An Android Control Smart Car

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Abstract: Our paper illustrates design and implementation of prototype car that is controlled through Smartphone. In this work Smartphone is used for controlling a prototype car. Android application helps in providing graphical interface to the user. The prototype car consist of two DC motor with motor driver, Bluetooth module, Arduino microcontroller, some wires, batteries etc. Two motors are used for controlling speed and direction of car and one motor is just a general purpose. Bluetooth module receives signals from android application and sends data to the Arduino microcontroller unit. This Arduino unit operates the received data and sends control signal to DC motor. Android studio software is used for Arduino programming and android application is downloaded from play store.

Keywords: Android Remote control , Advanced Driving version for Car through Android phone.

I.   INTRODUCTION

This is the age of Smartphone's where the world uses Smartphone's in our day to day life, and people want everything to be controlled through their Smartphone's. So the purpose of this project is to develop such a user interface to control a car through a wireless technology. We create an interface between the car and Smartphone so that the data should be passed in both the direction. In this project we are using Bluetooth for controlling a four wheeler car. We are able to achieve this as we have developed a prototype for this module. Our prototype module runs well and can be controlled by two modes.
   – One, from any Bluetooth activated computers.
   – Second, from an android phone by touching buttons and
An android controlled car is built using Arduino uno Microcontroller in which communication is done through Bluetooth.

II. PROPOSED SYSTEM

The proposed system consists of two main units:
1.   Arduino uno microcontroller.
2.   Android phone.
3.   Bluetooth Application
4.   Bluetooth module HC-05

1. Arduino Uno
The proposed device uses Arduino uno microcontroller .It is an open source microcontroller board which has 14 digital pins and 6 analog pins which may be interfaced to various expansion boards and other circuits. It require 9v power supply .

II. HC-05 Bluetooth module

The HC-05 module is a MASTER/SLAVE module. By default the factory setting of HC-05 is SLAVE. The Role of the module (Master or Slave) can be configured only by AT COMMANDS. The slave cannot begin a connection with another Bluetooth device, but can accept connections. Master module can begin a connection with other devices. The user can use it simply for a serial port replacement to initiate a connection between microcontroller and GPS, Computer to your embedded project, etc.
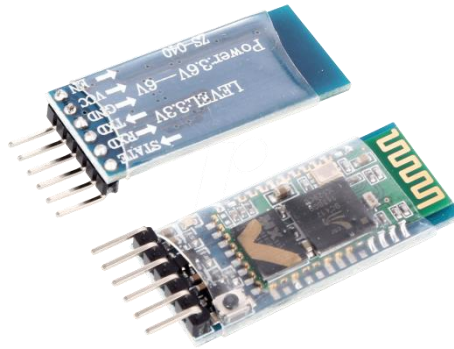
III. L293D MOTOR DRIVER
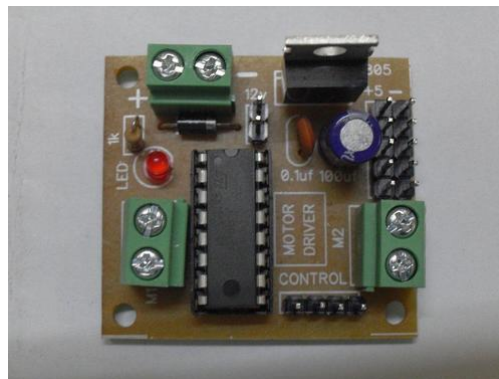
The motor driver is a driver module for DC motors that allows us to control the speed and direction of two motors at the same time. This Motor Driver is designed and developed by considering L293D IC. L293D is a 16 Pin Motor Driver IC. This is designed to provide bidirectional drive currents at voltages from 5 V to 36 V.

IV. JUMPER WIRES

Jumper wire is an electrical wire that has a connector or pin at the end side of it that is normally used for interconnecting the components of breadboard without using the solder machine. It may be male to male or male to female.


V. RESEARCH METHODOLOGY

Wiring connection with Arduino
. 1. Module 5V i.e. VCC is connected to Arduino's 5V.
2. Module GND is connected to Arduino's GND.
3. Module 1 is connected to Arduino's D8.
4. Module 2 is connected to Arduino's D9.

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5. Module 3 is connected to Arduino's D10.
6. Module 4 is connected to Arduino's D11.
7. Module Motor terminals is connected to DC motors.
8. Module VSS power terminal is connected to External power source of 9V.
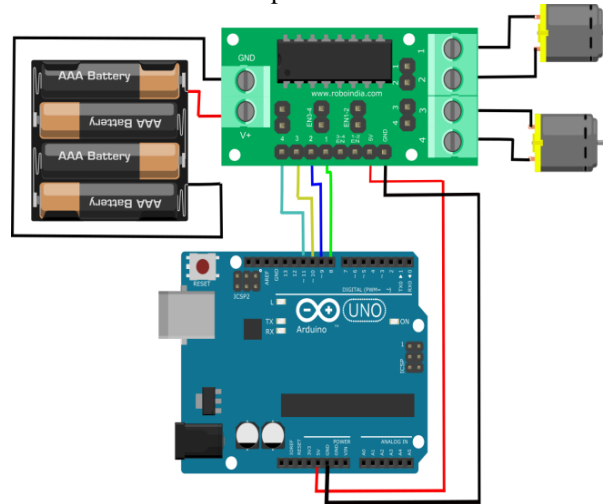
Requiremnet Analysis
Hardware
- Arduino uno
- L293D motor driver
- Bluetooth Module HC-05
- Breadboard
- Jumper wires
- Power Supply 9v (x2)
- Android phone
- 3 or 4 Wheel Chassis
- DC motors

Development Tool
- Arduino Studio
- Bluetooth RC Application

VI. FUTURE SCOPE

This project is just a prototype and can be further developed by adding new features to it such as camera, voice recognization and various sensors such as gas sensor, obstacle sensor, ultrasonic sensor etc. This is a one way interface project but it can be developed as a two war interface that is it can send data from car to android phone.

VII. CONCLUSION

The aim of this paper is to accomplish the smart living, for example the home lighting control system using Bluetooth Technology. Smartphone and robotics if paired together can give huge boost to technology. Mobile phones can also be used for creating new features such as recognization of voice. Smartphone containing Bluetooth and Bluetooth receiver HC-05 and creation interface between them through arduino can simplify our lifestyle and this will automatically help the senior citizens and physically challenged people also.

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[5]   www.Robohub.com

BIOGRAPHY

Dr. Prakash S. Prasad is working as Professor and Head CSE at Priyadarshini Institute of Engineering and Technology. He is having 20 Years of experience in the field of teaching to engineering students. He completed his engineering in the year 1997, master of engineering in 2006 and PhD in 2014. He is member of IEEE, IACSIT, CSI, ISTE. He is having more than 36 research papers published in international journals and conferences. He is on editorial member of few International Journals. His interests includes real time operating system, kernel programming, system software and operating systems.