WIRELESS HANDHELD VISITOR GUIDE AND TRACKING SYSTEM FOR SECURITY PURPOSE

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Abstract: This is the world of wireless technology. Number of systems and applications using wired data transfer are now replaced by wireless communication media. We are developing this system for big premises such as colleges, hospitals, industries etc. Our aim is to use this wireless technology for visitor guide and visitor tracking application. The system will consist of one handheld unit given to a visitor at the entrance of premises by security persons. The visitor will enter the destination where he wants to go or the person to whom he wants to meet. This handheld unit will guide him to reach the destination. He doesn't need to ask anyone. Another feature of this system is that it is wirelessly connected to security unit located in security cabin, where the security person will be able to track the visitor on premise map on Smartphone. There will be wireless link between handheld unit and security unit. For this we will use Bluetooth module and RF media for data transfer.

Keywords: Smartphone, Bluetooth, RFID Reader, visitor guide, handheld unit, security unit

I.INTRODUCTION

The handheld unit will consist of micro controller, LCD to see the guidelines, voice IC and audio amplifier for audio playback of guidelines. The keypad will be used to enter the destination where he wants to go or the person to whom he wants to meet. Bluetooth module is used to send the location to the security unit. RFID reader is used to read the location code at various checkpoints. If the visitor enters in some restricted area by mistake the handheld unit will warn him as well as it will convey it to security.

As soon as the destination address is entered by the visitor using keypad , the handheld unit guides the visitor to reach the destination by showing the directions by arrows such as GO RIGHT,GO LEFT etc ,until the visitor reach their destination.
The security unit will consist of Bluetooth module and Smartphone interface. On Smartphone there will be plotted map of premise using Block Discription language. Data coming from handheld unit via Bluetooth will be used to plot the location of the visitor on map.

II.LITERATURE SURVEY

A visitor guide and Tracking system is for visitors who are come to visit the any large organizational area like Company, Hospital etc. These visitors are unknown to their campus or area. And also they have to get entry pass first at entrance of the company; this process is time consumable because all details of the visitor need to be fill. And at working time no one will be available to help the visitors as a guide to reach the destination completely. Since the visitors guide helps us track our destination by giving us directions; this reduces the time wasted in asking and searching for a particular destination.

This idea also includes a feature of tracking visitors. So that there is no need to take a watch on visitors, the visitor is tracked at security cabin on the premise map on smart to hone. Also this system warns to the visitor, if they will moving towards the restricted area. The visitor guide and tracking system mainly consists of one handheld unit that works as a guide for visitor and tracking system at security cabin. This handheld unit is low weight unit gives facilities like provides keypad to set destination , sound indications , shows directions on lcd etc overall result is that, it is easy to handle and perfect guide for visitors.

Here we will select the LPC2138 microcontroller for our project rather than selecting ATMEL , PIC And AVR because of following reasons:

- LPC2138 is used for multimedia based application which is requirement of our project.
- LPC2138 is easily programmable and its development boards are easily availables.

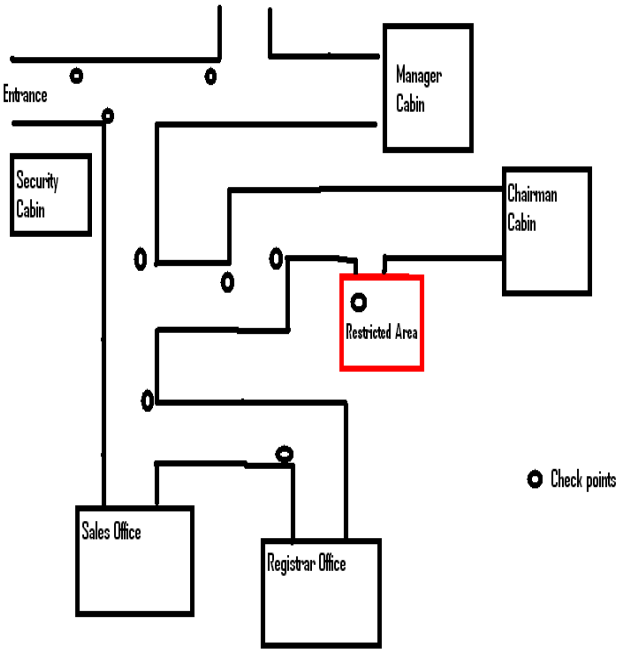
III.LIMITATION OF EXISTING SYSTEM

- In current existing system manpower is required this is major limitation of the system.
- In manual guiding system more time is required to response to the people.
- In manual guiding system efficiency and accuracy is less

IV. PROPOSED SYSTEM

Demonstration:

For demo there will be model as shown below: As the visitor reaches near to the check point the handheld unit will show him the way to reach the desired destination. At the same time it will send the check point code to the security unit.



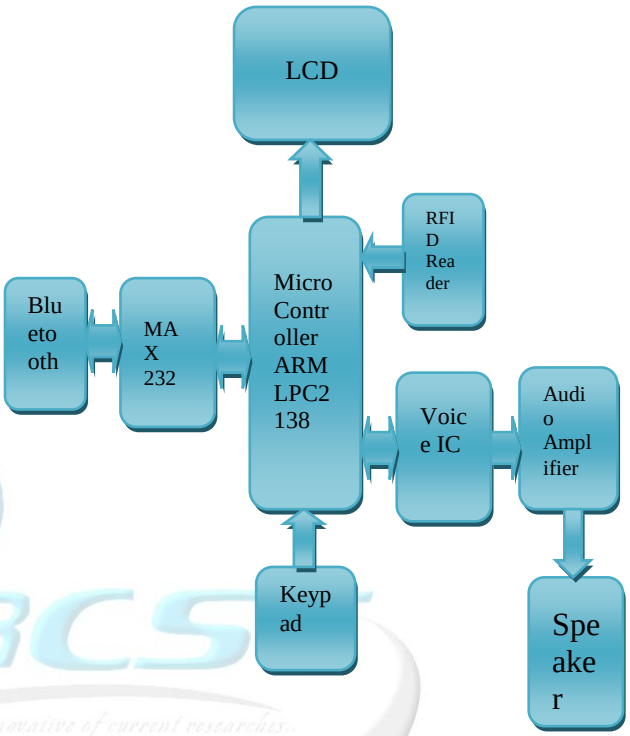
Hardware Development

Block diagram

Following block diagram shows all the elements of our system. It contains the mainly six elements which are as follows

1. LPC2138 ARM LPC2138
2. Bluetooth module.
3. RFID Reader.
4. 16*2 LCD Display.

Handheld unit:



Liquid crystal display : LCD is used in the project to visualize the output of the application. We have used 16x2 LCD which indicates 16 columns and 2 rows. So, we can write 16 characters in each line. So, total 32 characters we can display on 16x2 LCD. LCD can also used in a project to check the output of different modules interfaced with the LPC2138. Thus LCD plays a vital role in a project to see the output and to debug the system module wise in case of system failure in order torectify the problem.

RFID section: In this section the RFID receiver continuously scans the RFID tags. If the receiver receives the unique code of a particular checkpoint, then it compares that unique code to its database, if match occurs then it announces the name and the detailed information of the checkpoint.

Bluetooth module: HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth

V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH(Adaptive Frequency Hopping Feature). It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

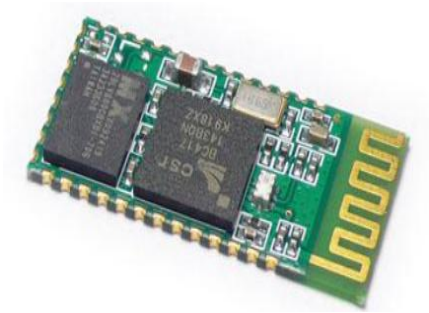


Figure: Bluetooth Module.

V.APPLICATION

- This wireless technology for visitor and visitor tracking for security purpose.
- The visitor will enter the destination on handheld unit, where he wants to go or the person to whom he wants to meet.
- This handheld unit will guide him to reach the destination. He doesn't need to ask any one.
- This system is also used for areas like large Hospital, College , industry etc.
- It takes database of each visitor daily so that all records are saved automatically for future reference.

VI.CONCLUSION

During the development of our project we studied and analyzed much real application of electronics. This project is a circuit that takes over the task of helping the visitor in big premises to find the way and reach its destination. It can be used by industries or institution to keep record of no. of visitors, instead of writing the data or record of an individual in a book hence it reduces the "LABOUR WORK". At the same time it will maintain the security of the organisation by tracking the person's exact location on the premise map and keeping the record of each visitor.

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