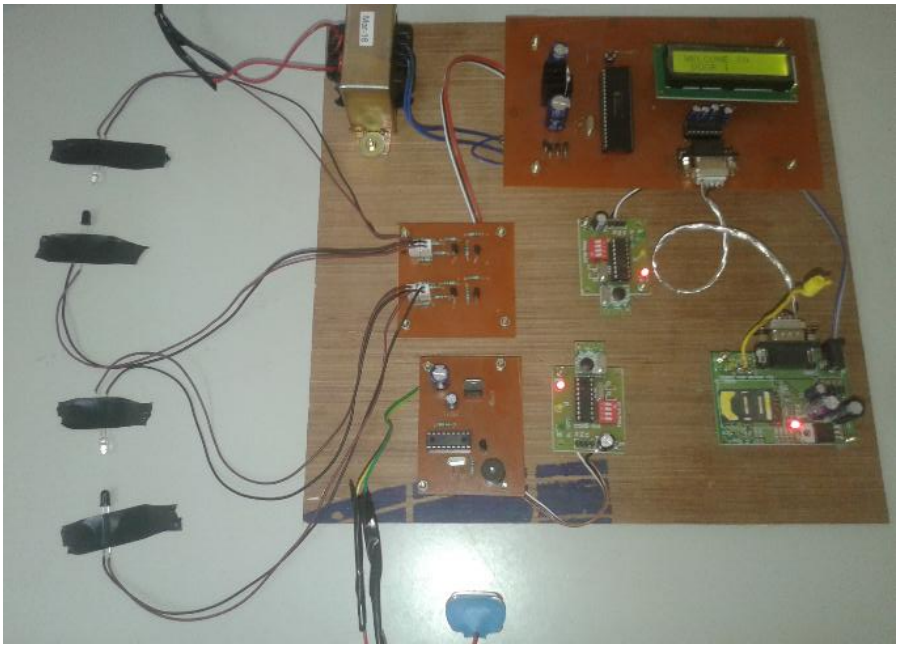

Figure 7 RF design for door and watch unit

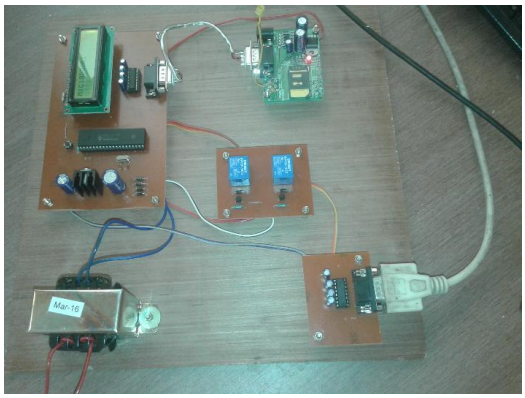

Figure 8 RF design for server unit

3.4Flowchart

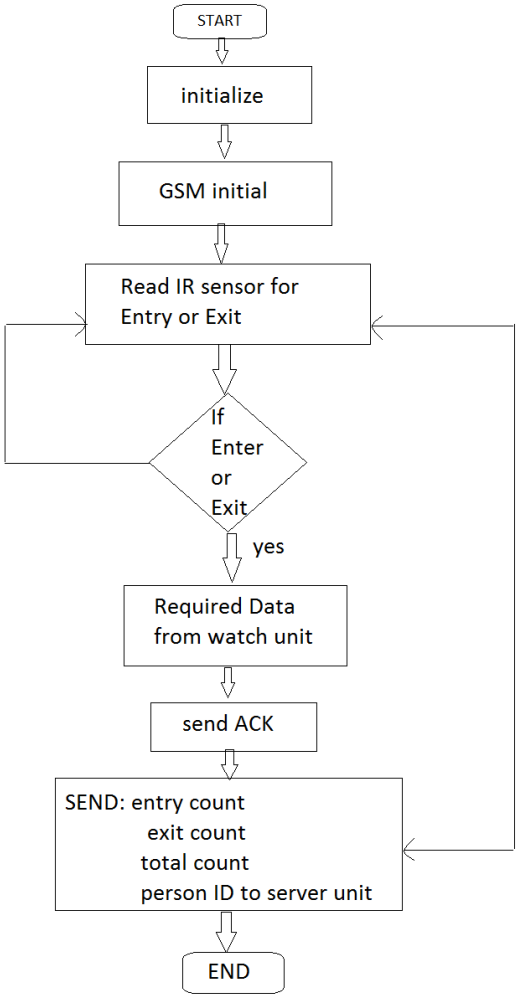

Figure 9 flowchart of door unit

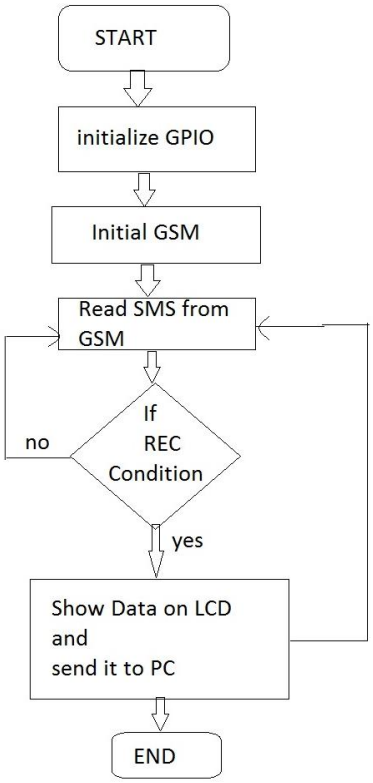

Figure 10 flowchart of server unit

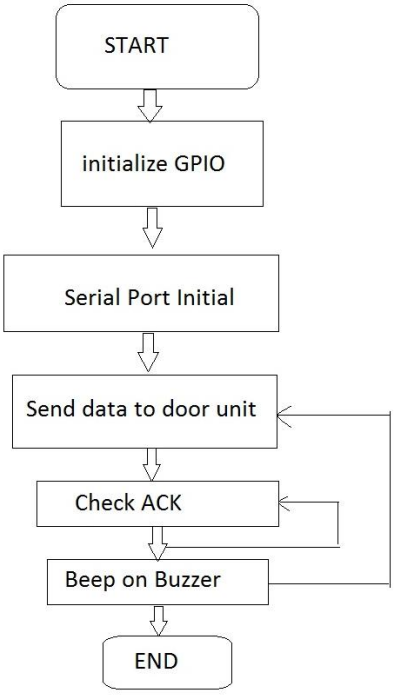

Figure 11 flowchart of watch unit

IV. CONCLUSION

From the data studied, respective calculations of pilgrim automation we can analyseKumbhmela season poses many challenges for the authorities. The main challenges have beenreviewed in this work based on official reports, interviews with key officials and theauthors' personal experience. Using advanced technologies is very promising in tacklingthese challenges. In this project, we have demonstrated the use of RF technology to easesome of these challenges. This experiment proved to be very successful in demonstrating the benefits ofthe system. In particular, it demonstrated the effectiveness of RF system in removingbottlenecks of the traditional authentication system.So, here we aim to design a simple and a much more cost effective system. The system would be reliable and robust in nature.

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[5] Mohammad Yamin and Yasser Ades, ―Crowd Management with RFID & Wireless Technologies,‖ in Proceedings of the First International Conference on Networks and Communications (NETCOM '09), Chennai, Dec. 2009, pp. 439 – 442.

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