

## **RFID TOLLGATE MANAGEMENT BASED ON VEHICLE WEIGHT**

### **AIM:**

Design and development of RFID tollgate management based on vehicle weight using Arduino.

### **PURPOSE:**

Toll gates are smart enough and effective to maintain contactless cash payments. But there is no system exists to restrict vehicles from overweight. Over weight of vehicle causes road damage and it will effect on total transport system. Here we proposed system that can restrict vehicle from overweight and charge more based on vehicle weight. This system is extension of smart toll gate by adding weight sensor. The proposed system running on Arduino controller and project title is RFID Tollgate management based on vehicle weight.

### **DESCRIPTION:**

RFID (EM-18) interfaced to Arduino UART port. Weight sensor has analog output and connected to Arduino ADC pins. Based on weight value analog output value will be increased. DC gear motor operates gate and can be controlled by L293d. Calibration button connected to Arduino digital pin.

### **WORKING:**

While Vehicle Entering into Toll gate, RFID reader detects vehicle through its RFID card. If card valid then it calculates weight of the vehicle. If vehicle weight is in desired range then amount will be deducted. For more weight, more amounts will be deducted and same for less weight. Also gate will be open. In case Vehicle has Invalid card or more weight then, gate will not open and buzzer sound will be come to alert. All this operational information will be displaying on 16X2 LCD display.

## TECHNICAL SPECIFICATIONS:

### HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
H-bridge	:	L293d
RFID reader	:	EM-18
Gate	:	DC gear motor
Weight Sensor	:	Weight Sensor ADC Output
Power Source	:	12v 2 amp Adaptor

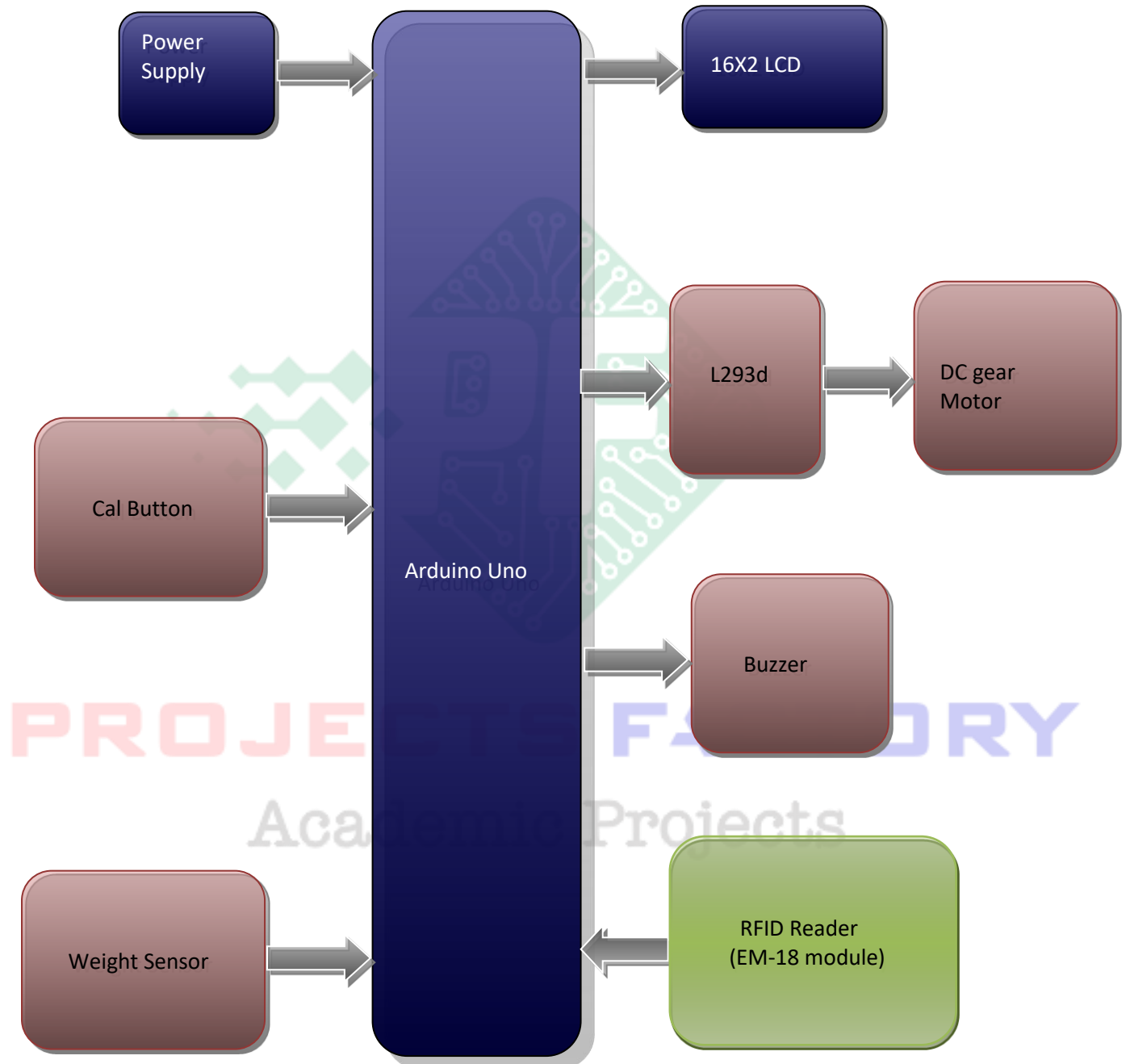
### SOFTWARE:

Arduino IDE  
Proteus based circuit diagram

### APPLICATIONS:

- Toll Gate Automation
- Smart toll Gate
- Vehicle Transport management
- Smart Transport System

**BLOCK DIAGRAM:**



## POWER SUPPLY BLOCKDIAGRAM:



## INTERFACES COVERED:

- We have covered RFID (EM-18) Module Interface
- ADC Output Weight Sensor
- L293d to control DC motor

PROJECTS FACTORY  
Academic Projects