Wireless DC Motor Speed and Direction Control using IR (PWM)

The project aims to design an embedded system which is capable of either increasing/decreasing the speed of the dc motor along with the dc motor direction controlling using IR technology. Here IR transmitter is nothing but a simple TV remote.

This project consists of a Microcontroller along with a TV remote, IR receiver, LCD, dc motor and LED indicators. The IR receiver, LCD, LED indicators are interfaced to the Microcontroller. The Microcontroller is programmed using Embedded C language. The Microcontroller is programmed such that whenever the information is received by IR receiver from TV remote, the received information is fed as input to Microcontroller which processes the information and performs appropriate action on dc motor. The percentage increase/ decrease of dc motor speed along with the direction are displayed on the LCD for user reference. To decrease/increase the speed of DC motor a special feature of PIC Microcontroller-PWM (Pulse Width Modulation) is used.

Features of this project:

1. Monitoring and controlling speed of dc motor.
2. Controlling dc motor wirelessly.
3. Reliable for industrial and domestic needs.
4. Automatic remote speed measurement.

The project provides the following learning's:

1. IR technology.
2. Interfacing IR receiver to Microcontroller.
3. PWM measuring techniques.
4. DC motor working and need for motor driver.
5. Embedded C programming.
6. PCB designing.

The major building blocks of the project are:

1. Regulated Power Supply.
2. Microcontroller.
3. IR receiver.
4. TV remote.
5. DC motor with driver.
6. Reset.
7. Crystal oscillator.
8. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:
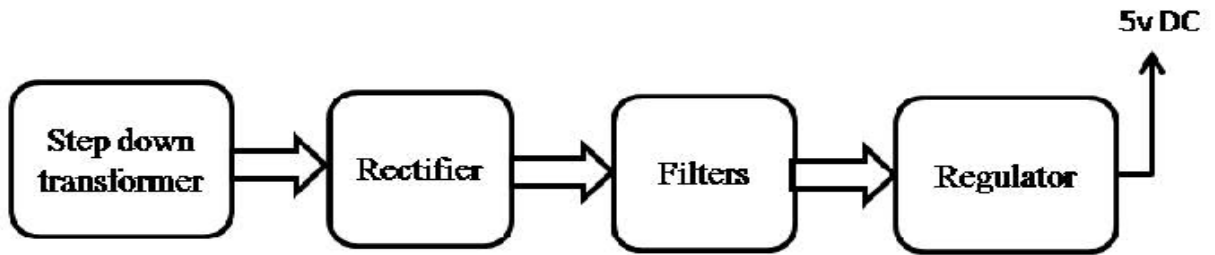
Block Diagram:

Wireless DC Motor Speed and Direction Control using IR (PWM)