

PERSON TRACKING SYSTEM

MR. VIVEK PANDEY¹, RONAK SHAH², AKSHAT SHAH³, SAIF SAIKH⁴

¹Assistant professor, Dept of Computer Engg., ARMIET, Shahapur, Maharashtra, India,

²UG Scholar, Dept of Information Technology, ARMIET, Shahapur, Maharashtra, India

³UG Scholar, Dept of Information Technology, ARMIET, Shahapur, Maharashtra, India

⁴UG Scholar, Dept of Information Technology, ARMIET, Shahapur, Maharashtra, India

Abstract: In an organization, to find a person physically is a huge task. In an emergency it is more important and more difficult due to pressure. It is easy by simply calling and finding that particular person. But in some organization there is phone jammer or there is no network. In some organization the phone is not allowed inside the campus. Hence finding a person is not easy. Even an attendance is also a huge issue for organization, hence by using this teacher tracking system we can solve both the problem. We can find a particular person when needed and that also very easily and there will be automatic attendance of that person. After using this there will be no need for using the any other type of attendance system, such as biometric, or traditional register method, etc. this will note attendance fully automatically.

I. INTRODUCTION

Today, in the organization or in institute when one teacher wants to search another teacher for some work then they can use their mobile phones. By talking on the mobile phone, we get to know where a particular teacher is, but if mobile phones are not reachable, if the phone's battery is down, the organization has the phone jammers or some of them don't allow the cell phones at all then there is no easy way to reach out to a person. The second way is, in which a teacher can go in entire organization to search for their colleagues physically. This way is helpful if organization is small but if organization is large then this way is not suitable. Because searching for a particular teacher in the entire organization is a tedious task. So to overcome this problem we have decided to design a system which can easily track a teacher's location in a large organization.

Teacher location tracking system is fully computer based system. Teacher location tracking system involves hardware and software combination. This system is very useful to all, especially for large organizations. This is to enhance and upgrade the existing system by increasing its efficiency and effectiveness. The system improves the working methods by replacing the existing manual system with the computer-based system.

This system will be designed by using microcontroller, IR sensor, RFID transmitter and RFID receiver and zombie. In this system we are designing two devices. One is carried by a teachers and one device is set in the classroom, labs, canteens, and department or anywhere in college campus. In this project we are using Matlab design a server and Diptrace for pcb(Printed circuit Board) layout.

II. BLOCK DIAGRAM AND MODULES DESCRIPTION

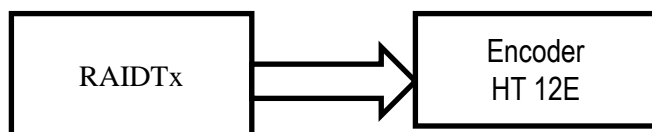


Fig 1. Transmitter Side

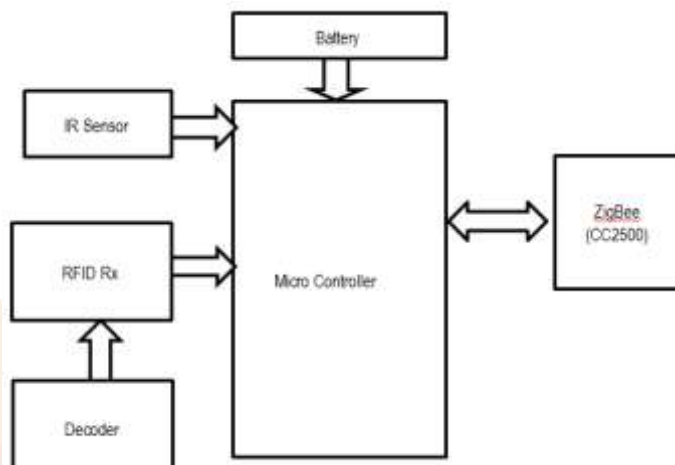


Fig 2. Receiver Side

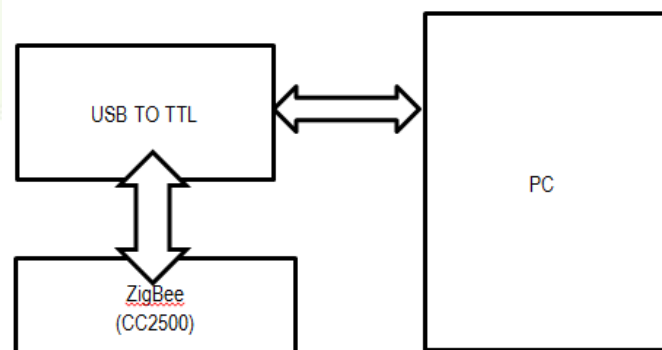


Fig 3. Server Side

A. Modules and Description

1. Working:

In this system we will use microcontroller AT89S52. The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the industry-standard 80C51 instruction set and pin out. IR Sensors work by using a specific light sensor to detect a select light wavelength in the Infra-Red (IR) spectrum. By using an LED which produces light at the same wavelength as what the sensor is looking for, you can look at the intensity of the received light. When an object is close to the sensor, the light from the LED bounces off the object and into the light sensor. This results in a large jump in the intensity, which we

already know can be detected using a threshold. RFID receiver which is connected with microcontroller and IR sensor which set in classroom and this device which set in classroom connected to ZigBee for sending data to computer (server). ZigBee is an IEEE 802.15.4-based specification for a suite of high-level communication protocols used to create personal area networks with small, low-power digital radios. The technology defined by the ZigBee specification is intended to be simpler and less expensive than other wireless personal area networks (WPANs), such as Bluetooth or Wi-Fi. Applications include wireless light switches, electrical meters with in-home-displays, traffic management systems, and other consumer and industrial equipment that require short-range low-rate wireless data transfer. And data related to professors location stored on computer.

2. Microcontroller AT89S52

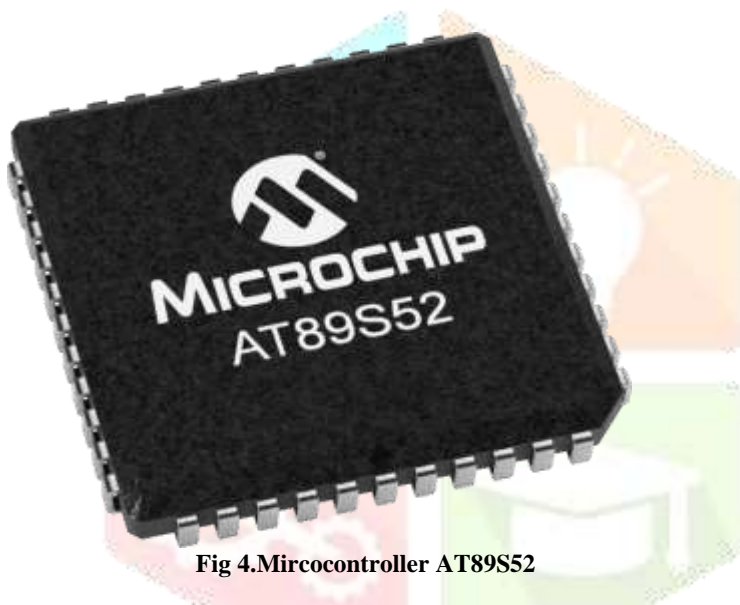


Fig 4. Microcontroller AT89S52

Low-power, high-performance CMOS 8-bit microcontroller with 8KB of ISP flash memory. The device uses Microchip high-density and nonvolatile memory technology and is also compatible with the industry-standard 80C51 instruction set and pin-out. It also allows on-chip flash. This powerful microcontroller is suitable for many embedded control applications. The CPU speed is 4mi/s. The operating value range is 4-5.5 V. Pin-out count is 44.

3. Zig Bee



It is used for Personal Area Network and uses low power digital radio signals. ZigBee operates on the IEEE 802.15.4 specification. It is used to create the network which required low data rate. It is energy efficient and system secure. Bluetooth and Wi-Fi should not be confused with Zig bee. Both Bluetooth and Wi-Fi have been developed for communication of large amount of data with complex structure like the media files, software etc. Zig bee on the other hand has been developed looking into the needs of communication of data with simple structure like the data from the sensors.

4. Active RFID Tx Rx



Here the RFID reader is passive, but the tags are active. The RFID tags does require the battery support. The range of Active RFID transceivers. The RFID transceiver can hold and store lot of expensive and important information. The is use to track the object properly.

Radio Frequency Identification consist of three main components.

1. Antenna
2. A transceiver (with decoder)
3. A transponder (RF tag) electronically programmed with unique information.

It is use on both side, ie. On transmitter and on receiver side. On receiver side the RFID is connected to the Micro controller to track he RFID tags.

5. IR Sensor



Infrared sensors are very important for sensing the object. They senses IR waves passing through the surrounding. IR Sensors work by using a specific light sensor to detect a select light wavelength in the Infra-Red (IR) spectrum. There are various type of IR sensors available in market

1. Proximity Sensors: It is used in Touch Screen Phones and Edge Avoiding Robots
2. Contrast Sensors: It is used in line following Robot.
3. Obstructions and Counting Sensor: It used to count the object and sense the emergency alarm.

An IR sensor is basically a device which consists of a pair of an IR LED and a photodiode

III. CONCLUSIONANDFUTURE ENHANCEMENT

CONCLUSION:

The project Person Tracking Systemhas been successfully designed and tested. With respect to the consumer market in ZigBee-related technologies have existed for a long time but are not yet universally used. The use of microcontroller makes it easier to use. The id with which the single will be send, is very handy to carry. In case of emergency the required person can be found, that is the key aspect.

FUTURE SCOPE:

By connecting to GPS we can increase the area of device. By feeding the data of face detection system we can avoid proxy id's.

IV. REFERENCES

- [1] Murizah Kassim, Hasbullah Mazlan, Norliza Zaini, in there paper "Web Based Student Attendance System using RFID Technology" emphasize on the fact that development of a student attendance system based on Radio Frequency Identification RFID Technology.
- [2] Lasse Toivanen in there paper RFID Based Book Finder Locating item rapidly and Accurately, has become a crucial part of our modern society and industry. Accurately locating not only saves time and money but also reduces waste, as products do not get lost supply chain.
- [3] Sanghyun son in there paper "Asset Tracking system using IEEE 802.15.4a talk about the real time location. Tracking of various vehical. Improve the tracking estimation accuracy between teachers by using IR sensor, RFID tags, Mircocontroller, etc.

