RFID BASED TOLL GATE AUTOMATION

AIM:

Design and development of RFID based toll gate automation.

PURPOSE:

Still lot of toll gates is manual and need to pay money manually. In this pandemic situation touch less is preferable. But manual systems don't have any option. Here we proposed RFID based toll gate automation which can provide us to payments through RFID card in toll gates.

DESCRIPTION:

RFID reader (EM-18) Interfaced to Arduino through UART interfaces. L293d connected to Arduino to control gate open and close. Buzzer Connected to Arduino digital pin. IR sensor connected to Arduino digital pin.

WORKING:

Here each vehicle has RFID card and had some balance. IR sensor placed before toll gate. Without swiping card gate will not pen even IR activated. Gate will be open when RFID card have sufficient balance. For each entry 10 rupees will decrease. If card have insufficient balance then buzzer will be ON. All this information will display on 16X2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
RFID reader	:	EM-18
Motor Driver	:	L293D
IR sensor	:	DC 5V
Buzzer	:	DC 5V
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

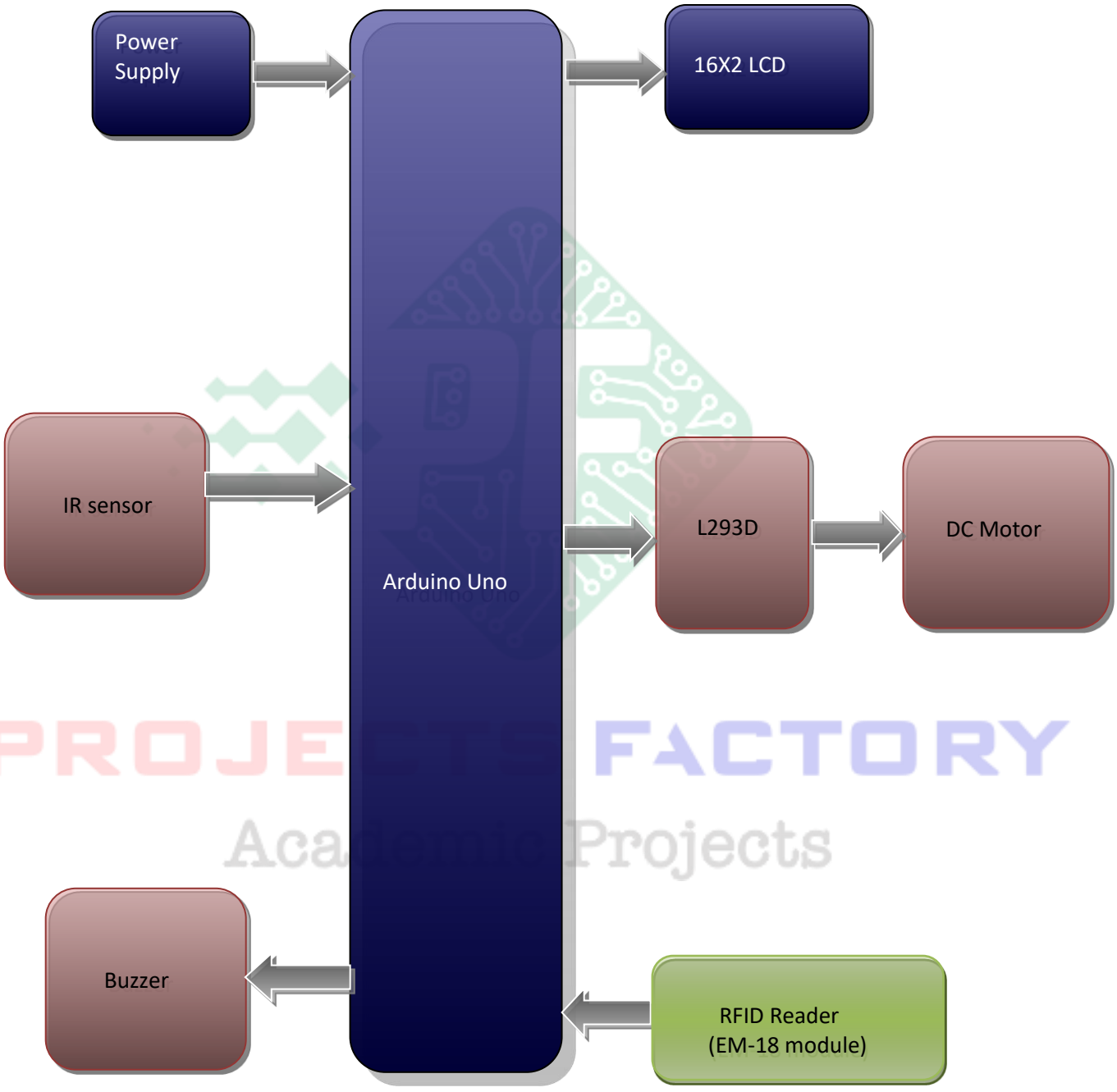
Arduino IDE

Proteus based circuit diagram

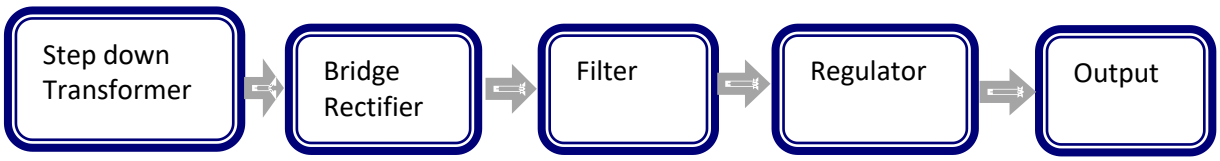
APPLICATIONS:

- Toll gate automation
- Automated Gate Control

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered RFID (EM-18) module interfacing
- IR sensor interface
- DC gear motor and L293D