Bluetooth Enabled Objects Tracking To Find Out Misplaced Object

C. Dinesh **, S.Sona *, S.M.Sowmea *

** Assistant Professor (sr.gr), Department of Aeronautical Engineering, Sri Ramakrishna Engineering College, Coimbatore- 641 022

*UG Scholar, Department of Aeronautical Engineering, Sri Ramakrishna Engineering College, Coimbatore- 641 022.

ABSTRACT— In this period of digitized world there are a huge number of shrewd gadgets mushrooming to address the difficulties rising out of advancements and innovation improvements in pervasive figuring. All these keen gadgets are exposed to ordinary items that are interconnected with the Web. Web of Things depicts the way how these articles are labeled to the Internet and does the procedure of correspondence with one another through web measures. The advancement of universal frameworks lessens the errand of person .These developments made a situation among the individuals to have an extravagant existence in a most agreeable zone. At last everybody began keeping their important things as indicated by their developments inside home or at office and consistently behind the lost or lost items. In each house there is a history driving out for looking towards keys, wallets, pen drives and hand handbags which turns into a dull activity particularly during most extreme need and pinnacle hours .To diminish this exertion and spare time, a gadget model is proposed wherein the lost things could be followed and followed out. The proposed work goes about as a central idea in depicting how to follow the items advantageously. This is an essential gadget model that portrays about following an article that interfaces with Android cell phones to find objects utilizing android application through Bluetooth and Arduino.

KEYWORDS— Arduino ,Bluetooth module, Android Application, Technology Smartphone.

I. INDRODUCTION

Creating a ubiquitous system that would help decrease the work load of a human being is the main aspect of any new invention. After all the creations and revelations, one thing that has been upsetting man in spite of the extravagance is, finding lost items . 99.9% of individuals have griped of loosing things that are most every now and again utilized. Understudies' Identity cards, Elders' eyeglasses, fathers' vehicle keychain and moms' wallets, these are the most lost families. The proposed framework would end up being productive to discover the things that are lost. The lost items could be effortlessly found with a straightforward application that comes convenient with our versatile Android mobile.

1.1 Who loses object?

The reference "Discovering Lost Objects: Informing the Design of omnipresent Computing Services for the Home-distributed in 2010" , gave an outcome on which age group had a higher likelihood of losing and what was the purpose for it.Here the age gathering and the purpose behind misfortune are depicted with the assistance of the level of event. Youthful individuals of the age 20-36 have a more greater level of negligence, which may be a significant explanation behind losing their effects. The mature age individuals then again, have more greater memory-related issues, as a result of which they could neglect to recollect where they had utilized the thing last.

1.2 What objects loss?

The after effect of the overview is that much of the time utilized things are lost frequently. Out of the overviewed understudies about 90% of them admitted that they needed to look for their ID Cards pretty much every morning, when they are as of now running late for their transports. About half of them said they needed to have save pen-drives with them expecting that they would lose them when they are the most required. 40-half understudies conceded that they needed to make in any event around three copy keys since they lost their key chains and couldn't discover them anyplace. What if man loses his mobile phone or wallet? That would surely be a major issue.

1.3 Strategies Used to Find Objects

Reactions from the members indicated that there were normal techniques that individuals participate in notwithstanding age or item type. We distinguished these techniques as

1. Retrace - areas are searched with respect to a sequential basis of a person’s prior physical locations.
2. Memory - location is searched based on a person’s memory of prior interactions with the object.
3. Exhaustive search - all possible area is searched.
4. Locus search – location where the object is normally to be found is searched.
5. Delegation search - someone other than the person needing the object searches for it.

The most as often as possible utilized methodologies to recuperate a lost article were locus search (33%), comprehensive pursuit (24%) and remember (19%). The rest of the systems, memory and designation search were both announced 11% of the time. Despite the fact that area search and comprehensive search are essential methodologies across age gatherings, the more seasoned grown-ups showed that they depend undeniably more on follow (26%) when contrasted with youthful and middle-age grown-ups (both 10% event). Note that the designation search methodology incorporates the utilization of innovation (convenient mobile and remote control locators - 2%). This outcome demonstrated that individuals look for help for looking yet may have restricted innovative decisions to utilize. Results showed that the members were to some degree effective when looking for lost articles.

II. METHODOLOGY

The proposed framework precludes all the difficulties what's more, the detriments of the current framework. First issue that has been understood is the unpredictability of the gadget. The framework's User interface is straightforward and easy to use. Furthermore, the expense and cost of the framework is diminished. The sensors utilized are achievable and have a long-battery life. Nonexclusive transmitters and recipients can be applied rather than a Bluetooth inserted transmitter and collector.

2.1 Default setting:

The default settings for new modules are
– Name = HC-05
– Password = 1234
– Baud rate in communication mode = 9600*
– Baud rate in AT/Command mode = 38400

2.2 Pair with an android devices

Before you can make an association between blue tooth gadgets they should be matched. Along these lines, with the Arduino and HC-05 fueled, on the Android gadget;

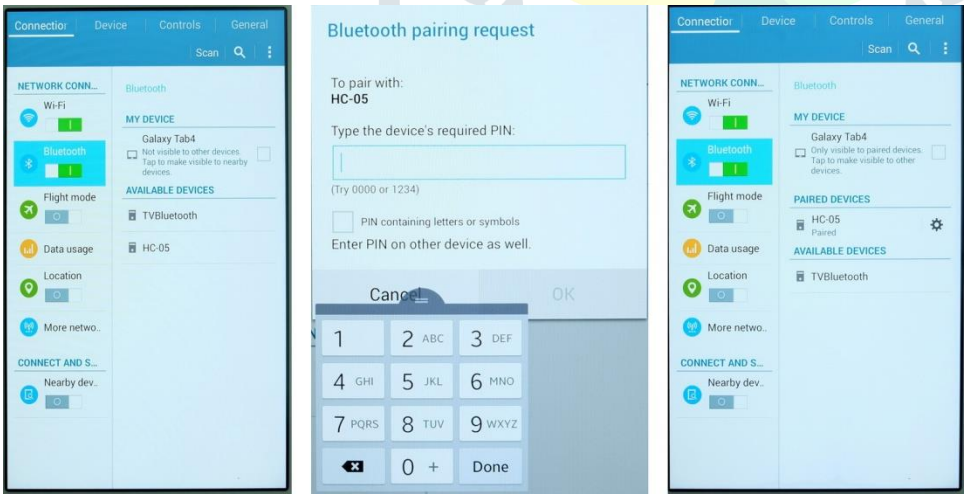


Fig 1. Pair with an android devices

– turn on bluetooth,
– filter for gadgets and the HC-05 ought to be listed,
– pair with the HC05 and enter the secret word "1234" accepting you have the default secret key.
Once paired the blinking LED on the HC-05 will change to a single short blink every 2 seconds.

2.3 Connect with an android devices

Interfacing the Android gadget to the HC-05 makes a sequential correspondence channel fundamentally the same as the sequential screen in the Arduino UNO. This implies we need a Bluetooth form of the sequential screen. I utilize a Bluetooth terminal appropriately named Bluetooth Terminal

– open the menu,
– select "Associate a gadget – Insecure",
– click "HC-05", and "associated: HC-05" ought to show up at the highest point of the screen.
When associated, the LED on the HC-05 will flicker rapidly twice at regular intervals or somewhere in the vicinity.
Bluetooth Terminal Alright, so the association is working, presently how about we attempt to send information from the Arduino to the Android gadget.

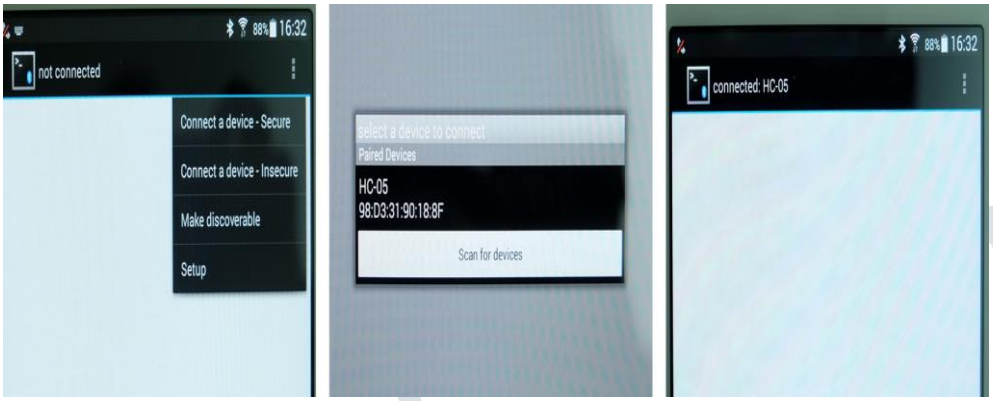


Fig 2. Connect with an android devices

III. IMPLEMENTATION

3.1 Sending data to arduino via bluetooth

HC05 module has an internal 3.3v regulator and that is why you can connect it to 5v voltage. But we strongly recommend 3.3V voltage, since the logic of HC05 serial communication pins is 3.3V. Supplying 5V to the module can cause damage to the module.

In order to prevent the module from damages and make it work properly, you should use a resistance division circuit (5v to 3. 3v) between arduino TX pin and module RX pin.

When master and slave are connected, blue and red LEDs on the board blink every 2seconds. If they aren't connected, only blue one blinks every 2 seconds.

3.2 Circuit

Connect the smart phone to the Bluetooth module and the Arduino.what we need to do here is to activate the Bluetooth and the smart phone will find the HC-05 Bluetooth module. Then we need to pair devices and the default password for the HC-05 bluetooth is 1234.After we have paired the devices we need an application for controlling the Arduino.

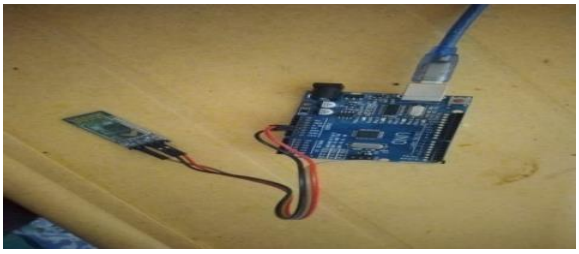


Fig 3. Connect the smartphone to the Bluetooth module and the Arduino

3.3 Code

In order to communicate with HC05 using Bluetooth, we need a Bluetooth terminal application on your phone. Now for start transferring data, upload this code on Arduino and connect HC05 using the app you have just installed. Communication name is HC05, the password is 1234 or 0000 and the transfer baud rate is 9600 by default.

```
#include <LiquidCrystal.h>
int val=0;
int sensorValue = 0;
char rec[15];
boolean started=false;
void  receive1();
LiquidCrystal lcd(7, 6, 5, 4, 3, 2);
void setup()
{
   lcd.begin(16, 2);
   lcd.setCursor(0,0);
   lcd.print(" BLUETOOTH BASED ");
   lcd.setCursor(0,1);
   lcd.print("  DEVICE SEARCH  ");
   delay(3000);
   lcd.clear();
   Serial.begin(9600);
   started = true;
}

void loop()
{
    lcd.setCursor(0,0);
    lcd.print("DATA SENDING....");
    Serial.println("Data Sending:");
    Serial.println("Register No:014");
    delay(2000);

}
```

3.4 Sending AT-Commands to HC05 Bluetooth Module and Changing Its Settings

By pressing and holding the button the module switches into AT-command mode. Otherwise, it works in the communication mode. Some modules have a push button in their packages and there is no need to add one anymore. The default baud rate to enter At-command mode is 38400. Now upload this code on your board and set commands using Serial Monitor.

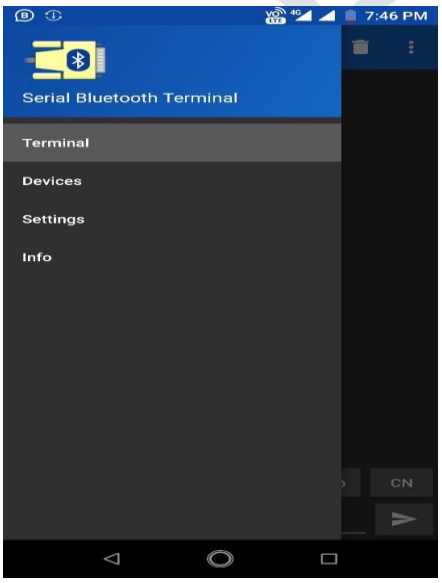


Fig 4. Serial Bluetooth terminal

IV. RESULT

4.1 power supply

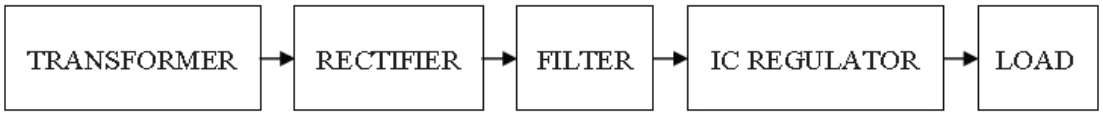


Fig 5. Block diagram (Power supply)

The ac voltage, typically 220V rms, is connected to a transformer, which steps that ac voltage down to the level of the desired dc output. A diode rectifier then provides a full-wave rectified voltage that is initially filtered by a simple capacitor filter to produce a dc voltage. This resulting dc voltage usually has some ripple or ac voltage variation. A regulator circuit removes the ripples and also remains the same dc value even if the input dc voltage varies. This voltage regulation is usually obtained using one of the popular voltage regulator IC units.

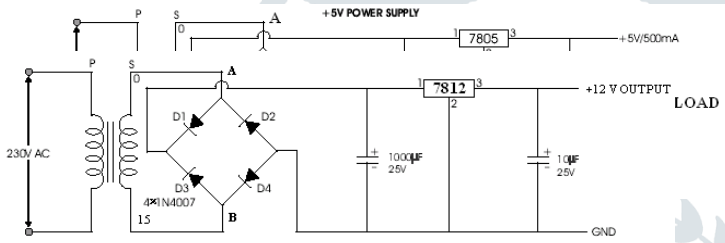


Fig 6. Schematic diagram

4.2 Working principle

Transformer

The potential transformer will step down the power supply voltage (0-230V) to (0-15V and 0-9V) a level. If the secondary has less turns in the coil then the primary, the secondary coil's voltage will decrease and the current or AMPS will increase or decreased depend upon the wire gauge. **This is called a STEP-DOWN transformer.** Then the secondary of the potential transformer will be connected to the rectifier.

Bridge rectifier

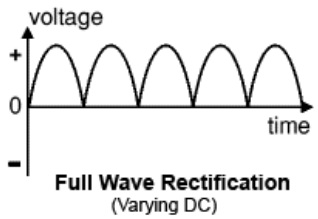


Fig 7. Brigde rectifier

When four diodes are connected as shown in figure, the circuit is called as bridge rectifier. The input to the circuit is applied to the diagonally opposite corners of the network, and the output is taken from the remaining two corners.

Let us assume that the transformer is working properly and there is a positive potential, at point A and a negative potential at point B. the positive potential at point A will forward bias D3 and reverse bias D4.

The negative potential at point B will forward bias D1 and reverse D2. At this time D3 and D1 are forward biased and

will allow current flow to pass through them; D4 and D2 are reverse biased and will block current flow. The path for current flow is from point B through D1, up through Load, through D3, through the secondary of the transformer back to point B.
One-half cycle later the polarity across the secondary of the transformer reverse, forward biasing D2 and D4 and reverse biasing D1 and D3. Current flow will now be from point A through D4, up through Load, through D2, through the secondary of transformer, and back to point A. Across D2 and D4. The current flow through Load is always in the same direction. In flowing through Load this current develops a voltage corresponding to that. Since current flows through the load during both half cycles of the applied voltage, this bridge rectifier is a full-wave rectifier.

One advantage of a bridge rectifier over a conventional full-wave rectifier is that with a given transformer the bridge rectifier produces a voltage output that is nearly twice that of the conventional half-wave circuit.This bridge rectifier always drops 1.4Volt of the input voltage because of the diode. We are using 1N4007 PN junction diode, its cut off region is 0.7Volt.So any two diodes are always conducting, total drop voltage is 1.4 volt

Filter

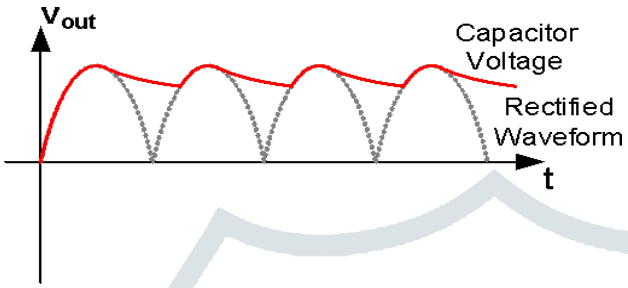


Fig 8. Filter

If a Capacitor is added in parallel with the load resistor of a Rectifier to form a simple Filter Circuit, the output of the Rectifier will be transformed into a more stable DC Voltage. At first, the capacitor is charged to the peak value of the rectified Waveform. Beyond the peak, the capacitor is discharged through the load until the time at which the rectified voltage exceeds the capacitor voltage. Then the capacitor is charged again and the process repeats itself.

IC voltage regulators

Voltage regulators comprise a class of widely used ICs. Regulator IC units contain the circuitry for reference source, comparator amplifier, control device, and overload protection all in a single IC. IC units provide regulation of either a fixed positive voltage, a fixed negative voltage, or an adjustably set voltage.

A fixed three-terminal voltage regulator has an unregulated dc input voltage, it is applied to one input terminal, a regulated dc output voltage from a third terminal, with the second terminal connected to ground.

The series 78 regulators provide fixed positive regulated voltages from 5 to 24 volts. Similarly, the series 79 regulators provide fixed negative regulated voltages from 5 to 24 volts.

This is a regulated power supply circuit using the 78xx IC series. These regulators can deliver current around 1A to 1.5A at a fix voltage levels. The common regulated voltages are 5V, 6V, 8V, 9V, 10V, 12V, 15V, 18V, and 24V. It is important to add capacitors across the input and output of the regulator IC to improve the regulation.

In this circuit we are using 7805 and 7812 regulator so it converts variable dc into constant positive 5V and 12V power supply respectively.

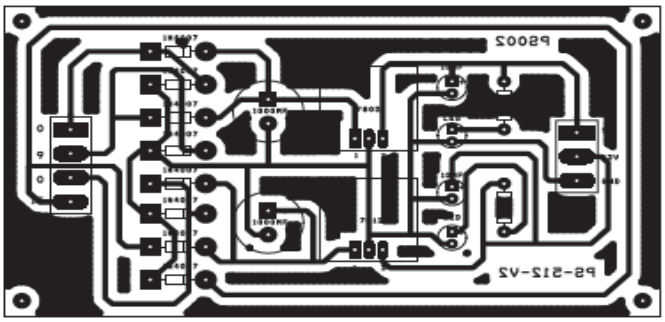
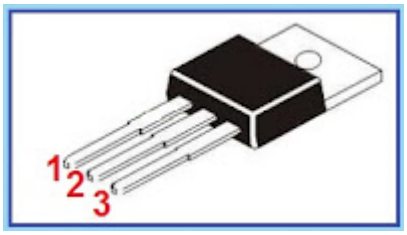


Fig 8. PCB Layout

Component description

1) Input
2) Ground
3) Output



78xx Regulator		
IC Part	Minimum Input Voltage	Regulated Output
7805	7.3V	5V
7806	8.4V	6V
7808	10.5V	8V
7809	11.5V	9V
7810	12.5V	10V
7812	14.6V	12V
7815	17.7V	15V
7818	21.0V	18V
7824	27.1V	24V

Fig 9. Types of Positive voltage regulator

V. DISCUSSION

Innovation headway made our life simple however it a similar time our life become all the more testing and occupied ever previously. Because of quick life the issue of lost and lost thing is additionally expanding step by step. Numerous studies are been done by various association and looks into to feature the lost and lost goals issue. What's more, a similar time a great deal of arrangements are being proposed scholastically and essentially accessible in the market. Yet at the same time the issue remains and shoppers request the arrangement. These arrangements are avoided customer .There is escalated request of tracking devices. We likewise found that there are bunches of tracking devices are accessible in the market perfect to work with any smart phone. Yet at the same time this issue cost much in all around the globe. There are a great deal of individual and firms offer the following arrangements which are worked with smart phones. There are likewise unique devices are offered with various precision and range. The expense of devices are fluctuate relies on the following innovation. Yet, we see that it's difficult to convey numerous devices constantly. So the smart phone based following arrangements are increasingly valuable .And we likewise found that the Bluetooth following framework is liberated from cost and much successful .There numerous Bluetooth based tracking devices worked with smart phones are offered numerous little firms. These devices are acceptable, compelling and less expensive in cost.

VI.CONCLUSION

The issue of lost and lose things is costing part of financial misfortunes and then again there are numerous helpful mechanical arrangements are additionally accessible in the market. Arrangements are escaped the buyers eyes, implies these arrangements are not appropriately popularized. We likewise saw that there are parcel of little firms are offering exceptionally powerful following arrangements yet not ready to catch the market. We emphatically prescribe little firms to build up coordinated effort enormous cell giants (I. e. Apple, Samsung, Nokia). At that point they will get the best possible consideration from the purchasers. Purchaser requests of these tracking devices ought to be connected with essential smart phone purchasing bundle like chargers and headphones.

The core of this model lies in its capacity to give effective and rich framework to discover lost things. To upgrade this framework further, the test is to execute the portable application without the utilization of Internet so it could be utilized even in essential mobile phones, and not just the advanced smart phones. Counting other User Interface highlights like voice-input, retina-examine for security and so forth, could make the framework a superior and capable one. The database memory, GPS utilization, mapping usefulness including 3D mapping could be upgraded for future work.

VII. ACKNOWLEDGEMENT

We express my heartfelt thanks to our our Project Coordinator Mr. C. Dinesh, Assistant Professor (Sr.G) for the appreciated guidance for us for their valuable suggestions in all the way to shape the project work in an effective manner

VIII.REFERENCES

[1] "Finding Lost Objects: Informing the Design of Ubiquitous Computing Services for the Home"- Rodney E. Peters1, Richard Pak2, Gregory D. Abowd1, Arthur D. Fisk2 and Wendy A.Rogers,2017
[2] "Localization and Object-Tracking in an Ultra wideband Sensor Network", Cheng Chang,2018
[3] "Objects Calling Home: Locating Objects Using Mobile Phones", Christian Frank1, Philipp Bolliger1, Christof Roduner1, and Wolfgang Kellerer2",2018
[4]"Real-time bluetooth communication between an FPGA based embedded system and an Android phone" , Hawayek,S. ; Electr. & Comput. Eng. Dept., Univ. of North Carolina at Charlotte, Charlotte, NC, USA ; Hargrove, C. BouSaba, N.A.,2016
[5] "Hybrid GPS-GSM Localization of Automobile Tracking System", Mohammad A. Al-Khedher, International Journal of Computer Science & Information Technology (IJCSIT) Vol 3, No 6, Dec 2011.
[6] "Design and Implementation of RFID-Based Object Locator",T. S. Chou and J. W. S. Liu, Fellow, IEEE, Institute of Information Science, Academia Sinica, November 2007, Technical Report No. TR-IIS-06-014, Date of access: 29/1/2014
[7] "Radio Frequency Object Locator System", Bianca Gallo Pucci, Donald Pucci Patent Application Publication, May 162013, Patent No. Us 7046141 B2, Date of access: 26/1/2014
[8] "GPS Localization Improvement of Smart phones Using Built-in Sensors" ,Soyoung Hwang and Donghui Yu, International Journal of Smart Home Vol. 6, No. 3, July, 2012.

[9] " Design and Development of GPS_GSM Based Tracking System with Google Map Based Monitoring", Pankaj Verma, J.S Bhatia International Journal of Computer Science, Engineering and Applications (IJCSEA) Vol.3, No.3, June 2013

[10] " Radar: an in-building RF-based user location and tracking system",Bahl P and Padmanabhan VN (2000) ,Proceedings of 19th Annual Joint Conference of the IEEE Computer and Communications Societies, INFOCOM, Tel Aviv, Israel, 26-30 March 2000.