AUTOMATIC BUS TICKETING SYSTEM BASED ON TRAVELLED DISTANCE USING GSM, RFID AND GPS

AIM:

Design and Development of Automatic bus ticketing system based on travelled distance using GSM,RFID and GPS.

PURPOSE:

Technology improved day by day and provides lot of solutions. It will replace man power and provide 24x7 services without mistakes. Here we want to use smart technology for bus ticketing application that will provide lot of applications along with smart ticketing. This will replace ticket conductors and provide automation in bus. We can call this as smart bus with smart ticketing system. This system consists of GPS for location of bus, GSM for message sending and RFID for ticketing. Also it has two servo motors which can control bus entry door and exit door based on seats availability. Seats availability will be calculate based on passenger IN and OUT. Passenger IN and OUT will be done through RFID card swiping at departure stops. The complete project title will be automatic bus ticketing system based on travelled distance using GSM, RFID and GPS using Arduino.

DESCRIPTION:

Arduino interfaced with GSM, GPS and RFID. RFID interfaced with Arduino first serial port and second serial port interfaced with GPS and GSM through relay shifter. Two servo motors connected to two digital pins of Arduino. Two buttons for start and stop of vehicle. DC motor controlled through l293d, which is connected to Arduino digital pins.

WORKING:

Here we implemented project for four passengers. Initially, four seats available in bus. When first card swiped that means passenger1 IN. Based on requirement remaining passengers will be IN or not. When we press start button then bus will be start. When stop arrived then again driver has to press stop button then bus will be stop and doors will open. If any passenger OUT (need to swipe RFID card) then amount

will be deducted from RFID card. When again start button pressed then doors will be close and bus will start. Based on stop count amount will be deducted from respective RFID card. When passenger IN and OUT SMS will go to register mobile number along will GPS location. If no sets empty then only exit door will open when bus stop. Arduino displays number of seats empty on 16x2 LCD display.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
GSM Module	:	SIM800C
GPS Module	:	NE06
RFID Module	:	EM-18
DC Gear Motor	:	10 R.P.M
H-Bridge	:	L293D
Servo Motors	:	SG90
Buttons	:	2 Pin Toggle
H-Bridge	:	L293D
Power Source	:	12v 2 amp Adaptor

SOFTWARE:

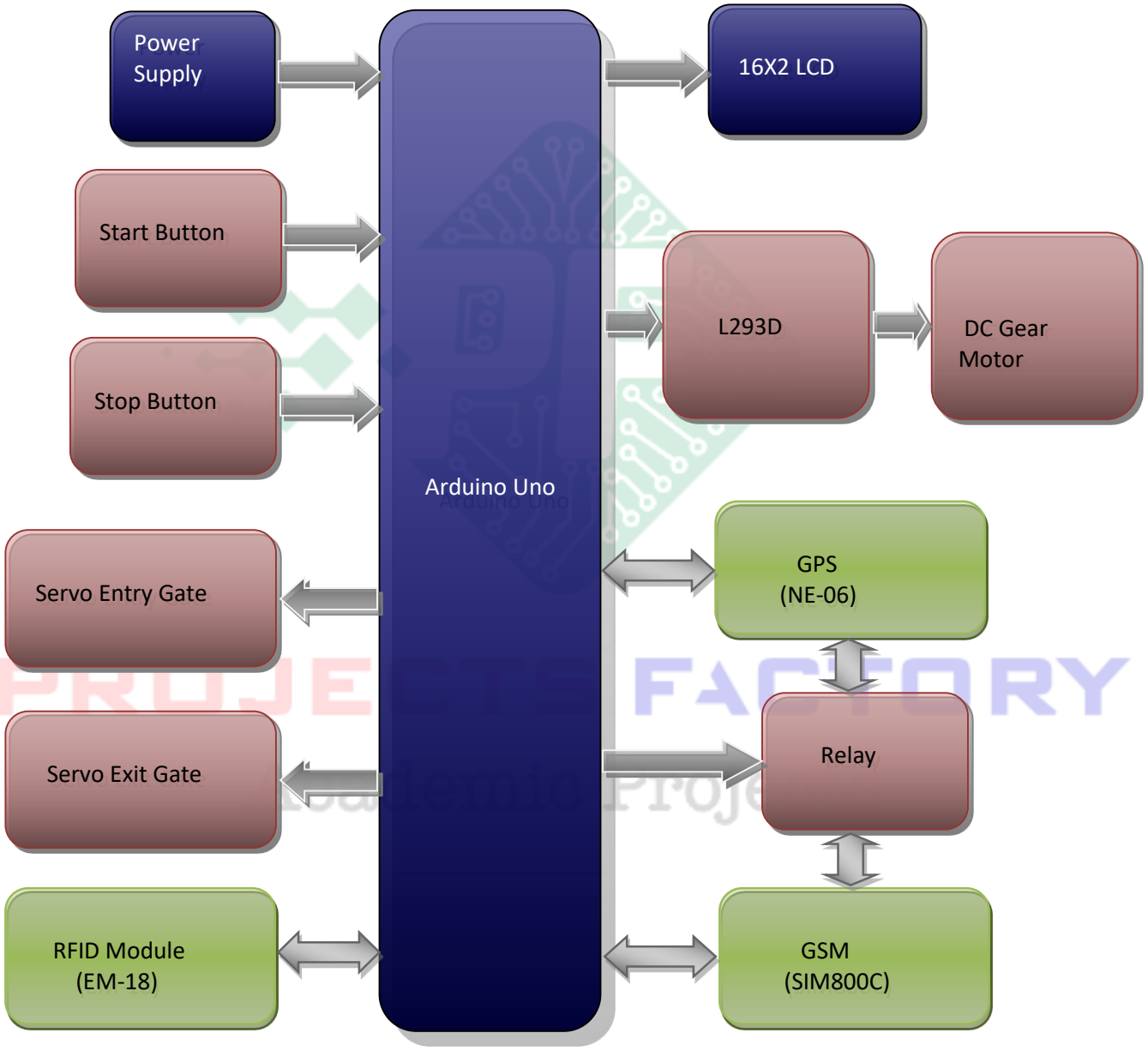
Arduino IDE

Proteus based circuit diagram

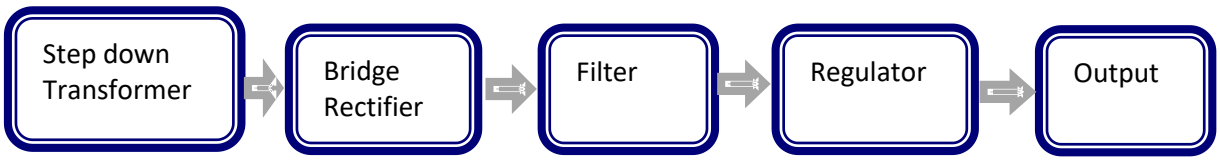
APPLICATIONS:

- Smart ticketing applications
- Automatic bus fare collection
- Automated Public Transport Fare Collection Systems
- Smart car and GPS bus ticketing system

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERD:

- We have covered GSM module (SIM800C), GPS module (NE-06) and RFID module (EM-18) interfacing
- Servo motors and DC gear motor interface