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Robot Car Controlled By Using Google Assistant

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Abstract - *Today human-machine interaction is moving away from mouse and pen and is becoming worldwide and much more suitable with the physical world. The existing system has used the robot car that will receive the commands via Bluetooth and move accordingly. This system cannot be used for security purpose and any such application as it doesn't have camera installed on it. In proposed system, the robot car can be easily moved from one place to another just by giving commands to Google assistant. The advantage of using robot-controlled car is that it can be used for various purposes like it can be modified quite easily to include spy cameras that can be used in fire accidents where it's not possible for firemen to reach and it will stream live videos.*

Key Words: **Internet of Things(IoT), If This Then That(IFTTT), General Purpose Input Output(GPIO)**

1. INTRODUCTION

The modern definition of a robots can be an elector-mechanical device which follows a set of instructions to carry out certain jobs. Automation is a prime attribute in robotics. Robots are known to work automatically without human intervention, except for initial programming and instruction set being provided to them.

A network that provides variety of information and communication facilities is known as internet. The main benefit of internet is that it helps us to send messages quickly between computers around the world. The concept in which day to day objects are connected through wired and wireless network without human intervention is IoT.

2. PROPOSED SYSTEM

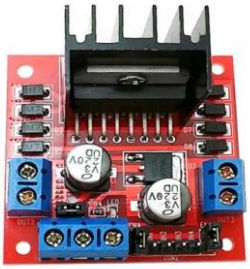
The proposed solution to the problem statement includes a Robot car controlled using Google assistance we have implemented system using Google assistance, raspberry pi, Wi-Fi module, motor driver. Google assistant will help us move our robot to a particular direction. Our mission is to build a robot that can be controlled using Google Assistant.

3. COMPONENTS

3.1 Raspberry Pi

The Raspberry Pi is a cheap, credit-card sized computer that plugs into a computer monitor and can be used with a standard keyboard and mouse. It works as a desktop computer and can be use to learn programming, build different hardware projects, do home automation and even use in industrial application. It provides a set of GPIO pins that allow you to control electronic components and explore IoT.

3.2 L298N Motor Driver



The L298N motor controller follows the H-bridge configuration, which is handy when controlling the direction of rotation of a DC motor. It is ideal for robotic applications and well suited for connection to a microcontroller and raspberry pi requiring just a couple of control lines per motor. The L298N has four inputs corresponding to the four switches. All

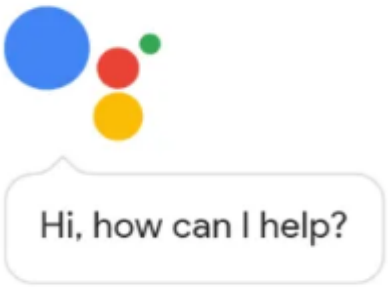
you need to do is apply signals to the inputs to make the motors rotate to a any direction.

3.3 USB Camera

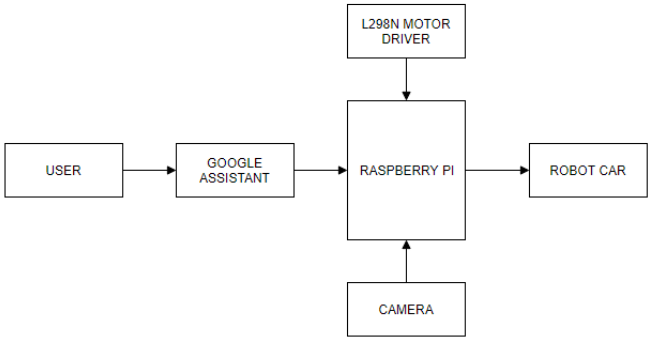
USB Cameras are designed to easily interface with dedicated computer systems. USB Cameras are imaging cameras that use USB 2.0 or USB 3.0 technology to transfer image data. An increasing selection of USB 3.0 Cameras is also available with data transfer rates of up to 5 Gb/s. The accessibility of USB technology in computer systems as well as the 480 Mb/s transfer rate of USB 2.0 makes USB Cameras ideal for many imaging applications.

3.4 Google Assistant

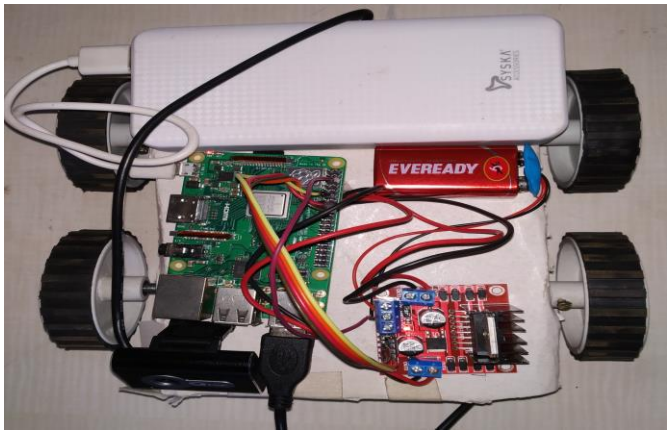
Google Assistant is virtual assistant developed by Google. The "OK Google" or "Hey, Google" covers voice commands, voice searching, and voice-activated device control, letting you do things like send messages, check appointments and so on your Android device.



4. SYSTEM ARCHITECTURE



The user will give command to Google Assistant and the assistant will convert it into text and pass it to IFTTT, and then depending upon the command, the IFTTT will make different HTTP request to our robot. Our robot is controlled by raspberry pi. Raspberry pi has been programmed to interpret set of commands which is already set in raspberry pi using python. Adafruit will get a particular command and raspberry pi will move robot accordingly. The raspberry pi is connected to the network and robot is getting the same IP address. Android smart phone and raspberry pi is connected over same network. The commands received by Adafruit which will help the motor (L298N motor driver) to give directions to the robot. The Wi-Fi module is already present on raspberry pi.



5. CONCLUSION

Voice controlled car is proposed to enhance robot to perceive different commands as per user and Wi-Fi will help robot car cover large area at high speed as compared to Bluetooth. We have proposed Robot controlled car using Raspberry Pi for the benefit of running multiple programs. Our paper provides

application of video streaming as well as ease of making robot car perform various operations by using Google assistant. We are using portable device like android phone so implementation cost is lowered.

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