VOICE CONTROLLED PICK & PLACE ROBOT

Overview

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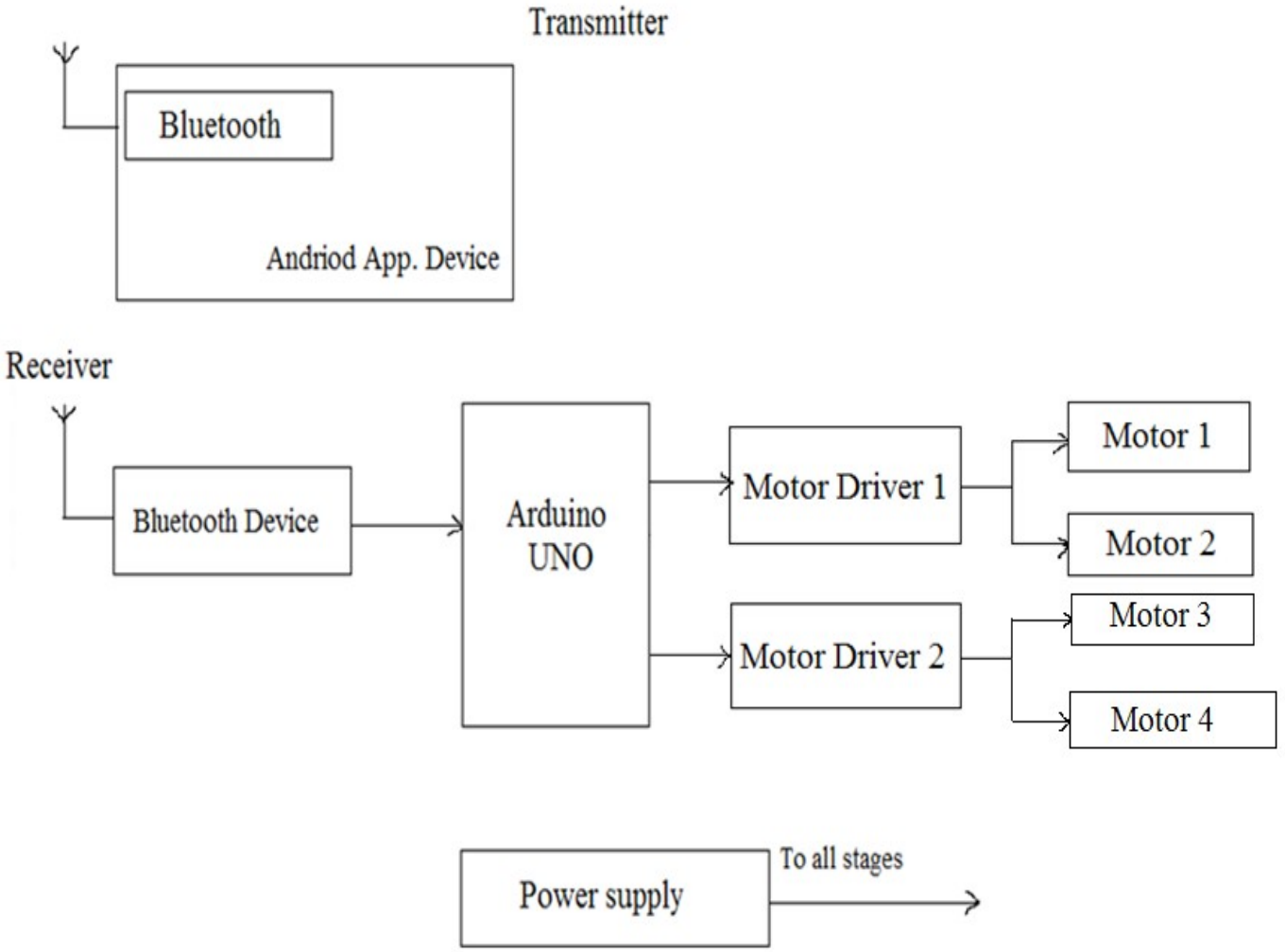
Introduction

- 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.

Block Diagram



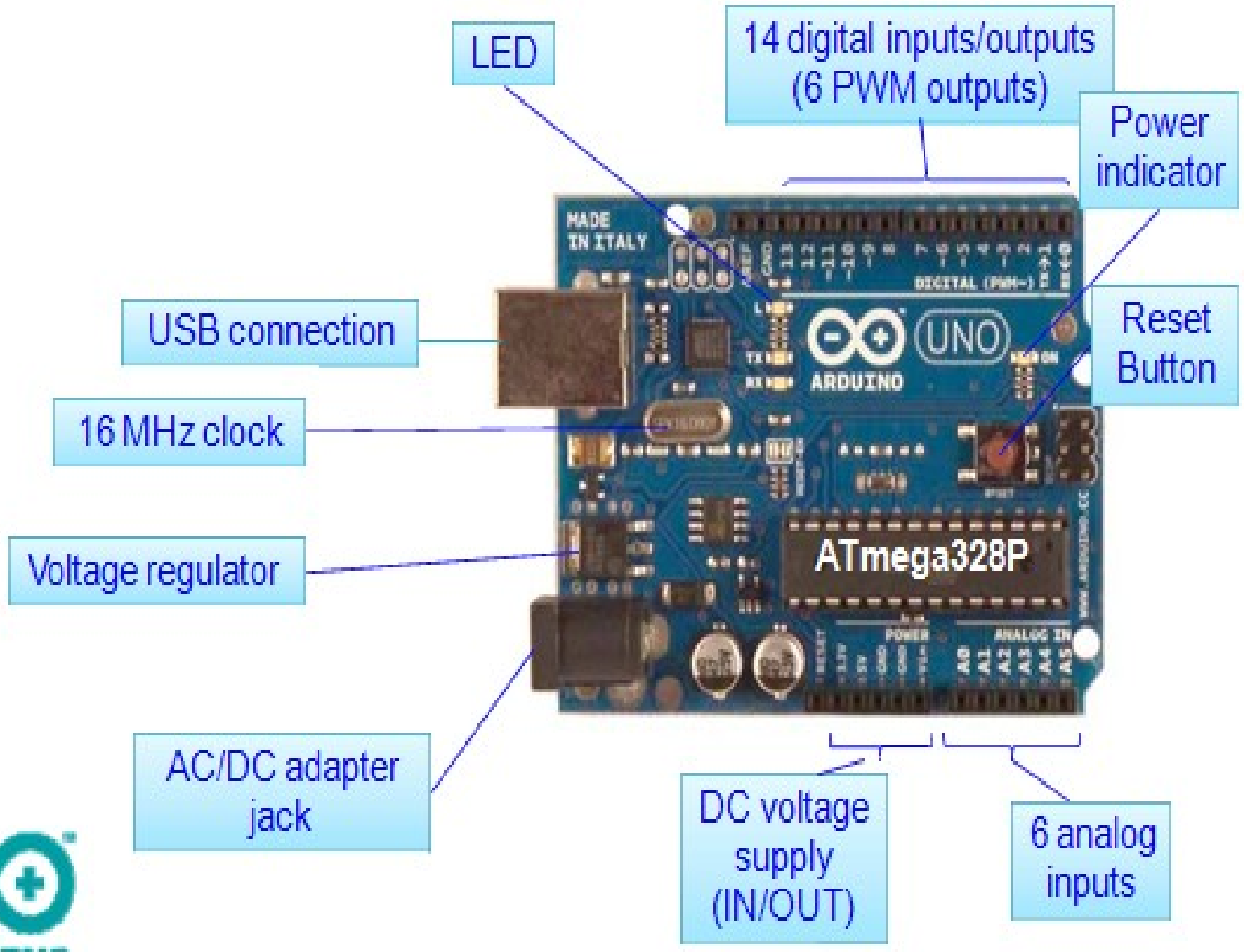
Hardware requirements

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

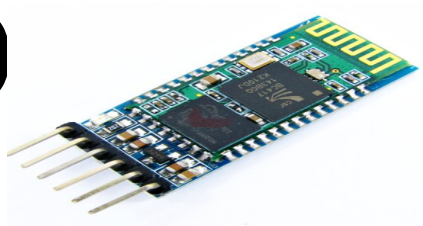
Arduino UNO

- 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...


LED
14 digital inputs/outputs
(6 PWM outputs)
Power
indicator
USB connection
Reset
Button
16 MHz clock
Voltage regulator
ATmega328P
AC/DC adapter
jack
DC voltage
supply
(IN/OUT)
6 analog
inputs
ARDUINO
UNO
MADE
IN ITALY

Bluetooth Module (HC-05)

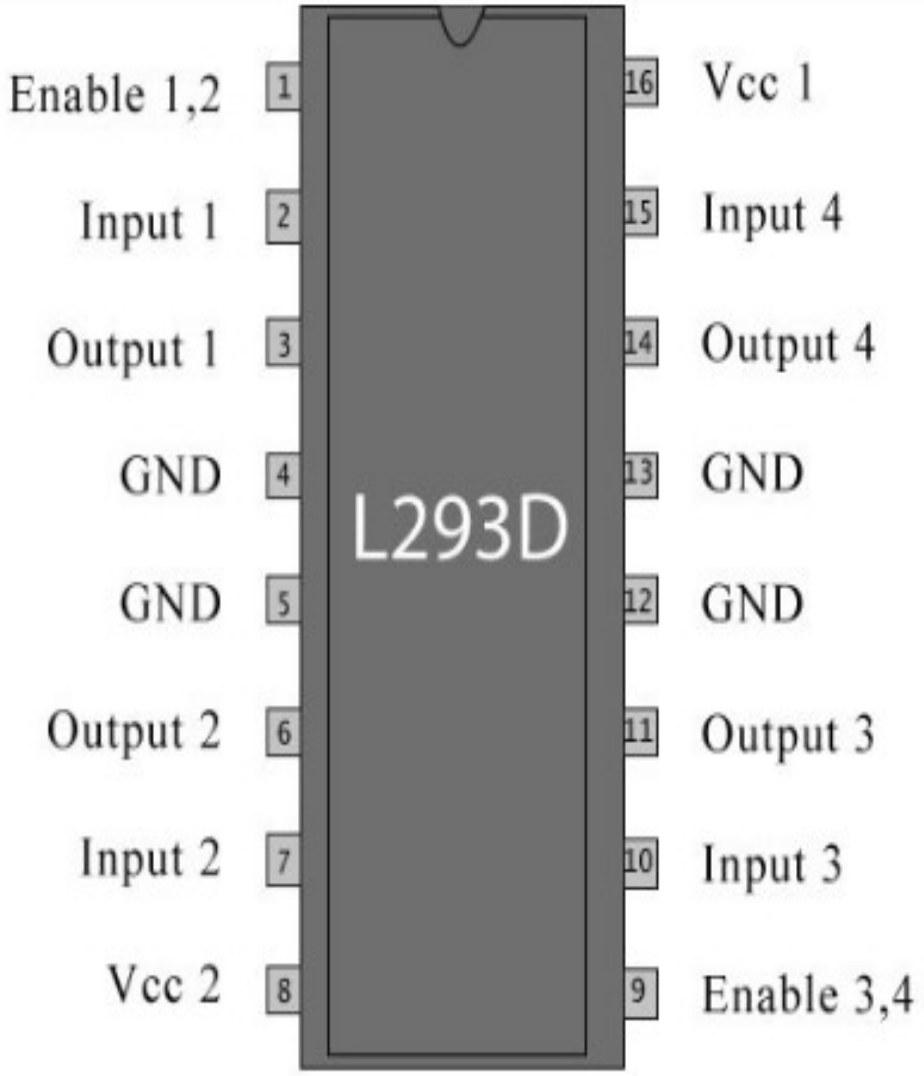


- For the communication between mobile phone and microcontroller Bluetooth module(HC-05) is used
- Low Power 1.8V Operation ,1.8 to 3.6V I/O .
- Serial port Bluetooth module have a Bluetooth 2.0+EDR (enhanced data rate), 3Mbps modulation with complete 2.4GHZ radio transceiver and baseband.
- Using Bluetooth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

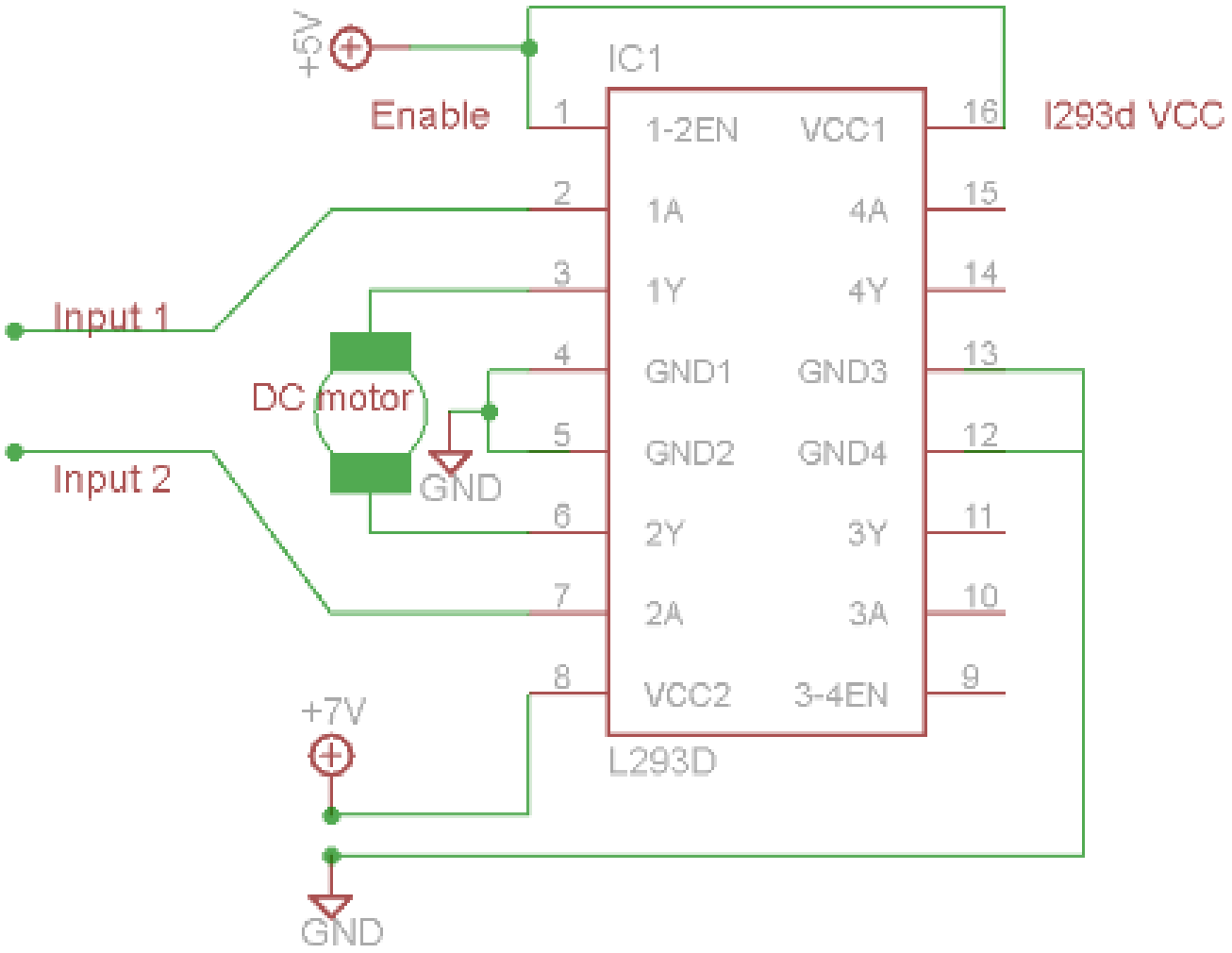
DC Motor Driver(L293D)

- 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

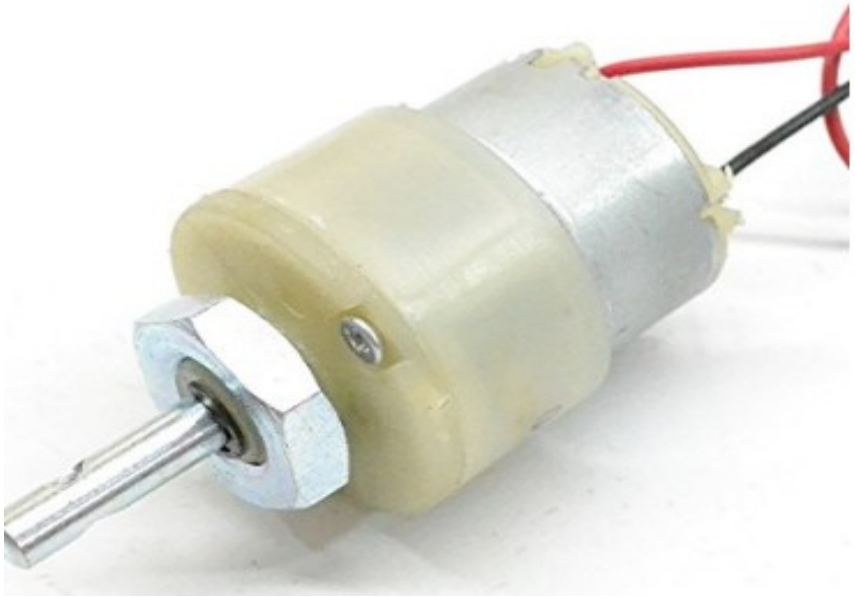

L293D
Enable 1,2
1
Input 1
2
Output 1
3
GND
4
GND
5
Output 2
6
Input 2
7
Vcc 2
8
16
Vcc 1
15
Input 4
14
Output 4
13
GND
12
GND
11
Output 3
10
Input 3
9
Enable 3,4

Circuit Diagram

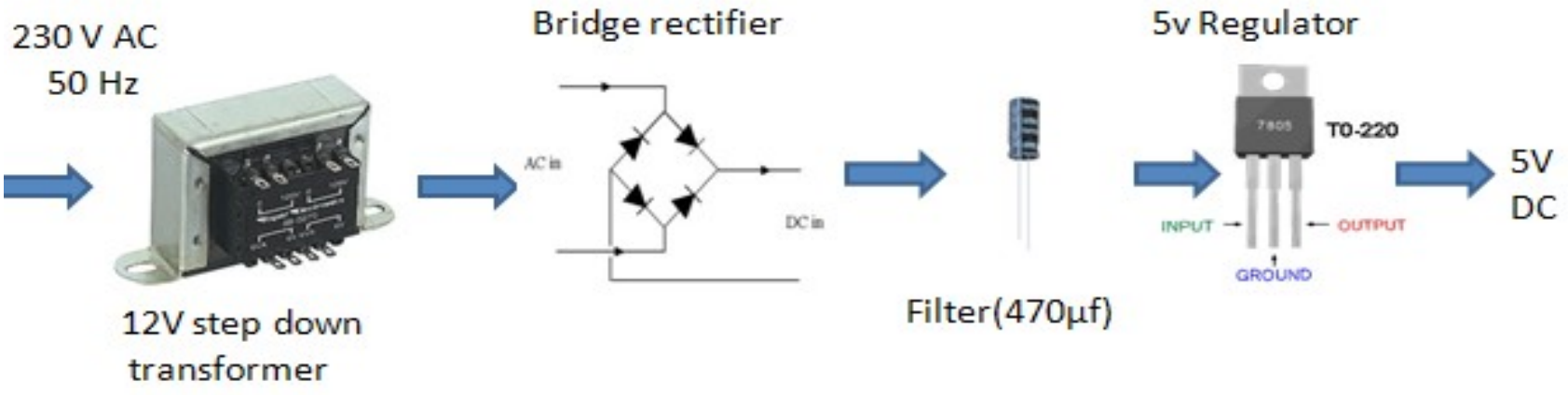


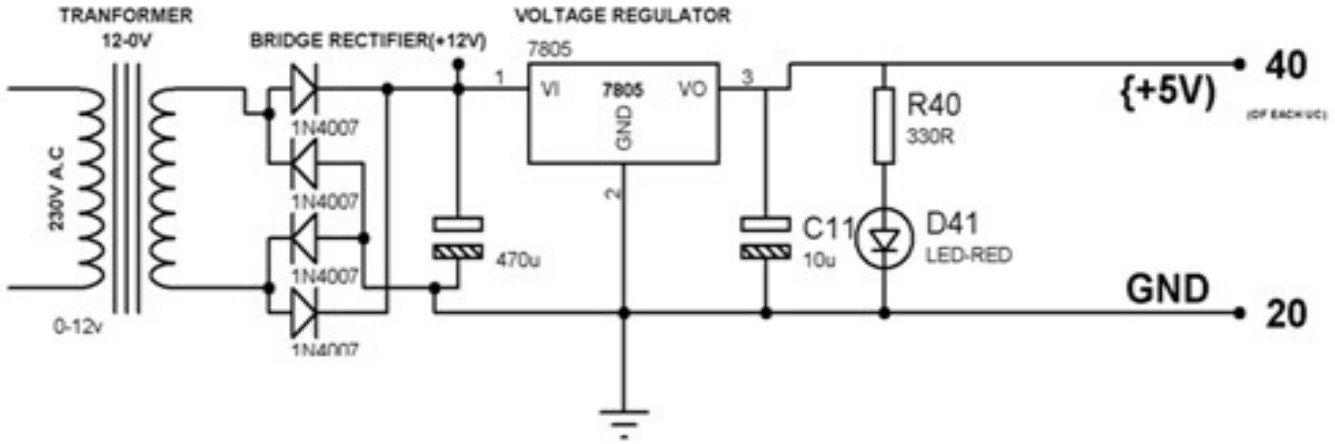
DC Motor

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



Power Supply





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

Software Used..

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

Programming Languages Used..

- Embedded C/C++
- Java & XML

Applications

- Robot is used Place the things in correct Order and this can be used in Homes and Industry to place things.
- It is also used in Libraries to Place the books in correct order.

References

- www.arduino.org
- www.beyondlogic.org
- www.wikipedia.org
- www.elementzonline.com
- www.elementztechblog.wordpress.com

Questions????

THANK YOU