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DC MOTOR SPEED CONTROL BY ANDROID VOICE COMMAND

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Abstract: Speed Control of DC motor using Android mobile has industrial application and security systems application. The user has to install an application on his/her Android mobile. Then the user can send commands to control the speed of DC motor. Wireless communication is used to send commands to the project. Bluetooth technology is used in this project.

Keywords: Microcontroller, Android mobile with application installed, Bluetooth Receiver and decoder for Wireless communication, LCD Display, Motor Driver, DC Motor, Pick and Place Arm

I INTRODUCTION

This system DC motor Controller by Android is developed to control the speed of the DC motor in both clockwise and anticlockwise direction. For this DC motor is interfaced to the 8051 microcontroller. A Bluetooth modem is used to receive direction commands and PWM commands. When an Android device sends commands, it is received by the Bluetooth modem which then sends the commands to the microcontroller. The microcontroller controls the DC motor through motor driver. The entire system is powered by 12V transformer. LCD display is used to show the status and the speed of the DC motor. The android application is used to control the entire system. The start button is first clicked to start the motor and then the motor can run in both clockwise and anticlockwise direction. Simultaneously the status of the system is displayed on the LCD screen and also the speed of the DC motor is displayed on the screen. Thus the speed of the motor can be increased or decreased in clockwise or anticlockwise direction with the help of this android application. Another interesting control is voice-based control. The Voice is recognized by the voice IC and the analog values are stored in the valve that is decoded to binary format and finally stored in IC. The microcontroller needs to be programmed to monitor the speed of the dc motor. When the speech is attained on the speech recognition, the valve checks and passes to the microcontroller, according to the program, the code mentioned stage of the pulse width is applied to the dc motor and now the speed is changed and rotates depending upon the signal that is applied to it. You can use the buzzer to indicate every time speed changes.

II PROJECT DESCRIPTION:

- 1) AT89S52: The AT89S52 is a low power, high performance CMOS 8-bit microcontroller with 8k bytes of in-system programmable flash memory. This is a powerful microcontroller which provides high flexibility and cost-effective solution to many embedded control applications. It has the following standard features: 8K bytes of flash, 256 bytes of RAM, 32 I/O lines, watchdog timer, 2 data pointers, 3 16-bit timers/counters, on-chip oscillator and clock circuitry.
- 2) Relay: A relay is an electrically operated switch. It can handle the high power required to directly control an electric motor or other loads is called relay or contractor.
- 3) Voice Recognition: The carbon mice are also as carbon button microphone, button microphone, or carbon transmitter, is a type of microphone, a transducer that converts sound to an electrical audio signal. It consists of two metal plates separated by granules of carbon.
- 4) DC Motor: A DC Motor is a class of rotary electrical machines that converts direct current electrical energy into mechanical energy. The most common types rely on the forces produced by magnetic fields, nearly all types of DC motors have some internal mechanism, either electromechanical or electronic, to periodically change the direction of current flow in part of the motor.

III PROJECT IMPLEMENTATION:

- 1) You need to program for the voice recognition when the input is from carbon mice as given like 1 for some speed, 2 for speed so PWM need set at the program to the DC Motor.
- 2) Connect the Carbon Mice to the input of the Microcontroller

- 3) The output port connects the DC Motor so the speed is controlled by Controller.
- 4) Connect the buzzer to the controller and it sounds ON while it attains a high speed of the motor

SOFTWARE REQUIREMENTS:

1)Keil Uvision 3: Keil Software makes C compilers, macro assemblers, real-time kernels, debuggers, simulatos, integrated environments and evaluation boards for the 8051, 251, ARM and XC16x/C16x/ST10 microcontroller families

Kit required to develop Voice Based Speed Control of DC Motor:

Micro controller Relay

DC motor Buzzer

Voice Control Micro Controller

Embedded Systems

IV ADVANTAGES

- 1. Bluetooth consume less power than other device
- 2.Android application are user friendly
- 3. Technically expert person are not required
- 4.Wireless communication is enhanced
- 5.Programing is simpler

V APPLICATIONS

- 1. Can be used in simple robotics application to control direction and speed of single motor
- 2. Many industrial application require adjustable speed drive and constant speed for improving the product quality
- 3.the circuit shown here to control single motor but can be extended to control two motor with independent speed and direction control
- 4. Home automation

VI CONCLUSION:

The proposed methodology uses wireless system with Bluetooth connectivity and Arduino UNO. With these components, fast operation has been obtained. With input as voice command, the direction of rotation and speed of the DC motor was altered. Stop command has been defined to stop the DC motor. Environment around the motor is monitored by using temperature and gas sensors. This methodology will be advantageous in industries by reducing the manual operation and the complexity of persons who works in hazardous environment

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