AUTOMATIC RAILWAY GATE CONTROL

AIM:

Design and Development of Automatic railway gate control.

PURPOSE:

Railways are cheapest mode of transport among all kind of transports. When we go through the daily newspapers, we come across many railway accidents occurring at unmanned railway crossings. This is mainly due to the carelessness in manual operations or lack of workers. In order to overcome these dangerous problems, we in this project came up with a solution for the same. Here we want to develop automatic railway gate control using Arduino.

DESCRIPTION:

This project includes L293d connected to Arduino digital pins. Two IR sensors connected to Arduino digital pins.

WORKING:

Here two IR sensors placed at entry and exit of train alongside of railway track. IR sensors can detect entry and exit of train. Two DC motors operates two gates which are placed opposite side of each other on the track. Two gates will close when train coming. Gates will open when train leaving. This information will display on 16X2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

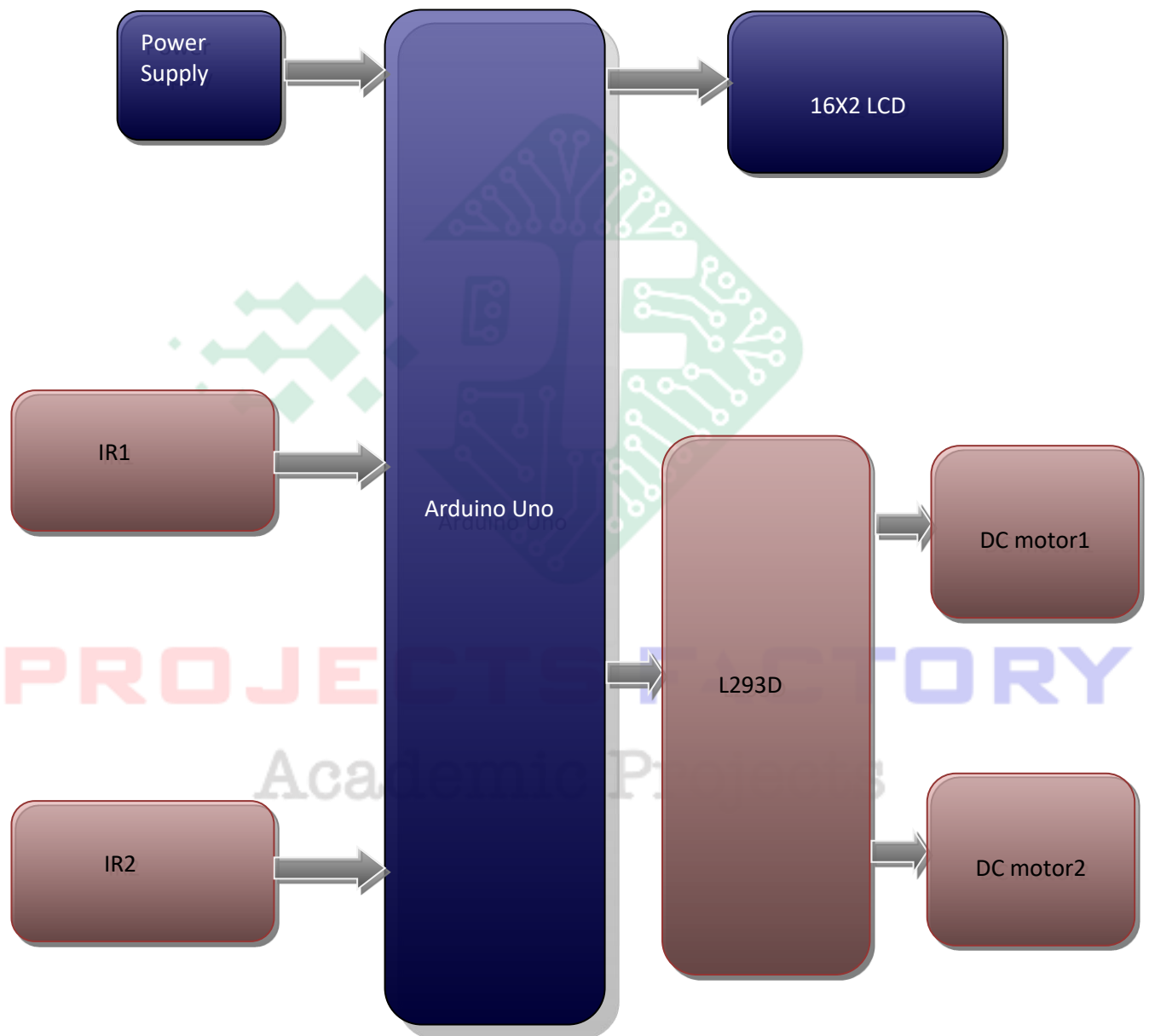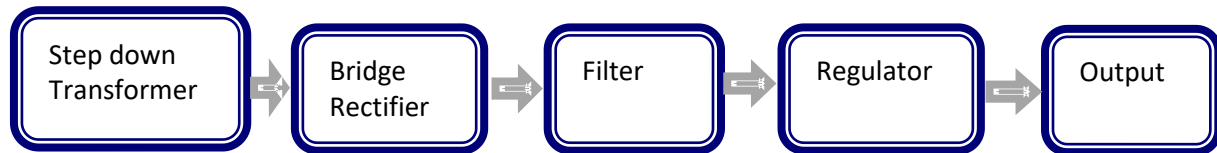|		
Microcontroller	:	Arduino Uno
LCD	:	16X2 LCD Display
Crystal	:	16 MHz
Obstacle Sensor	:	IR sensor DC 5V
H-Bridge IC	:	L293D
DC Gear Motor	:	60 r.p.m DC
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

➢ Toll Gate Control

➢ Railway Gate Control

BLOCK DIAGRAM:

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┌──────────┐          ┌──────────────┐          ┌──────────────┐
│  Power   │───────▶  │              │───────▶  │              │
│  Supply  │          │              │          │   16X2 LCD   │
└──────────┘          │              │          └──────────────┘
                      │              │
┌──────────┐          │              │
│          │          │  Arduino Uno │                        ┌──────────────┐
│   IR1    │───────▶  │              │               ┌──────▶ │  DC motor1   │
│          │          │              │               │        └──────────────┘
└──────────┘          │              │       ┌───────────┐
                      │              │───────▶│   L293D   │
┌──────────┐          │              │       └───────────┘
│          │          │              │               │        ┌──────────────┐
│   IR2    │───────▶  │              │               └──────▶ │  DC motor2   │
│          │          │              │                        └──────────────┘
└──────────┘          └──────────────┘
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POWER SUPPLY BLOCKDIAGRAM:

Step down Transformer → Bridge Rectifier → Filter → Regulator → Output

INTERFACES COVERD:

- L293d and Sliding Two DC motors interface
- Two IR sensors interface