DC MOTOR SPEED AND DIRECTION CONTROL

AIM:

Design and Development of DC motor speed and direction control.

PURPOSE:

DC motors are widely used in many applications like CNC machines. CNC machines are used for many applications. Especially small machines worked on Batteries which are having DC motors. While doing any job work Motor should operate in both directions and different speeds. Here we want to develop DC motor speed and direction control using Arduino.

DESCRIPTION:

This project includes five buttons connected to Arduino digital pins. L293d connected to Arduino digital pins.

WORKING:

Here there are five buttons. Two are for direction control and three buttons are speed increment, decrement and stop. And DC motor will also be interfaced to the controller through the line driver IC L293d. Now, it is the job of the controller to monitor the input switches and to perform the predefined task of controlling i.e. increasing or decreasing the speed of the motor or stop the motor along with direction. Here the speed of the motor will be controlled by using PWM technique. Motor status will display on 16X2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
LCD	:	16X2 LCD Display
Crystal	:	16 MHz
Keypad	:	4X4 Matrix Keypad
H-Bridge IC	:	L293D
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

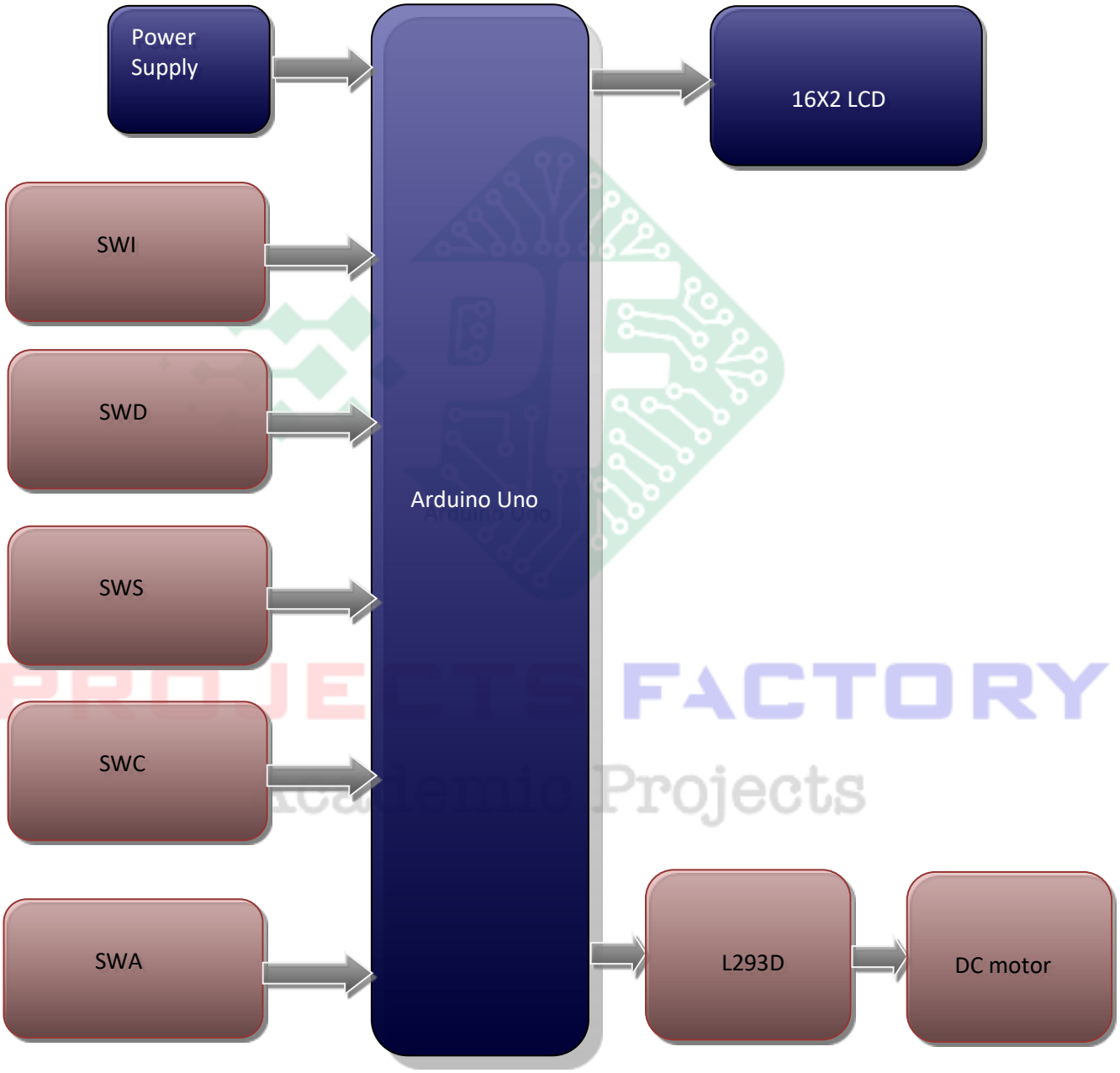
Arduino IDE

Proteus based circuit diagram

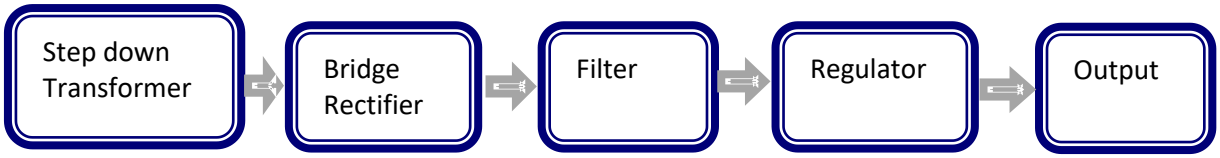
APPLICATIONS:

- Motor based applications like actuators, door controls
- CNC machines

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- L293d and Sliding DC motor interface