BOTS ON WHEELS

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Abstract: Our robot is an electro mechanical device which is controlled by using a Bluetooth device or it can be controlled by using voice command. It will sense the surrounding environment and detect obstacle and change its path either left or right based on the code. It is also a line detection robot that is it will continue to move on a line path until any external obstacle act on it or we manually change the path using Bluetooth module or voice command.

1. INTRODUCTION

Mother board of our robot is Arduino board. Our Arduino board is Arduino UNO which is 8 bit based on AT mega328P. It has total 14 digital input output pins in that 6 pins are used as PWM outputs, other 6 pins are used as analog inputs. It is a 16 Mhz quartz crystal. We can feed power into the board by using an usb cable by inserting the cable into USB port. We will connect two Bluetooth modules to Arduino one for voice recognition and other to drive robot using smart mobile.

The Bluetooth module we are using is HC-05 which has total of 6 pins. Out of 6 pins we are using only 4 pins rx , tx ,Vcc and gnd. We are also mounting a motor driver board to control wheels of robot , and voice recognition. For obstacle detection we are using IR sensor which has 3 pins vcc, gnd and out. To connect all these circuits we are using bread board as an interface.

2. LITERATURE SURVEY

In this section, we have described earlier work done related to Arduino and its application.

The paper **"IOT gateway", IEEE Paper ISBN 978-8-3608-1090-3**, added to IEEE xplore on 7th November 2016, presents proposal of practical implementation of simple IoT gateway based upon Arduino microcontroller, dedicated to use in-home IoT environment. Authors are concentrated on the research of performance and security aspects of the created system.

In paper titled **"Arduino Based Bluetooth Controlled Robot", IJETT-V32P244**, a smart microcontroller unit named as Arduino Uno was programmed with the Arduino software, there in no requirement for installing other software rather than Arduino.

3. PROPOSED SYSTEM

Basically the purpose of our project is to provide simpler robot's hardware architecture with powerful computational platforms so that instead of focusing on Bluetooth connection infrastructure robot's designer can focus on their research and tests. This simple architecture is also useful for educational robotics as students can build their own robots in minimum cost and use them as experimental platform in various courses.

The following list shows typical robot control architecture:
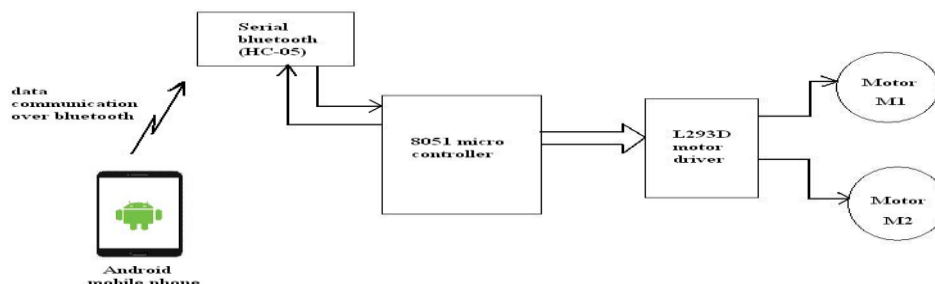
A. Arduino

It is software company and an open-source computer hardware , project and manufactures microcontroller-based kits designed by user communities for building digital devices and interactive objects having sensing and controlling features for objects in the physical world. Arduino had used the Atmel Atmega AVRseriesofchips, specifically theATmega8,ATmega168, ATmega328, ATmega1280 and ATmega2560

B. HC-05

This module makes easier to use Bluetooth SPP (Serial Port Protocol) module which is generally designed for transparent wireless serial connection setup purposes. Serial port Bluetooth module is qualified Bluetooth V2.0+EDR (Enhanced Data Rate= 3Mbps)

Modulation with radio transceiver(2.4GHz) and baseband. CSR Blue core 04-External single chip Bluetooth system with CMOS technology is used with (Adaptive Frequency Hopping Feature) having the footprint as small as 12.7mmx27mm.

Architecture of the Proposed System

Circuit Diagram of Proposed System
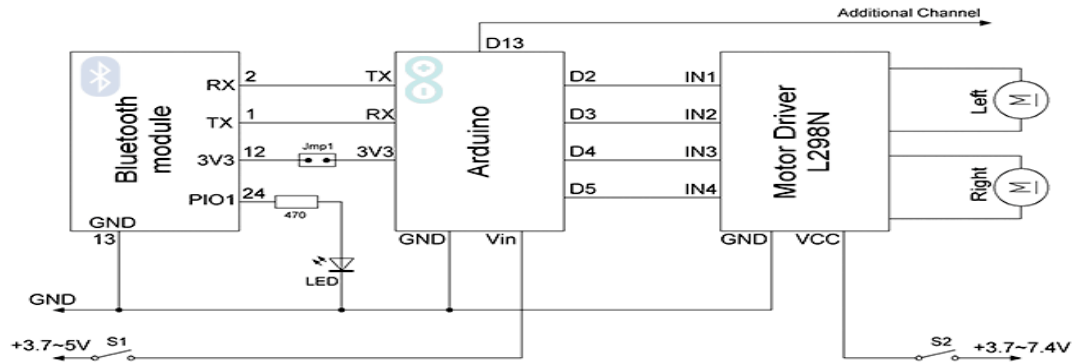
4. CONCLUSION

Basically our robot has four wheels which uses many circuits like Arduino , HC-05 and many other modules which is used to make a line following robot ,to detect an obstacle and we can command the robot using voice or by using an android device. It will be helpful in warehouses.

5. REFERENCES

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[4] Android Developers Guide. Android Architecture

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