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Mobile Bluetooth Control Car

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Abstract— This car Work is based on Arduino, a motor driver, and a Bluetooth module, and it is based on the combination of hardware and software. Arduino uses an ATmega328 microcontroller. This is a very simple and easy type form of remote control car, instructions are given to Arduino for various actions through an interface via Bluetooth module. Also, we have used 4 TT gear motors and wheels plus the 12v battery we used. The project aims to develop a car to entertain kids that can be controlled through a smartphone app. Making the best use of the app facilitates the user to control the toy car which attracts the child, plays with the child, and also packs some additional features for the entertainment of the user. the car has been provided with many actions just as forward, backward, left, right, etc.

Keywords: Arduino Uno, HC-05 Bluetooth Module, Motor Driver Module L298N, Grippy Wheels, Jumper Wires, Bluetooth Controller Car.

I. Introduction

This is an Arduino-based, Bluetooth-controlled RC car. It is controlled by a smartphone application. Bluetooth-controlled car is controlled by using an Android mobile phone instead of any other method like buttons, gesture, etc. Here only needs to touch the button on an android phone to control the car in forward, backward, left, and right directions. So here android phone is used as a transmitting device and a Bluetooth module placed in the car is used as a receiver. Android phones will transmit commands using their in-built Bluetooth to the car so that it can move in the required direction like moving forward, reverse, turning left, turning right, and stopping.

II. METHODOLOGY

First we have collected all the components required for the project. then according to the Procedure we have taken sheet and cut it into the shape that was required after that we have taken 4 TT gear motors. stick to the four corners with the help of reversible taps also connected wires for further connection. After we connected the driver circuit made connection also connected Arduino UNO, Bluetooth, and a 12v Battery. for the project, we downloaded the RC controller app to control our car. we have to connect our Bluetooth module to the car. then after all connection. we can control our car by using this app.

III. LITERATURE REVIEW

1. Bluetooth Remote Controlled Car using Arduino -- In this paper author have given information about the component used for the project like Arduino UNO, Bluetooth module, etc.

2. AN OVERVIEW OF CAR SPEED CONTROL USING BLUETOOTH AND SENSORS - In this paper we propose the use of Bluetooth Technology by which we can check the speed of the car whenever it comes dangerously

close to any other vehicle up front, thereby saving very many lives.

3. Android App-Based Car Controller Using Bluetooth Communication When an android app that will be connected to this system by Bluetooth is switched on one can operate the vehicle by wireless commands given from the app. The operation range of Bluetooth is around 10 meters or 33 feet approximately.

4. Voice Controlled Car using Arduino and Bluetooth Module-Several areas that may additionally be discussed are the impact of noise on speech-textual content translation.

5. Implementation of Android Control Bluetooth Spy Car with LIVE Video Streaming-- the use of renewable energy sources for car operation would not only increase the value of car energy but would also be environmentally friendly. Solar cells can be a suitable power source to use.

IV. Hardware Implementation & Design

A. Arduino Uno

The Arduino Uno is an open-source microcontroller board based on the Microchip ATmega328P microcontroller and developed by Arduino.cc The board is equipped with sets of digital and Analog input/output (I/O) pins that may be interfaced with various expansion boards (shields) and other circuits.[1] The board has 14 digital I/O pins (six capable of PWM output), and 6 Analog I/O pins, and is programmable with the Arduino IDE (Integrated Development Environment), via a type USB cable. It can be powered by the USB cable or by an external 12-volt battery, though it accepts voltages between 12 and 20 volts. The Uno board is the first in a series of USB-based Arduino boards; it and version 1.0 of the Arduino IDE were the reference versions of Arduino, The ATmega328 on the board comes pre-programmed with a bootloader that allows uploading new code to it without the use of an external hardware programmer. There are many versions of Arduino boards introduced in the market like Arduino Uno, Arduino Due, Arduino Leonardo, and Arduino however, the most common versions are Arduino Uno and Arduino Mega.

Fig. (1)

B. HC-05 Bluetooth Module

HC- 05 Bluetooth Module HC- 05 is a Bluetooth module that's designed for wireless communication. This module can be used in a master or slave configuration. It's used for numerous operations like wireless headsets, game regulators, wireless mice, wireless keyboards, and numerous further consumer operations. It has a range of up< 100m. To communicate smartphone with the HC- 05 Bluetooth module, a smartphone requires a Bluetooth terminal operation for transmitting and entering data we need to pair the HC- 05 module to the smartphone for communication. First, search for a new Bluetooth device from your phone. You'll find Bluetooth bias with — HC- 05 ‖ name. Second, click on connect/ brace device option; the dereliction leg for HC- 05 is 1234 or 0000. In the smartphone, open the Bluetooth terminal operation and connect to mated device HC- 05. It's simple to communicate, we just have to class in the Bluetooth terminal operation of the smartphone. Characters will get transferred wirelessly to Bluetooth module HC- 05.

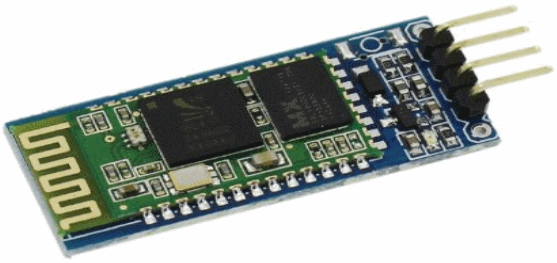

Fig.(2)

C. Motor motorist Module L298N

This L298N Grounded Motor motorist Module is a high- power motor motorist perfect for driving DC Motors and Stepper Motors. It uses the popular L298 motor motorist IC and has the onboard 5V controller which it can supply to an external circuit. It can control up to 4 DC motors, or 2 DC motors with directional and speed control.

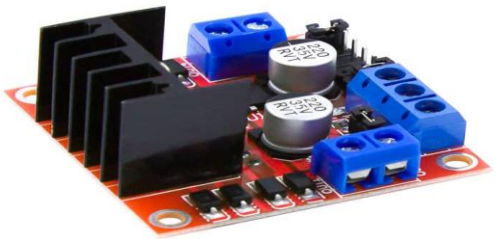

Fig. (3)

D. Micromors and Grippy Wheels

Mobile wheeled or tracked buses have a minimum of two motors which are used to propel and steer the auto there are four big bus.

E. Jumper Wires

A jump line is an electrical line or group of them in a string with a connector or leg at each end. Cables are used to connect factors to each other on the breadboard or other prototype, internally or with other outfit or factors, without soldering. line connectors could be manly or womanish. A manly connector is generally appertained to as a draw and has a solid leg for a center captain. A womanish connector is generally appertained to as a jack and has a center captain with a hole in it to accept the manly leg.

V. Software Description

Arduino software is used to put the instruction of the whole functions of this system to the microcontroller. Then we use the programming language _ C ‘ for rendering. The program for executing this design has been written in C language. The program is burnt in the microcontroller using burner software. With this software, we put the data and instructions for the forward, backward, left, and right operation of this system. In the android operation when we press a button, a corresponding signal is transferred through the Bluetooth to Bluetooth module(HC- 05) which is connected to the Arduino. also, an android operation is been erected for the Wi- Fi module and when the buttons are

pressed through the operation the corresponding signal is been transferred through the Node MCU ESP8266 and the motor motorist drives the wireless auto. When signal data arrives at the Node MCU ESP8266 the leg that corresponds to the particular input is set to grandly. Now that leg gives the affair to the motor motorist section. The motor motorist switches consequently the data bit, if the data bit is low also the corresponding leg of the motor motorist does n‘t work differently high bit also the corresponding leg of the motor motorist is on.

We've used Arduino IDE interpretation1.8.1 for the jotting program. There are two way of programming. The first setup section is where we define all the variables. The alternate circle part is where the program runs continuously.

VI. Resultant Analysis

Then we work on common mode and when we want to change settings of the HC- 05 Bluetooth module like changing the word for connection, baud rate, Bluetooth device ‘s name, etc. To do this, HC- 05 has AT commands. To use the HC- 05 Bluetooth module in AT command mode, connect — The crucial ‖ leg to High(VCC). The dereliction Baud rate of HC05 in command mode is 38400bps. Following are some AT commands generally used to change the settings of the Bluetooth module. To shoot these commands, we've to connect the HC- 05 Bluetooth module to the PC via diurnal to USB motor and transmit these commands through the periodical outstation of the PC.

VII. Conclusion

To us, the need for the internet and the things which are internet based are very much important nowadays. IoT or the internet of things is a very important part of both computers and our daily lives. The above model describes how the Arduino programs the car motor module and by IoT, we rotate the wheels and give direction to the car. IoT allows us to work with different platforms and it helps us to create various interesting modules to work on. We also tested the applications used to drive the car. Due to the new concept of Wireless Controlled Cars using Bluetooth, Wi fi and IOT, we were able to come up with various possibilities that can take place.

VII. References

[1] Nelson Rai, Deepak Rasaily, Tashi Rapden Wangchuk, Manoj Gurung, and Rit Kr. Khawas “Bluetooth Remote Controlled Car using Arduino”, March 2016.

[2] Ganesh Pol, Shantanu Gaikwad, Chinmay Deshpande Mechanical engineering, KIT’S College Engineering, Kolhapur, Maharashtra, India “AN OVERVIEW OF CAR SPEED CONTROL USING BLUETOOTH AND SENSORS”, February 2016.

[3] Dipali Namdev Shelke, M. P. Satone and Kisan Pawar Department of Electronics and Telecommunications K.K.W.I.E.E.R, Nashik “Android App Based Car Controller Using Bluetooth Communication”, May 2017.

[4] Telugu Maddileti, Mandeep Jammigumpula, H.Jagadish Kumar and K.V Sai Sashank “Voice Controlled c using Arduino and Bluetooth Module” December 2019.

[5] Souvik Paul, Saumedhik Biswas, Banhishikha Basu, Sreya Basu, BCA Department, The Heritage Academy, Kolkata, India “Arduino based, Bluetooth controlled RC Car”, March 2020.

[6] Sagar Pramanik, Harendra Kerketta, Dibas Ghosh, Jivesh Kumar Jha “Bluetooth Controlled Robotic Car”, April 2019.

[7] Md. Harun-Ar-Rashid, Md. Wahidur Rahman, Rahabul Islam and Md. Tarequl Islam “Implementation Android Control Bluetooth Spy Car with LIVE Video Streaming”, August 2018.

[8] Shrutika Kanere, Rutuja Shinde, Vaibhavi Tornekar, Dnyaneshwari Zagade and Mrs. V.S.Sonar “Bluetooth Controlled Car System”, March 2018.

[9] Neha Sachdev, Prachi Agrawal, Tanuja Kashyap “Bluetooth control Bot Car to be used by healthcare workers to support Corona Patient”, May 2021.