

IoT Based Smart Travel Bag

Balaji R, Jebin A, Tharique Ajeez K, Assistant Professor Anurada T

Dept. Of ECE

Dhaanish Ahmed College of Engineering

rbalaji1025@gmail.com[1] jebinas1905@gmail.com[2] thariqueajeaz81@gmail.com[3]

Abstract –Travelling is one of the most important aspect for people in day to day life. Generally for travelling purpose people uses normal travel bags or suitcase but in today's world such types of bags are not safe from the security point of view and also less comfortable of having better journey. Nowadays the field of electronic has designed with advanced electronic technology that can be used for every individual people and also society. Human following robots have been researched and developed for doing more applications in daily life and manufacturing. All the electronic inventions are used to reduce manual effort by mechanical work. Human following bags are one of the finest technologies in electronics and by utilizing its advantages in day to day life. In this paper we have tried to mention all the details related to iot based smart travel bag bag. Several techniques are used to follow bag behind the owner for the following features human detection can be done by ultrasonic sensors. In the privacy point of view the bag can be installed with buzzer and also location can be tracked using GPS and Iot. In this smart bag within a small platform all the operations are implemented together efficiently.

Keywords– GPS, IOT, Arduino, UV sensor, Fingerprint.

I. INTRODUCTION

Smart bag is designed with advanced electronic technology for the purpose of security system and also make travelling facilities with more efficient and less effort. Autotrailing technology which reduces human efforts to carry a luggage. Wherever the people travel they used to carry luggage especially to airport all of them dragging out their heavy luggage is very difficult task for old peoples. If bag that follows passengers by human following mechanism then entire problem get vanished. Following technique is implemented using data taken from ultrasonic sensor. Ultrasonic sensor measure distance between bag and human by sending sound waves and collects the reflected waves when it tracks an obstacles. Misplacing or loosing of bags is also avoidable using buzzer and GPS. Beyond this it has feature of tracing and tracking the bag using GPS and IOT module and locate the accurate position of the bag. Fingerprint sensor is used for security purpose. Recharging port is also available in this bag.

II. RELATED WORK

1. Design and Implementation of Smart Bag

This paper suggests us about design the smart travel bag. Human following mechanism can be done by using two methods first by using ultrasonic sensors and second by using Image processing. We are going to use Ultrasonic sensors to perform this task [1]. Security is one of the most important factor in daily life so providing security to bag is necessary. Ensuring safety of bags and their

Valuable things is very important for the avoiding of illegal handling. The ability to track and trace from anywhere on the earth is possible by tracking system. GPS and IOT module are used to get the exact location of the bag.

2. Fingerprint sensor with IOT

Fingerprint recognition technology allows to access only those whose fingerprints are pre stored in the memory. Stored fingerprints are retained even in the complete power failure or battery drains, also which is stored in website using IOT module. This eliminates the need for keeping track of keys in mind or remembering a password or PIN. It can only be opened by authorized user is present, since there are no PINs or combinations of password to be copied or stolen or lock that can be picked. The fingerprint lock therefore provides a good solution to conventionally encountered inconveniences. This project focuses on the use of fingerprints to open locks, as opposed to the established method of using password. Fingerprint are pattern of ridge and valley on the surface of the finger. Like everything in the human body these ridges form a combination of the genetic and environmental factors. The genetic code in DNA gives general orders on the way skin should form in a developing fetus but the specific way it forms a result of random events [3].

3. GPS and IOT Tracking and Tracing of Smart Bag

Tracking systems were first developed for shipping industry to trace and track cargo. First device developed were passive. To obtain real time tracking active devices

are to be used. We proposed a system that uses IOT/GPRS module/modem and GPS system to provide real time tracking over the internet by TCP/IP connection through Java applications developed specifically for it. External databases are used to maintain the tracing and tracking details. The tracking device consists of the GPS, IOT module and the Arduino. Location name and GPS coordinate values are stored in the IOT module. As soon as the IOT module updates current location in the website, the microcontroller checks for a closest location match inside the LUT with the received GPS coordinate data. The matched location detail is will be updated in website www.iotclouddata.com/20log/260 using IOT module thus completing the request [2].

III.HARDWARE REQUIREMENTS

1. Arduino Uno

This is the New Arduino Uno. In addition to all features of the previous board, the Uno now uses an ATmega16U2 instead of 8U2 found on the Uno (or the FTDI found on previous generations). This allows for faster transfer data rates and more memory. No driver is needed for Linux or Mac (inf file for Windows is needed and included in the Arduino IDE), and the ability to have the Uno show up as a mouse, keyboard, joystick, etc.,



Fig.1.Arduino Uno.

2. IOT Module

ESP8266 offers a self-contained Wi-Fi networking solutions, allowing it to either host the applications or to offload all Wi-Fi networking function from another application processor. When ESP8266 host the application, and when it is the only application processor in the devices. It is able to boot up directly from an external flash. It has integrated cache memory to improve the performance of the system in such applications, and to minimize the memory requirements. Alternatively, serving as a Wi-Fi adapter and wireless internet access can be added to any microcontroller based designs with simple connectivity through UART interfaces or CPU AHB bridge interfaces.



Fig.2. IOT Module.

3. Ultrasonic Sensor

Ultrasonic sensor with Ascii serial o/p is an amazing product that provides very short or long range detection and ranging process. The sensor provides stable non-contact distance measurements from about 2cm to 400 cm with high accuracy. It is compact size, higher range and easy usability make it a handy sensor for distance measuring and mapping. The board can easily be interfaced to microcontrollers transmitter pin (usart). At every 50ms sensor transmits an ultrasonic signal and send out ascii value of distance that corresponds to the time required for the echo to return to the sensor. This sensor is perfect for any number of application that require you to perform measurements between moving or constant objects.

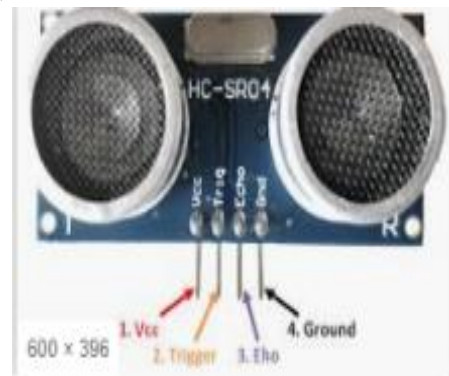


Fig.3. ultrasonic sensor.

4. Fingerprint Sensor

This finger print sensor module with TTL UART interface for direct connection between microcontroller UART or to PC through MAX232 / USB-Serial adapter. The user can store the finger print data in the finger print module and can configure it in 1:1 or 1: N mode for identifying the person. The Fingerprint module can be directly interface with 3v or 5v Microcontroller.

A level converter (MAX232) is required for interfacing with PC serial port. Optical biometric finger print reader with high features and can be embedded into a variety of end products such as access control, attendance, car door locks, safety deposit box.

IV.SOFTWARE REQUIREMENTS

1. Arduino IDE

Arduino is an open source platform and it is used for building electronic projects. It consists of both a physical programmable circuit board (often referred to as a microcontroller) and a software, or Integrated Development Environment (IDE) that runs on your computer and it is used to write and upload programming codes to the physical board. The Arduino platform has become popular with people just starting with electronics and for good reason. Unlike most previous programmable circuit's board, the Arduino does not need a separate

piece of hardware (called a programmer) in order to load new code onto the board instead you can use a USB cable.

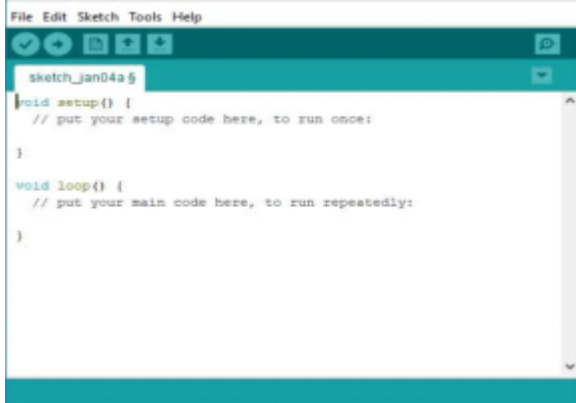


Fig. 4. New file window

V. BLOCK DIAGRAM

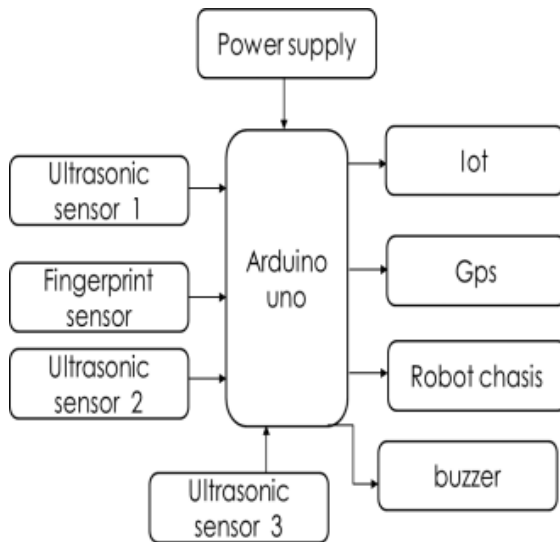


Fig. 5: Block diagram for Smart bag.

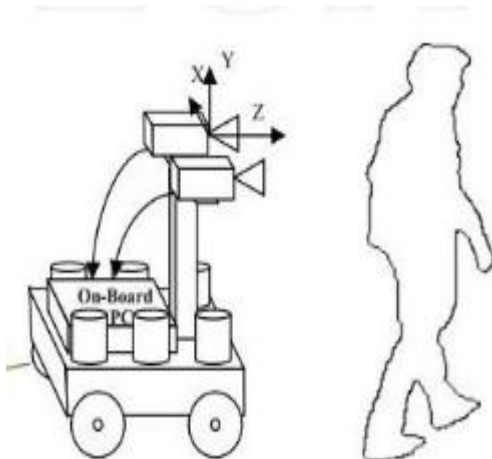


Fig.6. Human Following Robotic System.



Fig. 7. Implementation of Smart bag

VI. CONCLUSION

This IOT based smart bag is an innovative carry on suitcase that's makes life easier and smother. Every passenger face difficulties in carrying luggages. Here we try to solve the dragging of luggage difficulties and also provide good security and intelligent features that are suitable for modern society. In this project we implemented a low cost human following mechanism to assist low cost consumer product implementation so that the cost of the bag will be less.

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