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Self-Drive Luggage

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Abstract: In the current scenario, there are problems during travelling like too heavy to drive the luggage, chances of missing and unauthorized accessing and charging mobile or laptop .So, the self-driving luggage helps their owner during travelling or help to overcome from the problems during travelling such solutions are the luggage follow their owner, tracking system, digital locking system and charging port in the luggage.
Keywords: Automatic Luggage, Obstacle's detection, Tracking System, Authorization.

I. INTRODUCTION

In the current scenario, automation is the utilization of machines, control framework and information technology to upgrade the productivity in the creation of products and conveyance of administration. It is the use of control framework and information technology to reduce the need for human work in the production of goods and services.
Now, the proposed solution "Self Driving Luggage" provides these systems needed to overcome the problems.

1) The luggage is designed in such a way that it will follow the owner, there is no need to drag the luggage. It will automatically take directions according to the owner while moving.
2) In case of any theft activity of the luggage, it will alert the owner through vibrations via Wrist-band. The luggage can also be tracked through an app in case of missing.
3) A fingerprint locking system has been provided into the product for security purpose.
4) A smart charging port is included in the product to facilitate people with their mobile charging, especially while travelling.

This luggage is very useful for:
a) Elderly people
b) Wheelchair users
c) Business people

II. PROBLEM STATEMENT

The major issues faced by people during travelling are own comfort and security of their belongings. The luggage has to be dragged, which is an unnecessary burden for

A. Business people
B. Elderly people
C. Wheel chair people

Gazettes like mobile phones, laptops need to be continuously charged. Charging is another issue that people face while travelling. During travelling, persons feel uncomfortable with our trolley luggage because they have to drag their heavy luggage , chances of Missing of their luggage , unauthorized accessing with their luggage, charging their laptops / mobile phones during travelling.

III. PROPOSED WORK

In order to unburden people from the above problems, the concept of Self-Drive Luggage has been introduced. This luggage no longer needs to be dragged as it operates in automatic mode. It will drive itself and follow the directions of the owner. However, it is also equipped with manual mode, so it can be manually dragged as well, when desired.
For Security purpose, a digital locking system (Finger-print scanner) has been added into the luggage. It will protect the luggage against unauthorized touch. A multi-port charging system has been provided in the luggage so that the user can charge their electronic gazettes.

A. The luggage is designed in such a way that it will follow the owner, there is no need to drag the luggage. It will automatically take directions according to the owner while moving.

B. In case of any theft activity of the luggage, it will alert the owner through vibrations via Wrist-band. The luggage can also be tracked through an app in case of missing.

C. A fingerprint locking system has been provided into the product for security purpose.

D. A smart charging port is included in the product to facilitate people with their mobile charging, especially while travelling.

IV. SYSTEM ARCHITECTURE

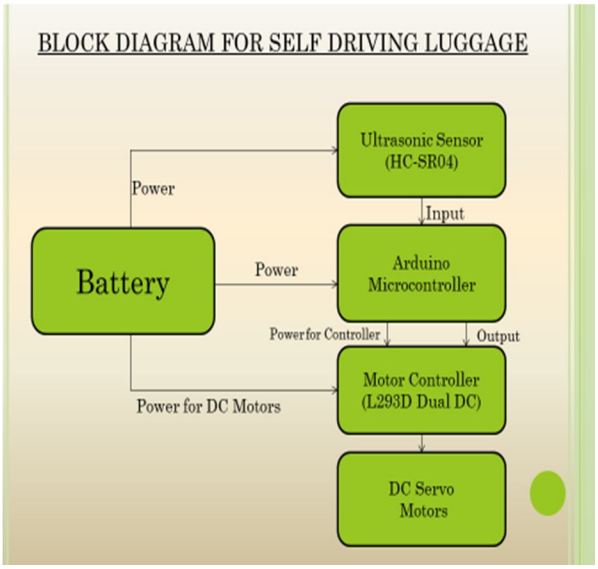

Fig.-1

V. HARDWARE REQUIREMENTS

A. Arduino Board

Microcontroller is heart of the electronics circuit. it is like a small computer which consist of a memory element, input and output port. It consists of a processor core. we can input different program to obtain output according to our desire. The function of microcontroller is to collect information from input section i.e. Sensors and GPS module in this project and transfer it to output section i.e. GSM module which send information ahead to desire location. Arduino Uno is an open source, computer hardware and software. It is easy to use. Arduino Uno use ATmega328P as microcontroller chip.

In Arduino Uno there are 14 digital pins (out of which 6 are PWM pins), 6 analog pins, a 16MHz quartz crystal Oscillator. Arduino Uno is designed in such a way that we can provide power to it by a DC battery or AC to DC adapter**.**

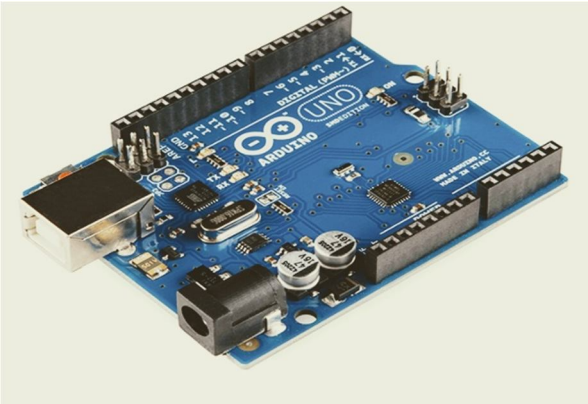

Fig.- 2

B. GPS Module

The global positioning system (GPS) is a satellite-based radio navigation system. It provides exact coordinates and time information to receiver on the earth. We get location with the help of geostationary satellite in space. GPS satellite was initially launched on February in 1978. GPS is operated by united state space force. GPS does not required user to send data and it is independent of internet reception.

Fig.-3

C. GSM Module

The GSM stands for Global System for Mobile Communication. GSM was developed by European Telecommunication standard institute which describe protocols for 2G digital cellular network used in mobile phones and tablets. We use SIM900A GSM module in our project for establishing communication between soldier and base station. SIM900A is a dual band GSM/GPRS system. SIM900A delivers GSM/GPRS at 900/1800MHz performance for voice, SMS and data transfer in small form factor with low power consumption. It is controlled by AT commands.

Fig.-4

D. Ultrasonic Sensor

Ultrasonic sensors are those sensors which used a ultrasonic waves to select an object or to measure the distance between itself and the object. The HC-SRO4 sensor has got two transducers, one for the transmitter and one for the receiver. It has four pins.

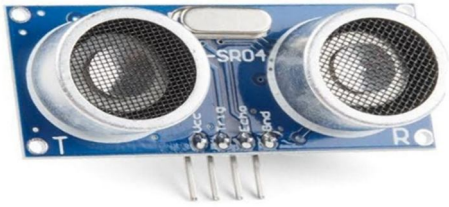

Fig.-5

E. DC Motor

This BO DC Gear Motor 100RPM Dual Shaft is a standard low cost low voltage durable BO DC Gear Motor 100RPM Dual Shaft running at 100 RPM. It is most suitable for light weight robot running on voltages between 5V-9V. Out of its two shafts one shaft can be connected to wheel, while the other can be connected to an encoder.

Fig.-6

VI. FLOW CHART OF SYSTEM

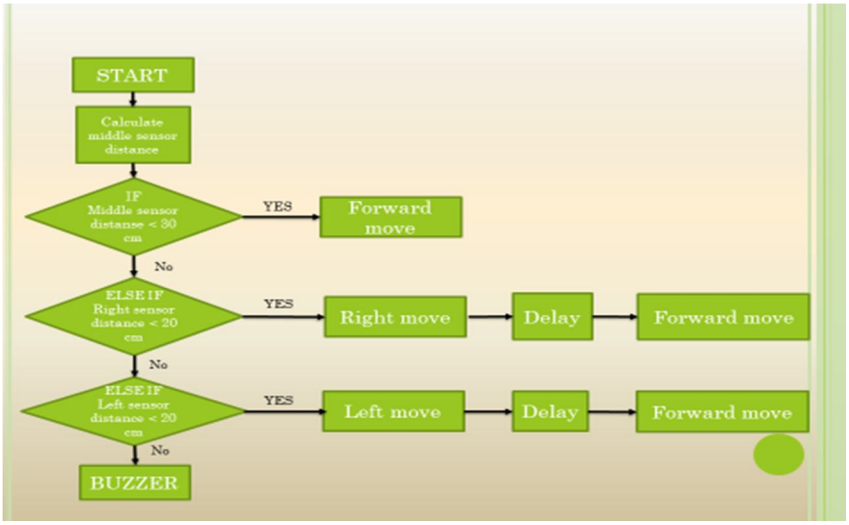

Fig.-8

VII. ADVANTAGES

A. Provide comfort to the owner.
B. Easily carrying during travelling.
C. Tracking system.
D. Autonomous mode.
E. Charging port.

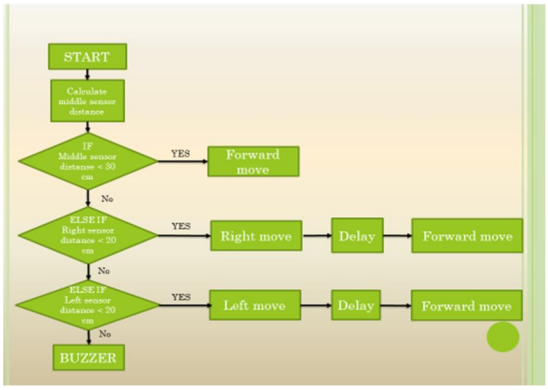

Fig.-7

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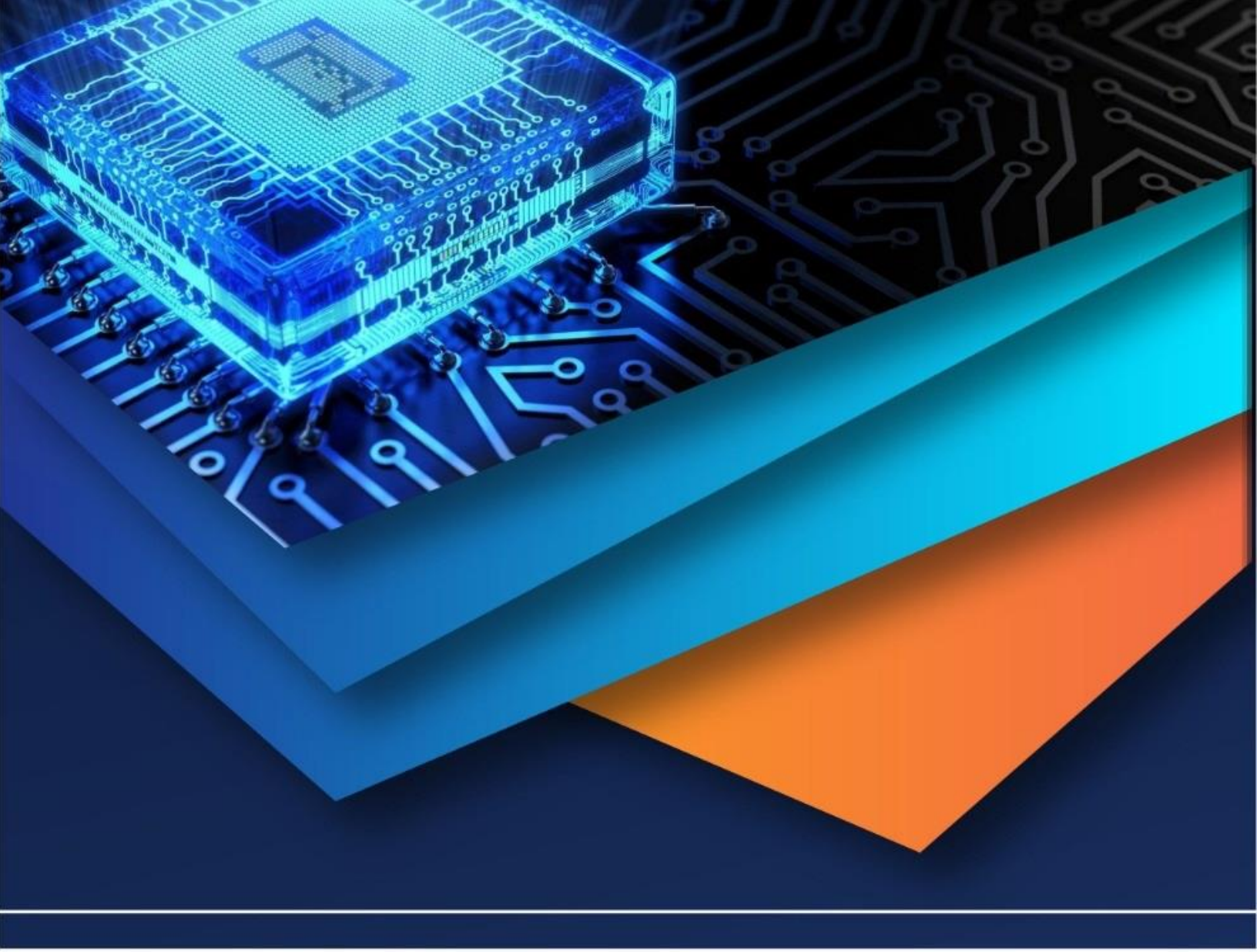

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