MEMS BASED WHEEL CHAIR

AIM:

Design and Development of MEMS based wheel chair.

PURPOSE:

Advanced technology always brings more convenience to our lives. Especially for physically challenged people, wheel chairs are commonly used. Normal wheel chairs controlled manually. Here we proposed a wheel chair that can be controlled by accelerometer (MEMS). This Accelerometer (MEMS) placed on patient hand and by moving in various directions wheel chair will be controlled in all the directions. The proposed project title is MEMS based wheel chair using Arduino.

DESCRIPTION:

Arduino connected to MEMS sensor (Accelerometer – ADXL335/345) through I2C port. L293D (H-bridge) connected to Arduino digital pins and it can control two DC gear motors.

WORKING:

MEMS sensor (Accelerometer – ADXL335/345) placed on the patient hand. When we move hand in different directions like front, back, left and right, wheel chair moves in corresponding direction. Also MEMS sensor moment direction status will be displaying on 16x2 LCD display. Without involving of others patient can easily controls wheel chair according to his wish.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
H-Bridge	:	L293D
Motor	:	12V DC Gear Type
Accelerometer (MEMS)	:	ADXL 345/335
Power Source	:	12v 1 amp Battery

SOFTWARE:

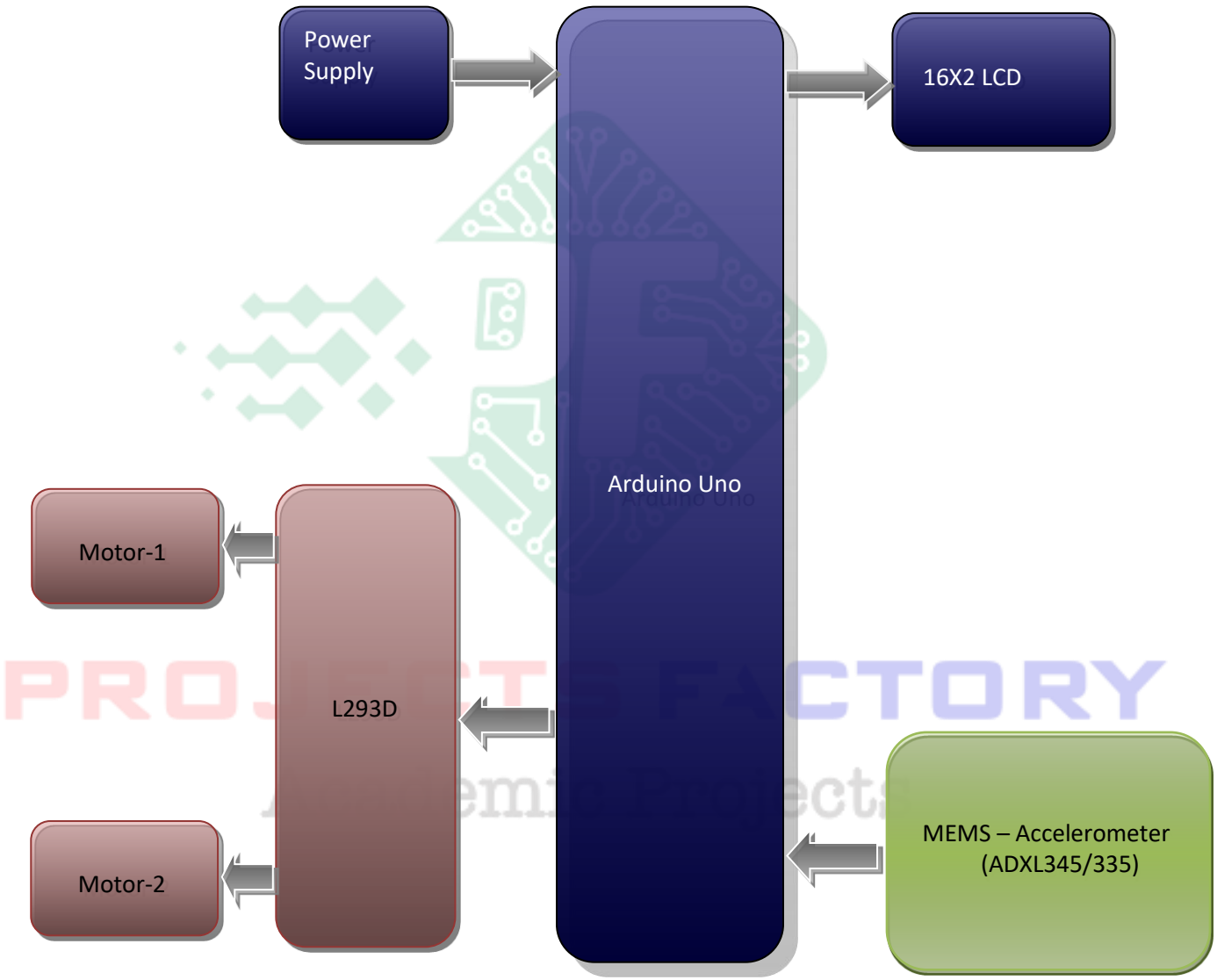
Arduino IDE

Proteus based circuit diagram

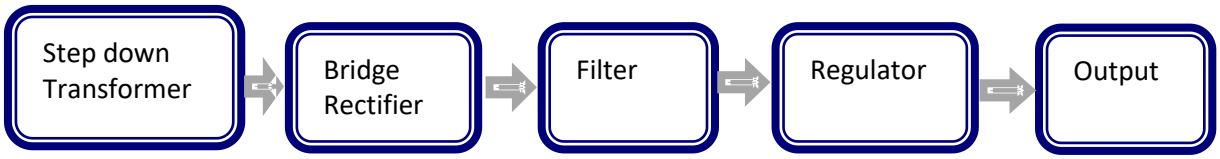
APPLICATIONS:

- Robotic Applications
- Wheel Chair Applications
- Hospital Applications
- Gesture Based Applications
- Accelerometer (MEMS) based Applications

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered MEMS accelerometer (ADXL335/345)
- Robotic Structure control (L293D and DC gear motors)