**COMPONENTS**

1. RFID Reader and Tags: RFID Reader that we used in our system is EM-18 RFID reader module. This reader is operated on 125KHz which contain an on-chip antenna which can be powered with 5V power supply. This Reader is then attached to the computer or any microcontroller with Arduino board. Communication range of reader is 2- 10 cm. Tags contain the information which is read when it is tapped on the reader. RFID card reader is used to read the unique RFID card number and send to the Microcontroller.

2. LCD: Which will display informative messages like card balance, and if the card is valid or invalid

3. Microcontroller: Arduino, which reads the RFID card number from the RFID reader, send data to the LCD and perform operations based on the mode selected and then send data to motor.

4. Transmitter: Infra-Red transmitters uses IR LEDs. IR rays from transmitters are reflected from the vehicle and are received by the receiver.

5. DC motor and Motor Driver: To open the gate a motor driver IC is used to drive the motor.

6. Arduino Uno: Arduino Uno is embedded on a board. This microcontroller used in our system is ATmega328P.Arduino Uno is an open source hardware and software for developers. It is basically easy to code and easy to use. It is used when same program is to be performed under nested loops. Arduino is connected with Computer which is attached at toll booth.

7. IR Sensor: This IR sensor is used to sense the car passing through the toll booth. According to the sensor the stepper motor will work. Transmitter emits infrared radiation, if obstacles are present it gets reflected back to sensor which is receive through the receiver. It is connected to the Arduino board.

8. Stepper Motor: It is a simple motor used to rotate the barrier which is connected to the Arduino board. Whenever RFID tag is tapped and the fees is deducted the motor rotates 180 degree and when a car passes through IR sensor again it is rotated to 180 degree in the opposite direction.