VOICE CONTROLLED ROBOT
Overview

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Introduction

• The use of robots in the present day has moves from industries to the normal day to life
• The use of voice commands to control a robot is much easier for domestic as well as industrial users
• This project proposes the use of an android mobile to control a robot via voice commands.
Hardware requirements

• Arduino Uno
• Bluetooth Module HC-05
• DC Motor Driver L293D
• DC Motor
• Power Supply
Arduino UNO

- Microcontroller board based on the ATmega328P.
- 14 digital input/output pins (of which 6 can be used as PWM outputs)
- 6 analog inputs.
- 16 MHz quartz crystal
- A power jack
- Connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.
The board...
Bluetooth Module (HC-05)

- For the communication between mobile phone and microcontroller Bluetooth module (HC-05) is used.
- Low Power 1.8V Operation, 1.8 to 3.6V I/O.
- Serial port Bluetooth module have a Bluetooth 2.0+EDR (enhanced data rate), 3Mbps modulation with complete 2.4GHZ radio transceiver and baseband.
- Using Bluetooth profile and android platform architecture different type of Bluetooth applications can be developed.
DC Motor Driver (L293D)

- L293D has quadruple high current half-H drivers.
- Wide Supply-Voltage Range: 4.5 V to 36 V
- High-Noise-Immunity Inputs
- Output Current 600mA Per Channel
- Peak Output Current 1.2A Per Channel.
Pin Diagram

- Enable 1,2
- Input 1
- Output 1
- GND
- Output 2
- Input 2
- Vcc 2
- Vcc 1
- Input 4
- Output 4
- GND
- Output 3
- Input 3
- Enable 3,4
DC Motor

- 10 to 200 RPM 12V DC motors with Gearbox
- 6mm shaft diameter with internal hole
- No-Load Current=60mA(max)
- Load Current=300mA(max)
Power Supply

230 V AC
50 Hz

12V step down transformer

Bridge rectifier

Filter (470μf)

5v Regulator

5V DC

Diagram:

- Transformer
- Bridge rectifier
- Voltage regulator
- Capacitors
- Diodes
- Resistors
- LED
- Ground

Diagram shows the flow of converting 230 V AC to 5V DC through various components.
Android

- Android is an open-source operating system which means that any manufacturer can use it in their phones free of charge.
- It was built to be truly open.
- Android is built on the open Linux Kernel. Furthermore, it utilizes a custom JAVA virtual machine.
Android Application on Mobile Phones

• An android app is meant for phones with an android based operating systems. They can be downloaded from the android app Market which is pre-loaded on every android phone.

• Blue control APP and Bluetooth Spp APP are some examples.
Android Application Operated Bluetooth

• The Android platform includes support for the Bluetooth network stack, which allows a device to wirelessly exchange data with other Bluetooth devices.

• The application framework provides access to the Bluetooth functionality through the Android Bluetooth APIs.
Android Application

Android Meets Robots
Voice Recognition

Android Meets Robots!
Talk to Your Robot
Click below to Speak!
Software Used..

• Arduino IDE
• Eclipse Android SDK (Software Development Kit)

Programming Languages Used..

• Embedded C/C++
• Java & XML
Applications

• The robot is useful in places where humans find difficult to reach but human voice reaches. E.g. in a small pipeline, in a fire-situations, in highly toxic areas.

• The robot can be used as a toy.

• It can be used to bring and place small objects.

• It is the one of the important stage of Humanoid robots.

• Command and control of appliances and equipment
References

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Questions????
THANK YOU