



Item tracking via Bluetooth

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ABSTRACT

In today's world tracking devices plays an important role in our life. By using the various tracking devices we can simply find the lost and misplaced belongings. After using our tracking device which is known as tracker sticker or also known as smart tag millions of people are now able to connect to their thing they value most. Tracker sticker or smart tag is a coin sized device that is easily fastens or sticks to any item or device. Using the track app you can quickly locate your misplaced items in seconds by ringing your tracker or by using the distance indicator or via crowd GPS.

Our aim is the device which will give you information about your misplaced items like exact location of your device, distance from current place. This device connects to Smartphone via Bluetooth signal. Whenever the Smartphone loses connection with the device, an alarm via Smartphone application alerts the user that they have lost track of the device. The device loses connection with the Smartphone when the device and Smartphone are separated.

Keywords- Bluetooth chip, ITD (Item Tracking Device), microcontroller, android studio (based on JDK).

1. INTRODUCTION

In today's world people want everything digitalized because of their stressful life style, they have started missing important task as well as their valuable things. Smart phones are essential for young people like Students. The goal of this project is to tap into a lucrative application by introducing this new product called The Item Tracking Device. It will be fun to use, easy to implement, and it will keep track of whatever you attach it to.

This new idea of tracking device which will give you information about your misplaced items like exact location of your device, distance from current place. We can make stressed out peoples life easy in a true manner.

This device is not meant for users to be able to locate their belongings. Rather, it is meant to simply help individuals remain mindful of where they set down their important possessions, and to remind them when they walk too far away from said possessions. This will hopefully eliminate some of the forgetfulness of individuals like myself, who constantly lose track of important things.

This device will design with a Smartphone application that will alert the user when they lose track of their possession via Smartphone notification.

To overcome this problem we introduce this paper on tracking device using Bluetooth technology. For this purpose we developed an application based on JDK (Android) named as ITD. Using this application user can add and track their device according to requirement of user.

2. BLOCK DIAGRAM

To control the bluetooth chip device we use Arduino board for interfacing or controlling the device using mobile phone. The interfacing diagram of Arduino board with bluetooth chip is shown in figure 1. Board controls the

buzzer's notification of bluetooth chip whenever the device is in range of Bluetooth by using android application of mobile phone.

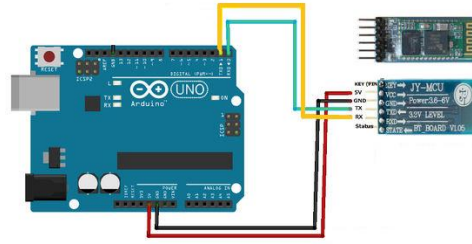


Figure 1

As shown in the figure 1, we use bluetooth chip and Arduino board. Description of these devices as below:

- Bluetooth
- Arduino
- 1.) **Arduino:**

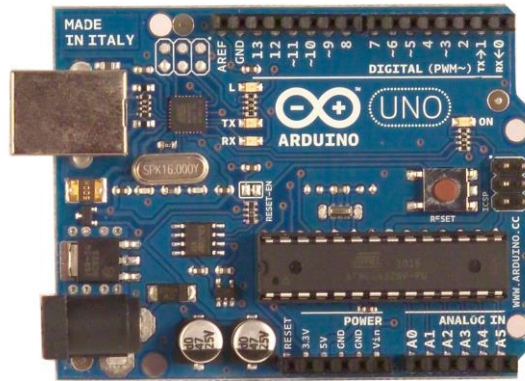


Figure 2

Arduino is an open-source computer hardware and software company, project and user community that designs and manufactures kits for building digital devices and interactive objects that can sense and control the physical world. These systems provide sets of digital and analog I/O pins that can be interfaced to various extension boards and other circuits. The boards feature serial communications interfaces, including USB on some models, for loading programs from personal computers. For programming the micro-controllers, the Arduino platform provides an integrated development environment (IDE) based on the Processing project, which includes support for C and C++ programming languages.

- The software specifications are as follows:

Arduino IDE:

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.

Android Studio:

Android Studio is the official integrated development environment (IDE) for developing for the Android platform.

3. SYSTEM ARCHITECTURE

The system architecture is shown in the figure 3. Bluetooth based object Tracking System comprises of the following modules:

Bluetooth Module

The Bluetooth module is used to track objects in short range. Firstly the objects should be registered with the object name and id in the registration application. Then the Bluetooth module is used to receive signals from the mobile module. The signals are used to turn on a buzzer. Based on the sound of the buzzer the user will track the device.

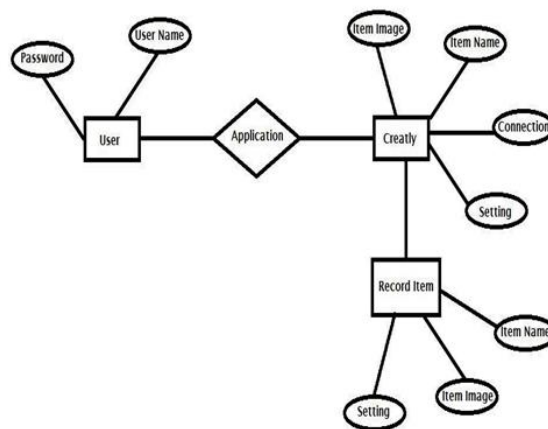


Figure 3

4. PROTOTYPE OF APPLICATION

The application developed by us is used to track the device using Bluetooth chip, which is controlled using an Arduino board. The prototypes of the application are shown as below:

➤ Register page:

In this page, the customer can add his/her details for privacy and log in the application to connect the device.

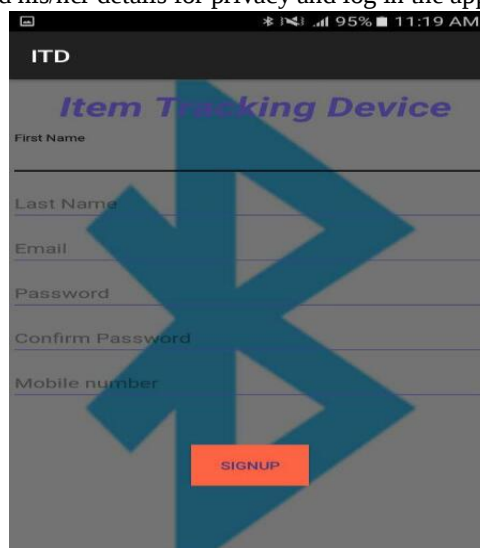


Figure 4

➤ **Log in:**

In this page customer can Log in his/her ID.

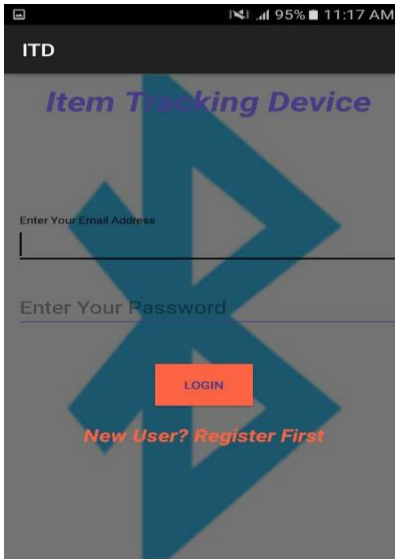


Figure 5

➤ **Paired device:**

In this page after enable bluetooth in your mobile device system this page display available bluetooth device and you can connect that in this page via bluetooth connection.

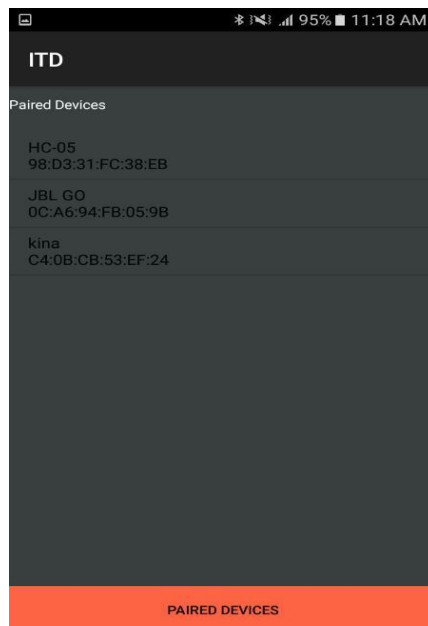


Figure 6

➤ **Device connecting:**

After paired your device customer can ON and OFF bluetooth device as per his/her requirement. If customer clicks on button then device connect and it's LED is ON at that time which is get signal to customer that its device is now on working mode.

If device is misplaced and the user is out of device range at that time alarm ringing to alert the user that its device is misplaced.

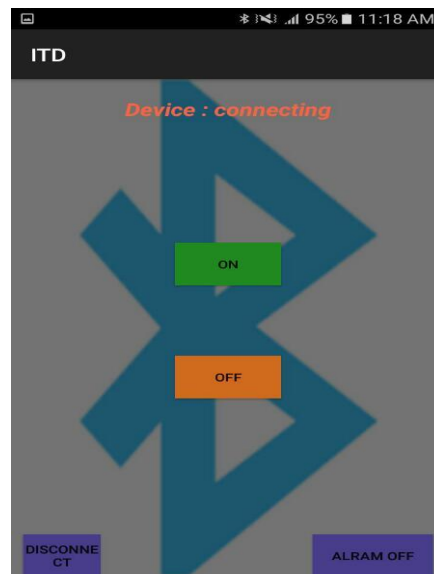


Figure 7

5. CONCLUSION

This paper has focused on implementation of a low cost tracking system using Bluetooth, to track the device. Compare to tracking using GPS and Bluetooth, we can conclude that unlike GPS tracking system using Bluetooth is low in cost. The device is safe and easy in use.

Finally after using this item tracking device people can easily find their misplaced items and keep regular track of their misplaced or lost items. This item tracking device made life little bit easier for the people who forget their item easily in daily life.

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