Smart Luggage Carrying Robot using Raspberry pi

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Abstract – *A supermarket or a hypermarket is a form where wide variety of product items is available. These product items can be food, beverages or any household product. The main purpose of supermarkets is to provide availability of all the products and save the time of the customers but sometimes customer gets frustrated while waiting in the queue at billing counter and sometimes they get confused while comparing the total price of all the products with the budget in the pocket before billing. To overcome these problems, we have designed a smart trolley using a smart phone and Raspberrypi. With this system, there is no need for customer to wait in the queue for the scanning for the product items for billing purpose. Supermarkets or Hypermarkets provide this faculty to only those customers which having membership cards. When the customer inserts the membership card in the basket or trolley only then it will work as a smart trolley. Otherwise, it will work as a normal trolley. Supermarkets and hypermarkets use this technique as a strategy to increase the number of customers.*

***Key Words*: Raspberrypi, Camera, DC motor, Motor driver, Chessy, Wheels.**

1. INTRODUCTION

Thinking of making robots, you might come up with ideas such as line tracking, obstacle avoider, anti-drop Robot, environment monitoring Robots, etc. But what we are going to make today, is a robot that follows an object, relentlessly. The basic function of this robot is simple, it follows you. It goes forward as you go forward; when you stop moving, it stops as well. We used an camera to identify the moving direction of the object. You canalso add more number. The minimum number that will do the job is one.Here by measuring the pulse width of the echo pulse from camera we can get the range of the object in front of the robot. Here we created an algorithm which will move the robot forward when the object is moving forward within the programmed range and backwards in the same manner.

Important issues concerning communication channels, random propagation delays, bandwidth limitations, fault-tolerance, synchronization, telepresence, and the stability of the robotic systems involving human operators have all been taken into account In different works across the literature. Most of them consider Internet as the interconnection network between telecontrolled systems and control stations.
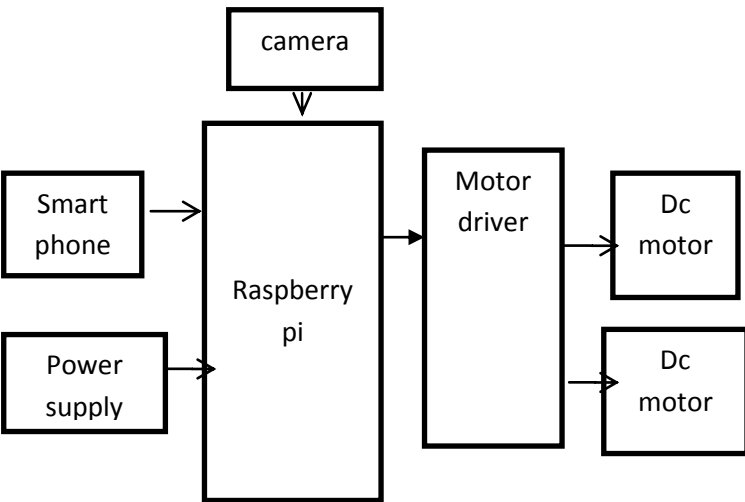
Hardware descrition:

With advancement in robotic systems towards being autonomous surveillance robots the need for more smart thinking robots has become very essential. One of the aspect of tracking an object from its visuals has been taken up in this project Object Tracker and Follower Robot. In essence this project clubs in image processing and driving a robot autonomously with what visuals have been caught as has been in the case of Machine Vision projects. This project will be using a Raspberry Pi processor board for computational purpose and driving of the robot. The camera attached to the system captures the images of the front of the robot where it is attached. By monitoring a stream of incoming images the robot is able to autonomously decide to proceed in which direction it should go.

• The incoming visuals are processed using image processing techniques. By the use of image processing the coordinates of the target is recognized by the robot following which it follows a path to get to the target. In this project we have demonstrated this ability of the robot by using a yellow colored Smiley face ball. Whenever a ball is placed in front of the robot it recognizes the ball shape and color and estimates by this about what direction is it from its current location and also an approximated distance from the ball. With these calculations it proceeds towards the ball and stops at a location near the ball. This project demonstrates the capability of robots having target tracking capabilities autonomously with the help of image processing and robot driving by the results of image processing.

• The robot can follow the object even when the object is moving at a speed which can be tracked. In this way with the help of advanced technology the Object tracker and follower robot can achieve object tracking autonomously.

2. BLOCK DIAGRAM:

3. RESULT AND OBSERVATION :

Fig.Implementation Board

Fig .Result on web page

4. CONCLUSION

In this paper, we have proposed a design of a smart luggage carring robot to monitor the environmental condition of a remote place. A prototype has been developed and tested in our campus to illustrate the effectiveness of the proposed methodology. The system submits the collected data to the cloud as well as displays it on the web for further investigation. Storage is one of the challenges of the mobile robot, which is being addressed in this contribution.

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