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VISITOR GUIDANCE AND TRACKING SYSTEM USING WIRELESS COMMUNICATION

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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-LCD Display, Zigbee Module, RFID Tag and Reader, Buzzer, Speaker.

I INTRODUCTION

The security unit will consist of Bluetooth module and Smartphone interface. On Smartphone there will be plotted map of premise using Block Description language. Data coming from handheld unit via Zigbee will be used to plot the location of the visitor on map. 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 Zigbee module and RF media for data transfer. 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.

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 overall result is that, it is easy to handle and perfect guide for visitors.

III SYSTEM ARCHITECTURE

The Systems consist of ARM 7 controller which is LPC2148 from Philips Company. The handheld unit will consist of micro controller, LCD to see the guidelines, the keypad will be used to enter the destination where he wants to go or the person to whom he wants to meet. ZIGBEE 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. The clock of 12Mhzs would be connected for clock creation. The reset will be used for resting the microcontroller.

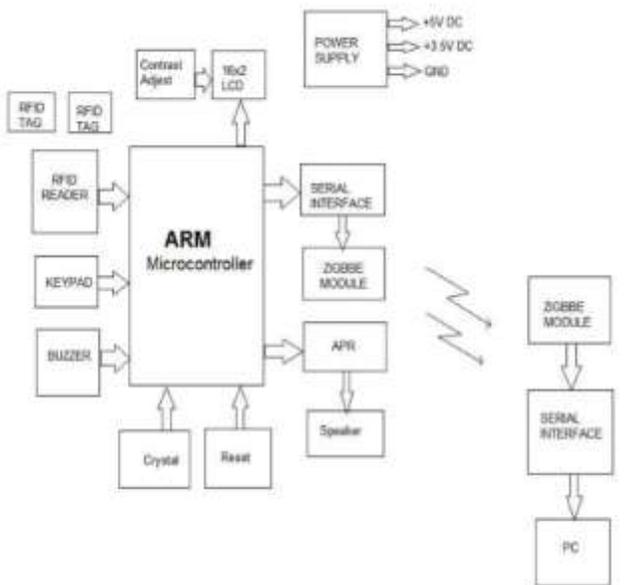


Figure 1: Block Diagram

RFID Tag:

The proposed idea of the system will be using RFID tag to guide the visitor to their destination. RFID tag will contain information about the user like stag id, visitor id etc. The tag’s chip or integrated circuit (IC) delivers performance, memory and extended features to the tag. The chip is pre-programmed with a tag identifier (TID), a unique serial number assigned by the chip manufacturer, and includes a memory bank to store the items’ unique tracking identifier (called an electronic product code or EPC). The basic types of tags are Active and Passive tags. Passive tags basically do not contain internal battery. That means passive tags take their operating power from the field generated by the person who

reads. Active tags have a transmitter and their internal battery (power).

RFID READER:

CC2500 RF Module is a trans-receiver module which provides easy to use RF communication at 2.4GHz. It can be used to transmit and receive data at 9600 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. It works in Half Duplex mode i.e. it provides communication in both directions, but only one direction at same time. System uses RFID reader for reading the RFID tags and sends the current location of the visitor to the server. An RFID reader, also known as an interrogator, is a device that provides the connection between the tag data and the server. The reader communicates with tags that are within its field of operation, performing number of tasks such as encoding, filtering etc.

IV ALGORITHM

1. Start
2. Initialize Controller, LCD display and ZIGBEE module.
3. User shows his ID card to RFID reader at gate.
4. RFID reader read ID card and sends it to controller room via ZIGBEE.
5. By using keypad user can enter destination location
6. Respective rout will be displayed on LCD display using arrow as well as left, right, forward, reverse directions in word.
7. For blind people text to speech module announces direction step by step.
8. Visitor location can continuously send to control room through ZIGBEE.
9. In this way all visitors will continuously track by control room.
10. If visitor try to go in “No Entry” area, then Buzzer will blow to inform.
11. Stop.

V APPLICATIONS

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

VI CONCLUSION

This project is a reliable 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.

VII FUTURE SCOPE

- Coverage range can be increase using GSM and GPS Module.
- Instead of using APR module we can use Voice IC.

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