Smart Bag with Security

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Abstract- **In our day to day life travelling has become one of the most important aspects for human being. Generally for travelling purpose people use luggage bags or suitcase. Carrying luggage is the main difficulty faced by each and every passenger. Proposed systems try to solve the dragging of luggage difficulty.**

Similarly in today's world such types of bags are not safe from the security point, Hence we also provide security in case of theft or misplaced if away from threshold distance. In such case bags are not safe hence we also provide security system which automatically activate and inform location of bag with the help of GPS-GSM system. Proposed system consists of microcontroller ATMEGA328P, GPS, GSM, direction sensor, RF module. RF module is used to follow the user in forward direction on flat surface. If in case of some obstacles, system needs to turn left or right as per instruction given by the user with the help of limit switch. GPS tracks the location and GSM send it to the user after every 2 minutes if in case the bag is misplaced or out of threshold distance. Also blows the buzzer to alert the user.

Index terms- **Microcontroller, GPS, GSM, RF module, Direction sensor, Solar panel, Battery**

I.INTRODUCTION

According to survey of India in 2017, 18,936 cases of luggage cases of luggage theft were reported along with 415 robberies. A total of 27 dacoities took place inside trains and 155 passengers were robbed after being sedated. The police arrested 3,898 people. Similarly in 2016, 14,619 luggage thefts took place and 441 robbery cases were reported. A total of 218 passengers were sedated and robbed and 3,331 people were arrested.

Everybody knows that you have to be wide awake when you are travelling. Never take your eyes off your bag and don't agree if somebody asks you to look after theirs. Safety is one of the concerns that you'll have to take care of your valuables when you travel with the bag. There are many different causes for using a Smart bag but the main cause for most application is to eliminate the human efforts. People need smart bags for high weight, repetitive and high precision work. The principle goal of the proposed system is to lay out a device that gives security and also a provision to follow the user on the flat surface. In case of theft or misplaced of the bag user can track the bag. Since, GPS-GSM tracking system is used along with the location notifications.

II.LITERATURE SURVEY

This intelligent suitcase is designed with the help of latest technology solving the problems of mixing and loss of suitcases at the airports. The suitcase works on the Bluetooth technology interfaced with a controlling unit, GPS/GSM modules, RFID cards, ultrasonic sensors, power unit, load cell etc. The suitcase can be easily tracked for its location by the help of the GPS technology and the RFID cards help in the unique identification of the suitcase. It is controlled by the Smartphone of the passenger and the Bluetooth technology helps in digital locking, location tracking and identification along with many other specially designed features [1].

Several techniques are introduced to follow a machine behind men. For the following feature human detection is done by using ultrasound sensors. In terms of privacy, the bag can be activated by SMS and also location can be identified using GPS. It facilitates charging of mobile phones and laptops when there is no way of a power source, especially during the traveling. In this bag within a small platform, all the facilities implemented together efficiently [2].

In this paper, we describe the concept of building a robot able to pursue a specific person through an airport while assisting with carrying that person's luggage. After a review of the current devices available for performing these tasks, we described our approach that aims to develop a platform that could send and receive a signal that would provide a

simple and practical means for the robot to determine a path and follow it that does not require the use of internal maps and the ability to self-localize. In particular, the approach is based on a control system able to execute obstacle avoidance and target following behavior. Also, a relative location device based on a signal emitter (placed on the target person) and a directional sensor (placed on the mobile platform)[3].

Smart bag is designed in such a way that it is light weight luggage bag which is modified with advanced electronic technology for the purpose of advanced security system and also made the human travelling facilities more efficient with less effort. Auto transmitter technology which reduces human efforts. Wherever the people travel they used to carry luggage especially to airport all of them dragging out their heavy luggage perhaps trailing of the bag is very difficult task for old peoples. If bag that follows human following concept then entire problem get vanished. Following technique is implemented using data taken from ultrasonic and IR sensor. Ultrasonic sensor always measure distance between bag and human by sending sound waves and reflected waves when it tracks an obstacle. Misplace or loosing of bag is also avoidable using proximity detection method. Beyond this it has feature of tracing and tracking the bag using GPS and GSM and locate the accurate position of the bag system is used in this proposed work Recharging port is also provided in this proposed work. For recharging port an in built power bank is used. Recharging port mainly used for charging of mobiles phones and laptops[4].

Communication circuits comprises of microcontroller and RFID receiver in which message passing, reading of item is done. When the items are placed inside the bag, the RFID receiver reads the RFID Tag and sends the items in the bag to the microcontroller. The microcontroller compares it with the entered list. If any item is missing then the microcontroller produces a voice alert of missing item. The Smart Bag consists of a Digital Lock. The bag can be only unlocked by entering the secret code to the microcontroller. When an unauthorized person tried to open the bag the microcontroller sends the temporary message to the owner using GSM modem. This message consists of the GPS location of the bag [5].

With the increasing modernization of technology, Smart Bag is an application specific design that can

be useful for almost everyone in the society. Smart means intellectual, the bag will be intellectual enough to carry out different features for daily use. This bag consists of several equipment like mobile phone charging ports, Spy camera device, GPS tracker, Tiffin heater, Sound Card. TP4056 Charging module has been used to charge 18650 Li Po batteries (4 cells are used, each of 2500mAh) by battery charger. Two solar panels are used for charging the batteries. One main feature of the bag is its Tiffin heating section which can be used to heat the food anywhere while travelling. The efficient utilization of bag is that one can charge the mobile phone and laptop with charging ports, listen music, record video through camera, and track bag (in case of theft) by GPS tracker attached in bag[6].

The world is becoming unsafe for women in all aspects. The crimes against women are increasing at a higher rate. The employed women are feeling unsafe due to increasing crimes. This paper proposes a quick responding mechanism that helps women during trouble. When someone is going to harass, she can press the button that is attached to the device and the location information is sent as an SMS alert to few pre defined emergency numbers in terms of latitude and longitude. The microcontroller used is PIC16877A. It is interfaced with a push button, a GPS module, a GSM modem and a speech circuit (ISD1820PY). If the switch is pressed, it activates the speech circuit to capture the attention of the people nearby for help. The program is developed in embedded language to demonstrate the system capability in providing real time response. Thus the girl can be safe and she can feel protected[7].

This paper discusses techniques to handle the car wirelessly To allow various movements of car like left, right, backward, forward movement. For large coverage range RF module is the best solution. Therefore our proposed work is best on we introduce a technology which will not only save money and time but also will prove to be beneficial and effective for the economy [8].

Smart bag is an application-specific design that can be useful for almost everyone in the society. Smart means intelligent, the bag will be intelligent enough to carry out various features for everyday use. Microcontroller ATmega16, the brain of the proposed system will control all the distinguishable features. Solar panel attached on the front part of the bag will

charge not only the electronic appliances like mobile phones, laptop, etc. but will also power the entire system. RF-ID Technology will be used to solve the problem of forgetfulness to pack the required items. The object to be placed inside the bag will have these RF-ID tags attached to them. These tags will then be read by the RF-ID reader. Another feature tackles the problem arising in the threatening situations. Emergency button present on the bag which when pressed will solve this problem in any emergency situation. When the button will be pressed, a buzzer will get activated and the location of the victim will be sent via SMS to three contacts and to the police control room as well. Another feature is an anti-theft feature which will track the mobile in case of any theft. Bluetooth Module will be used for tracking purpose [9].

III. SYSTEM DESIGN

Solar Panel that is attached on front part of the bag is decided to be of 12 Volt, 5 Watt. The charge from solar panel is temporarily stored in a lead acid rechargeable battery of 12 Volts. This voltage is converted to 5 Volts using voltage regulator. The battery powers the microcontroller and other circuitry as well as provides charging to the mobile phone, Bluetooth headphones, etc.

Mobile phone is used to get the location of bag using GPS and send SMS/call through GSM to authorized person. Following technique is implemented using data taken from RF transmitter. RF transmitter always measure distance between bag and human. Finger print locking system is used to lock the bag.
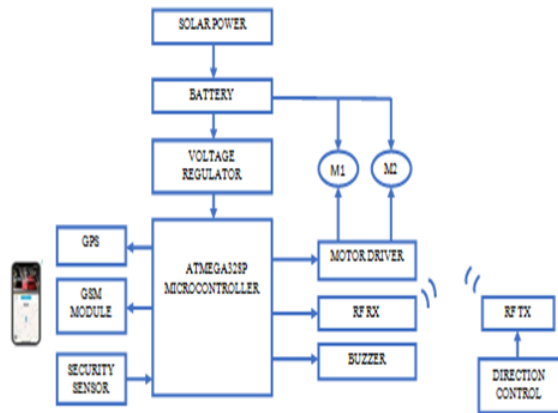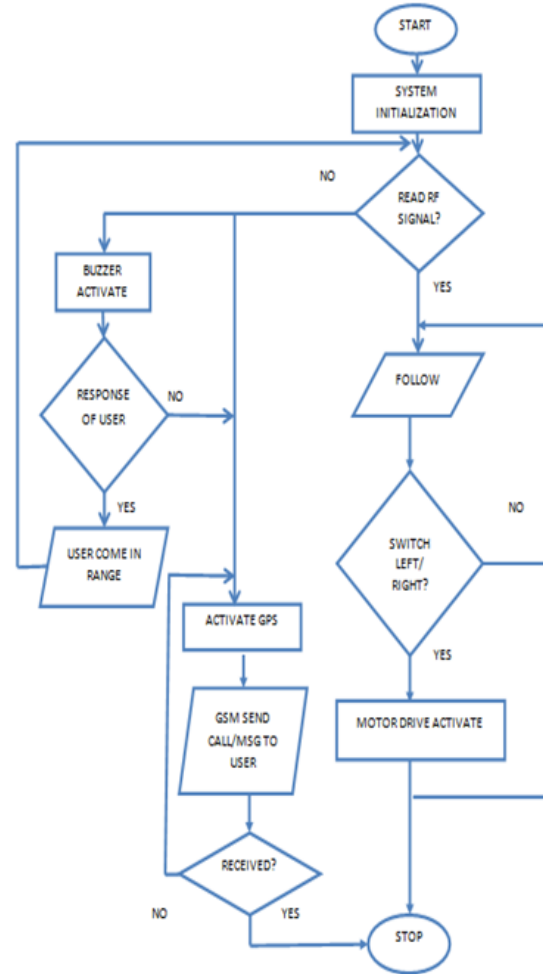

Figure.1: Block Diagram of the System

IV. WORKING

Flow Chart of the System

In our proposed system ,we developed the bag with security which also have provision of following the authorized person. When we wish to travel , we start the system further it initialize the system.

After initializing the system, RF module continuously reads the signal, if RF is in the threshold range then bag will follow the user. User can also give the direction left or right in case of any obstacle. This activates the motor driver and follow the user.

If RF module is not in the threshold range and not able to communicate, it will activate the buzzer and alert the user to come in the threshold range. As well as it will also activate the GPS and send the call or message to user with the help of GSM. Here comes the important part that user had received the call, message or not, it will send the call or message with 2 minute interval continuously.
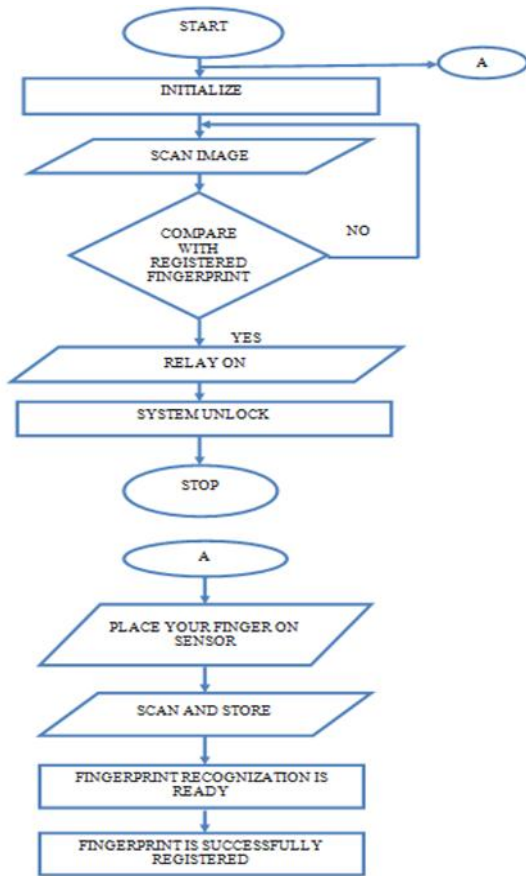
Flow chart of locking system

Thanks to technology, today security involves a wide range of software and hardware including web based security services, biometrics and personal devices with integrated security levels. One of the biggest advances of the digital-technical age has been the introduction of biometrics into security.

A fingerprint lock may be defined as "a system which grants access to authorized personnel by virtue of recognizing their unique fingerprints." You have probably looked at your hands countless times and noticed the ridges and valley pattern. The patterns were an important outcome of the human evolution as they enhanced our ability to grip.

Once you place your finger onto the scanner for the first time the conversion into numerical data takes place, and the fingerprint template is saved. This process is then repeated every time you want to grant someone access. The next time someone places his/her finger on the sensor, it matches the data obtained through the finger with the pre-saved values. If a match is found, access is granted and the bag opens. On the other hand, if it's someone else trying to get through, access is not allowed and the bag remains locked.

V. FUTURE SCOPE

In future, we are planning to include some interesting features like automatic object avoidance, stair case climbing and some extra woman safety features. These extra features make the bag more powerful and user friendly.

VI. CONCLUSION

In this paper, we addressed a method to achieve human following behaviour as a first step toward development of a smart bag with security moving along with a person. The bag is developed to be affordable for a new invention that can lead to new application to aid humans further. This paper basically highlights three features of the proposed system. The most vital feature of this idea is currently being working on is RF technology. The another most significant feature is security that involves a wide range of software and hardware including web based security services, biometrics and personal devices with integrated security levels. One of the biggest advances of the digital-technical age has been the introduction of biometrics into security. Third feature is solar energy based smart bag is very easy to use and provides day to day required features. The inbuilt power bank can provide sufficient power and at the same time share power to user's gadgets like mobile phone, Bluetooth headphones, etc. This bag is less complicated and compact which can be used for handling difficult tasks.

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