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AUTOMATIC SPRAYING AND PAINTING ROBO

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Abstract- *In this project robot is controlled by using an android application. Control unit on the robot is interface with the Bluetooth device which is used for receiving the signal transmitted by the android application. These signals are applied to the robot for movement.*

Keyword: Microcontroller 89c51, Bluetooth device, relay, Relay driver IC, DC Motor, Power supply.

1. Introduction: Despite the advances in the robotics and its wide spreading applications, painting is also considered to be the difficult process as it also has to paint the whole building. To make this work easier and safer and also to reduce the number of labors automation in painting was introduced. Above all these the interior wall painting has shared little in research activities. The painting chemicals can cause hazards to the painters such as eye and respiratory system problems. Also the nature of painting procedure that requires repeated work and hand rising makes it boring, time and effort consuming. These factors motivate the development of an automated robotic painting system. This project aims to develop the interior wall painting robot. In our project we developed a robot that can be controlled using android mobile phone. This android phone is used as remote control of robot.8051 microcontroller is used in this project. In block diagram two main parts that are transmitter part and receiver part. Transmitter contain android phone and receiver contain robot. Block Diagram is shown which is consisting of LCD displaced for display the command, mobile Bluetooth module, DC motors.

2. Construction: The timer/counter application Used to switch into different setting mode. The serial channel is used to interface with Pc for data longer application. The idle mode Stop the CPU while allowing The RAM, serial Port and interrupt system to continue function the power down mode saves the RAM Contents but frees the oscillator disabling all other chip functions until the next hand ware. Here at this robot we have used a Bluetooth module which control the robot via 2 DC High Torque motors at10,000 RPM apex. The robot is control by an android phone application. Microcontroller used here isAT89S52 form 8051 family which contributes in a serial communication UART mode and the communication isI2C master device can control multiple RMCS-210x via simple I2C command structures.

Block diagram:

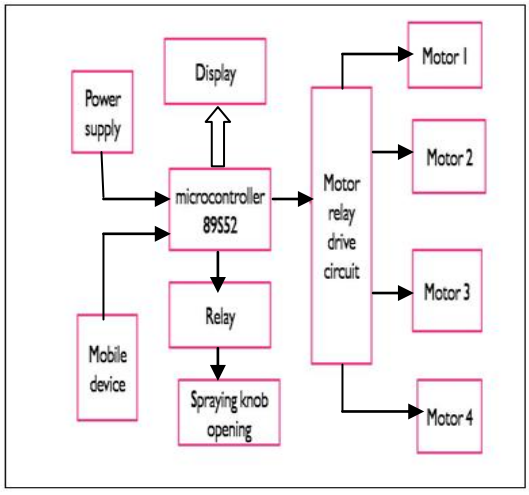


Fig no 1

Working principle:

HC-05 model is Easy to connect with pc search and key 1234 pass the code.HC-05 is a wireless serial Bluetooth port. The AT89C51 is a low-power, high-performance CMOS 8-bit microcomputer with 4Kbytes of Flash Programmable and Erasable Read Only Memory (PEROM). The device is manufactured using Atmel's high density nonvolatile memory technology and is compatible with the industry standard MCS-51Ô instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the Atmel AT89C51 is a powerful microcomputer. This provides a highly flexible and cost effective solution to many embedded control application.

Features:

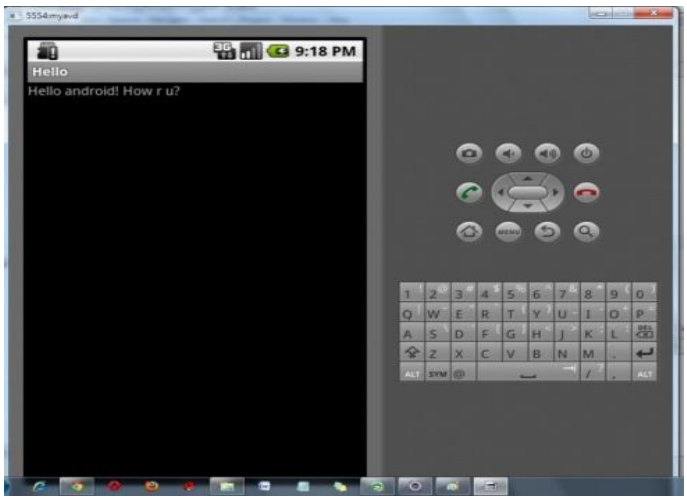
1.8k bytes of an system re-programmable flash memory Other chip functions until the next hand ware.
2. Fully static operation: 0 Hz to 24 Hz.
3.256*8 bit internal RAMS.
4. 32 programmable I/O lines. Three 16 bit timer or counters
5. Interrupt sources.
1800 rpm base motor. Motor speed control interface via UART, I2C, PRM signal and analog input. Speed control possible in both directions Down to almost 1% of max speed .Easily compatible with any of the system. It can easily interface through flat ribbon cable. Pulse width modulation selection Switch present on board also H-Bridge base motor driver Ice L293D. It has a two terminal block used for easy. LCD indicates different mode setting & set point adjustment. In LCD, 16 characters divided into two line display. These 2 lines are equally divided Command & special. Alphanumeric displays are used in a wide range of applications, including palmtop computers, word processors, photocopiers, point of sale terminals, medical instruments, cellular phones, etc. The 16 x 2 intelligent alphanumeric dot matrix displays is capable of displaying 224 different characters and symbols. A full list of the characters and symbols is printed on pages 7/8 (note these symbols can vary between brand of LCD used). This booklet provides all the technical specifications for connecting the unit, which requires a single power supply (+5V).

3. Android: Android is a complete set of software for mobile devices such as tablet computers, notebooks, smart phones, electronic book readers, set-top boxes etc. It contains a Linux base operating system and key mobile applications. Android is a software package and Linux based operating system for mobile devices such as tablet computers and smart phones. It is developed by Google and later the OHA (Open Handset Alliance).Java language is mainly used to write the android code even though other languages can be used.

Categories of Android applications:

1. Entertainment
2. Tools
3. Communication
4. Productivity
5. Personalization
6. Music and Audio
7. social Media and Vide
8. travel and local etc.

Android Emulator:



Install Android

Android supports java, c++, c# etc. language to develop android applications. Java is the officially supported language for android. All the android examples of this site is developed using Java language and Eclipse IDE.

Flow chart of android application:

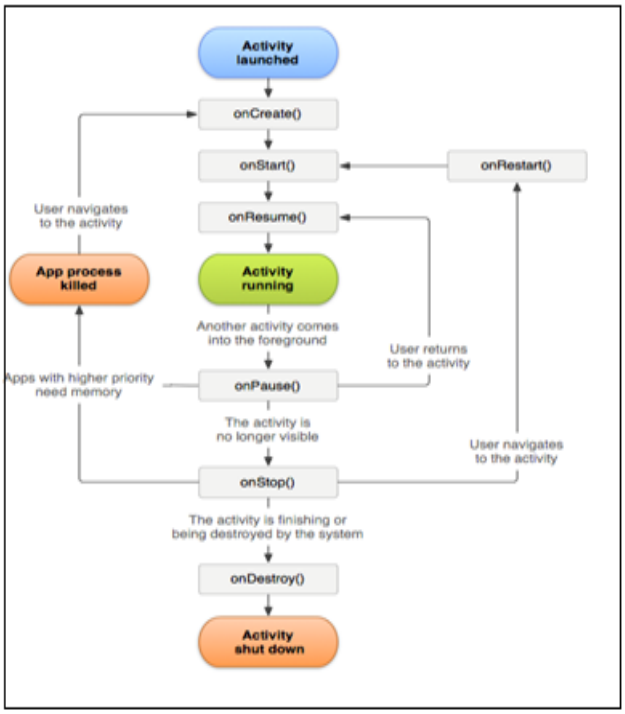


Figure no.2

Model of project:

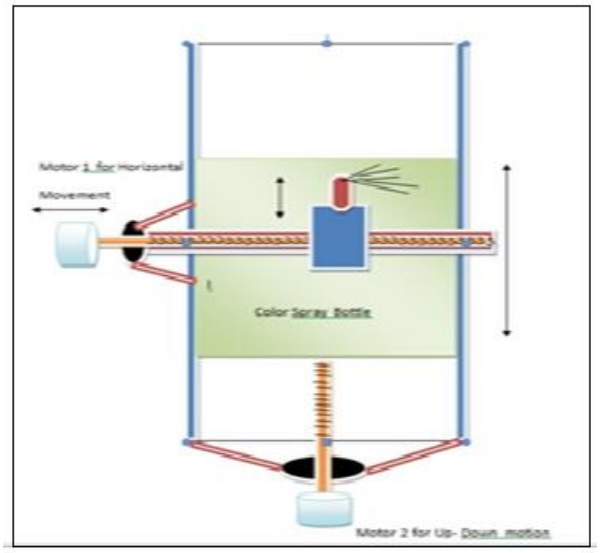


Figure no.3

13. Application:

1) The automatic painting robot is thus useful in applying the first coat of paint on the wall (primer) where uniformity is not the main constraint.

[2].The robot can be used for painting all sorts of wall surfaces, as it does not involve actual contact with the wall surface.

[3]. Also with better precision control over the quality of painting, the robot can be used in industry along production lines, for object spray painting.

[4]. In its present form, it can also b used on the sides of production lines in industry for spray-painting an object or car from top to bottom with no change in hardware.

[5]. A distinct but possible application can be to water the plants along a stretch of road. The pain in the container will then have to be replaced with water.

[6]. It can be used as a smart sprinkler in agriculture.

Conclusion: Wireless control is one of the most important Basic needs for all the people all our the word But un fortunately the technology is not fully Utilized due to a use amount of data and Communication overheads generally many of The wireless control robot used RF modulation But our project for robotic control make use .Of android mobile phone which is very chip And is easy available for this purpose the android Mobile user has to install a designed application On his mobile then he needs to turn Bluetooth In their mobile the wireless communication technique Used to control the robot is nothing than Bluetooth Technology .

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