

Bluetooth Controlled Robot

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Abstract - Nowadays we can see that things which were previously controlled manually are automated using machines and electronic remote controls. The main objective of this project is to create an Android application which can be used to control the robot using wireless technology. Nowadays android is the most popular operating system used for smart devices. Smart devices which are using the Android platform are also becoming more popular these days because of its smart and easy to use touch interface. Also, hardware technology utilized in smart phones is improving significantly day by day. Hence, we can say that using such a powerful and generalized platform of the Android smart phones to control the robotic or any other system will be the great advantage for industrial and other general-purpose use.

Key Words: Android application, Wireless technology, Interface, Industrial, General purpose.

1. INTRODUCTION

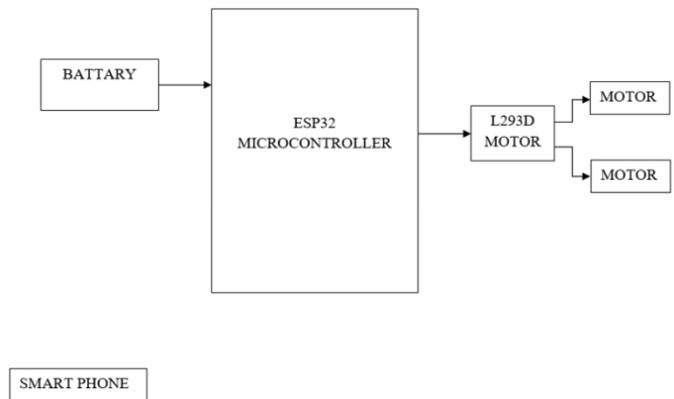
This project represents Android application-based Bluetooth controlled robotic car. We interface the Bluetooth module with the system so that we can easily control the system by smart phone application. The controlling of the Robot is done wirelessly through Android smart phone using the Bluetooth feature present in it. Here in the project, the Android smart phone is used as a remote control for operating the Robot. The controlling device of the whole system is a Microcontroller.

2. BODY OF PAPER

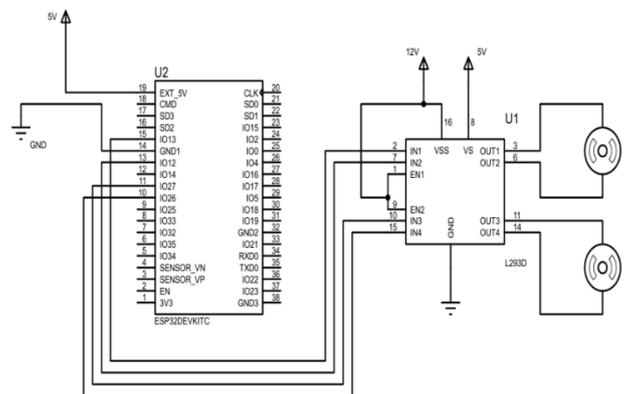
To power the circuit, connect the 6V battery's positive terminal to the XL6009 DC-DC converter input and its negative terminal to the circuit ground. The converter's 5V output should connect to the 5V input pins of both the ESP32 and the L239D motor driver, with their grounds linked. The ESP32 controls motor direction by connecting its GPIO pins to the L239D motor driver inputs, which in turn drive the motors through its output pins. The Bluetooth module (HC-05) connects its RX and TX pins to the ESP32's corresponding pins and its VCC and GND to the 5V and ground. Ensure the power supply can handle the motor's current needs, select suitable motors, configure the Bluetooth module properly, and

program the ESP32 to process Bluetooth commands for motor control.

Block Diagram:



Circuit Diagram:



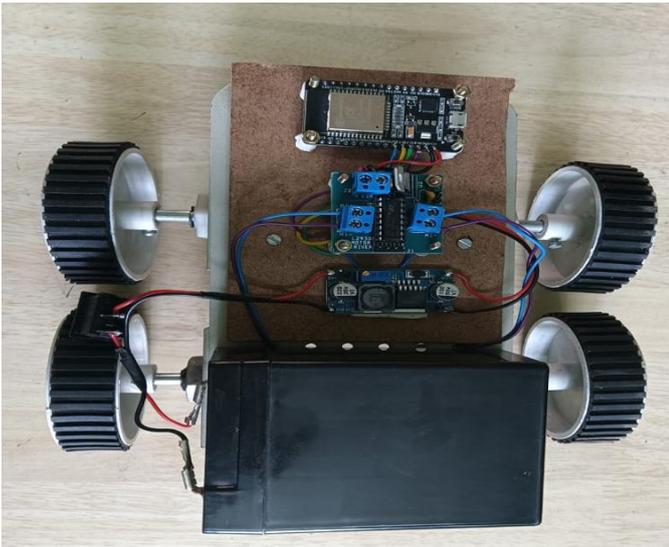


Fig -1: Figure

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3. CONCLUSIONS

The Wireless control is one of the most important basic needs for all the people all over the world. But unfortunately the technology is not fully utilized due to a huge amount of data and communication overheads. Generally many of the wireless-controlled robots use RF modules. But our project for robotic control makes use of Android mobile phone which is very cheap and easily available. The available control commands are more than RF modules. For this purpose the android mobile user has to install a designed application on her/his mobile. Then he/she needs to turn on the Bluetooth in their mobile. The wireless communication techniques used to control the robot is nothing than Bluetooth technology. User can use several commands like move reverse, forward, move left, move right using these commands which are given from the Android mobile. Robot has a Bluetooth receiver unit that receives the commands and move left, move right using these commands which are given from the Android mobile and send it to the Arduino circuit to control the motors. The Arduino UNO then transfers the signal to the motor driver IC's to operate the motors.