SPEED CONTROL OF BLDC MOTOR USING ARDUINO UNO

https://www.youtube.com/watch?v=mF1RmNqlawU

The project is designed to control the speed of a BLDC motor using ARDUINO. The speed of BLDC motor is directly proportional to the voltage applied across its terminals. Hence, if voltage across motor terminal is varied, then speed can also be varied. We can control the motor using keypad. The RPM of BLDC motor is measure by IR sensor will be display on LCD module.

This project uses the above principle to control the speed of the motor by varying the duty cycle of the pulse applied to it (popularly known as PWM control). Remote operation is achieved by any smart-phone/Tablet etc., with Android OS, upon a GUI (Graphical User Interface) based touch screen operation.

The project uses keypad, interfaced to the ARDUINO microcontroller, which are used to control the speed of BLDC motor. PWM (Pulse Width Modulation) is generated at the output by the microcontroller as per the program. The program can be written in Assembly language or in Embedded C.

The average voltage given or the average current flowing through the motor will change depending on the duty cycle (ON and OFF time of the pulses), so the speed of the motor will change. A motor driver IC is interfaced to the microcontroller for receiving PWM signals and delivering desired output for speed control of a small BLDC motor.

The main objectives of the project:

- Keypad based speed setting of BLDC motor.
- Using LCD display to monitor the RPM of BLDC motor.
- IR sensor-based speed monitoring system.
- Using Arduino uno to achieve this task.

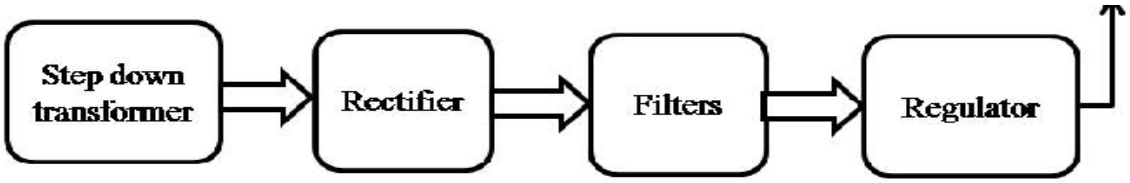
The main blocks of this project are:

- Regulated power supply with voltage regulator.
- Arduino Micro controller.
- BLDC Motor.
- Keypad.
- IR sensor.
- LCD display.

Software's used:

1. Arduino IDE for compiling and dumping code into controller
2. Express SCH for Circuit design.

Regulated Power Supply:


Step down transformer
Rectifier
Filters
Regulator

Block diagram