SMART LUGGAGE SYSTEM

Afrin Khan[1], Bandini Nalwade[2], Neha Kharshinge[3], Sonali Kamble[4]

[1,2,3,4]*Student, Dept. of Computer Science and Engineering, Dr. J J Magdum College of Engineering, Maharashtra, India*

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Abstract - *Luggage is a place to keep things of its user in transit. It has many design changes since its origin. All the changes have made the luggage easily transportable. Each time the luggage had an upgrade it transformed its handling facilities but it also made itself vulnerable to theft, and also causing many problems to its user. In present day, the luggage is not compatible with the current smart life of the people. In Airports, a lot of luggage do out clearance because of lack of knowledge and ignorance of baggage rules. In order to overcome the above said problems the luggage is been designed from inside out.*

Key Words: **Arduino IDE, MIT App Inventor, GPS.**

1. INTRODUCTION

This project targets all sections of society and all age groups. Whether they are of old age or young, carrying a heavy luggage has always been a matter of distress. This project aims to provide comfort and ease while travelling in addition with smart features that are user friendly. The carrier is designed in such a way that it follows a specific user who is having RF transceiver and in addition with a feature of avoiding obstacles in the path by raising an alarm on the user's smart phone. There is a facility of tracking the location of the luggage too so as to avoid theft and loosing the luggage. The location of luggage will send on user's smart phone via a message.

The problems encountered have been divided into following three sections:

- Back pain Problem.
- Accidental injury if backpack falls.
- Shoulder and neck injury.
- Weakening of cuff bones and joins.

Fig. The problem to carrying heavy luggage

2. Functional Overview

A. Motion Detection
• Motion Detection is to be done with the help of PIR motion detector
• Should only follow a Single user.

• The user should have an RF transceiver with her/him.
• The Carrier follows the user based on the Proximity as per the signals received from transceivers.

B. Speed Control
• Based on the proximity of the user and the carrier.
• The rate at which proximity values change, should determine the speed of the carrier.
• After a certain limit, the speed becomes constant.

C. Obstacle Avoiding
• Has to be done with the help of the IR sensors.
• The carrier detects the value of closeness of an object with the help of IR sensors.
• An alarm would be raised on luggage as well as on user's phone & message will be sent on user's mobile.

D. Communication between the Transceivers'
• Using SPI communication protocol as it is three times faster than UART & easy to implement.

E. Stability of the Carrier
• In order to ensure stability, carrier is designed to move in lateral position.
• The speed of the carrier and weight management should be in such a way that there is slight effect of centrifugal force on the carrier, so as to prevent fall-off.

F. Tracking the Location
• The carrier is built with smart features that allow the user to get the location of the luggage wirelessly on the mobile phone.

3. PROPOSED WORK

The system comprises of a luggage tracking device which contains a small hardware circuitry which is used to track the live location of a luggage.
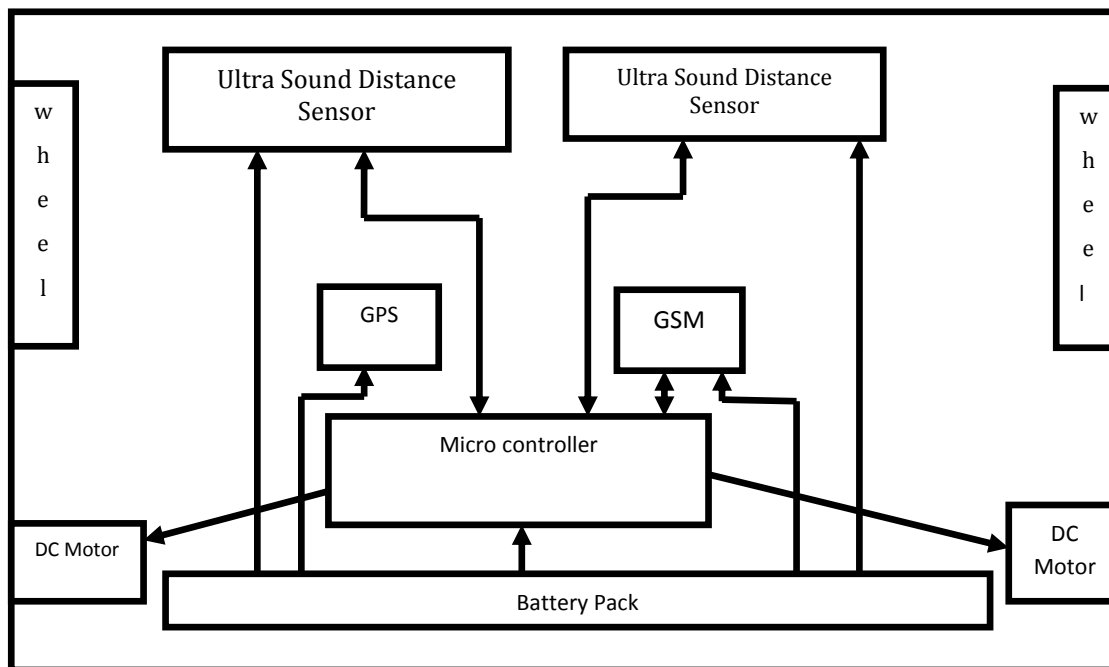
This circuitry consists of ARDUINO UNO and GPS module which will give the location of luggage. The GSM module and GPS module will be interfaced with ARDUINO UNO. Through GPS we will send GPRS which contains live location to server which is present at PC side. The server will send location to Android app of user. In that android app user will get live location of luggage.

4. CONCLUSION

Smart bag is an innovative carry on suitcase that makes life easier and smoother. Carrying luggage is the main difficulty faced by each and every passenger. Here we try to solve the dragging of luggage difficulty and also providing better security and intelligent features that suitable for modern era. In this project we developed a new low cost human following technology to assist low cost consumer product implementation, so that the overall production cost of a automatic user following bag will be less. The inbuilt power bank can provide sufficient power and at the same time share power to users gadgets like smart phone, laptops etc.

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