Automatic Transportation System

Project Report submitted in partial fulfillment of the requirement for the degree of

Bachelor of Technology

In

Electronics and Communication Engineering

Under the Supervision of

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By

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CERTIFICATE

This is to certify that project report entitled "Automatic Transportation System", submitted by UDIT GABA(081004), ANMOL VERMA (081022),AAYUSH KUMAR SHARMA(081027) and RITESH KUMAR SINGH (081031) in partial fulfillment for the award of degree of Bachelor of Technology in Electronics and Communication Engineering to Jaypee University of Information Technology, Waknaghat, Solan has been carried out under my supervision.

This work has not been submitted partially or fully to any other University or Institute for the award of this or any other degree or diploma.

Date: 31.5.12

for Hitesh

Supervisor's Name: SUNITA SHARMA

Designation: Lecturer

Acknowledgement

This project is an outcome of our serious effort to implement "Automatic Transportation System" as part of our Bachelor's Degree Program.

Automatic transportation system comes from the problems caused by traffic congestion and a synergy of new information technology for simulation, real-time control, and communications networks using the Embedded Systems and under the guidance of our project Guide and mentor Ms.Sunita Sharma and Mrs. Meenakshi Sood not only were we able to obtain a vision but also stood motivated at every step.

Our sincere thanks to our panel members Prof. D.C Kulshreshtha Ms. Neeru Sharma Mr. Komal Janghel and Mr. Vikas Hastir for their support,suggestions and valuable advice.

The prospect of working in a group with a high level of accountability fostered a spirit of teamwork and created a feeling of oneness which thus motivated us to perform to the best our ability and create a report of the highest quality.

Date:

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Abbreviations

I. RFID- Radio Frequency Identification
II. RF- Radio frequency
III. RAM- Random Access memory
IV. I/O lines- Input Output lines
V. LCD- Liquid crystal Display
VI. LED- light Emitting Diode
VII. CCS-Central Computer System
VIII. EPC-Electronic Product code
IX. CDPS-Central Data Processing System
X. Decision Making Section (DMS)
ISO - International Organization for Standardization

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ABSTRACT

Automatic transportation system comes from the problems caused by traffic congestion and a synergy of new information technology for simulation, real-time control, and communications networks. The model developed uses an active RFID technology and wireless communicator as it helps to improve data transfer between the tag and the host database over a long distance. The main objective of this project is to ease the collecting toll and improve traffic services. Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. RFID tag is an object that can be applied to or incorporated into a product with a unique code. RFID reader retrieves data from the tag.

Project is divided in two major parts:-

- Toll Collection using RFID- To Ease collecting toll and reduce traffic and improve services
- Traffic Signal Control- Vehicular traffic control at Road crossings.

Chapter -1 Introduction

RFID module basically consists of two parts, namely, a tag and a reader. A typical RFID system consists of an antenna, a transceiver and a transponder (RF tag). The transponder contains a chip and an antenna mounted on a substrate. The chip transmits the relevant information through antenna. The antenna also receives the electromagnetic waves sent by the RFID reader.

RFID tags comprises of two parts-:

- Integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions.
- Antenna for receiving and transmitting the signal.

RFID reader mainly comprises of :-

- Antennae.
- Control unit and a powering unit.
- High Frequency interface

Operating principles of RFID systems:-

An inductively coupled transponder comprises of an electronic data carrying device, usually a single microchip and a large area coil that functions as an antenna. The reader's antenna coil generates a strong, high frequency electro-magnetic field, which penetrates the cross-section of the coil area and the area around the coil. Small part of the emitted field penetrates the antenna coil of the transponder, which is some distance away from the coil of the reader. By induction, a voltage is generated in the transponder's antenna coil. This voltage is rectified and serves as the power supply for the data carrying device (microchip). A capacitor C is connected in parallel with the reader's antenna coil, the capacitance of which is selected such that it combines with the coil inductance of the antenna coil to form a parallel resonant circuit, with a resonant frequency that corresponds with the transmission frequency of the reader. Very high currents are generated in the antenna coil of the reader by resonance step-up in the parallel resonant circuit, which can be used to generate the required field strengths for the operation of the remote transponder.

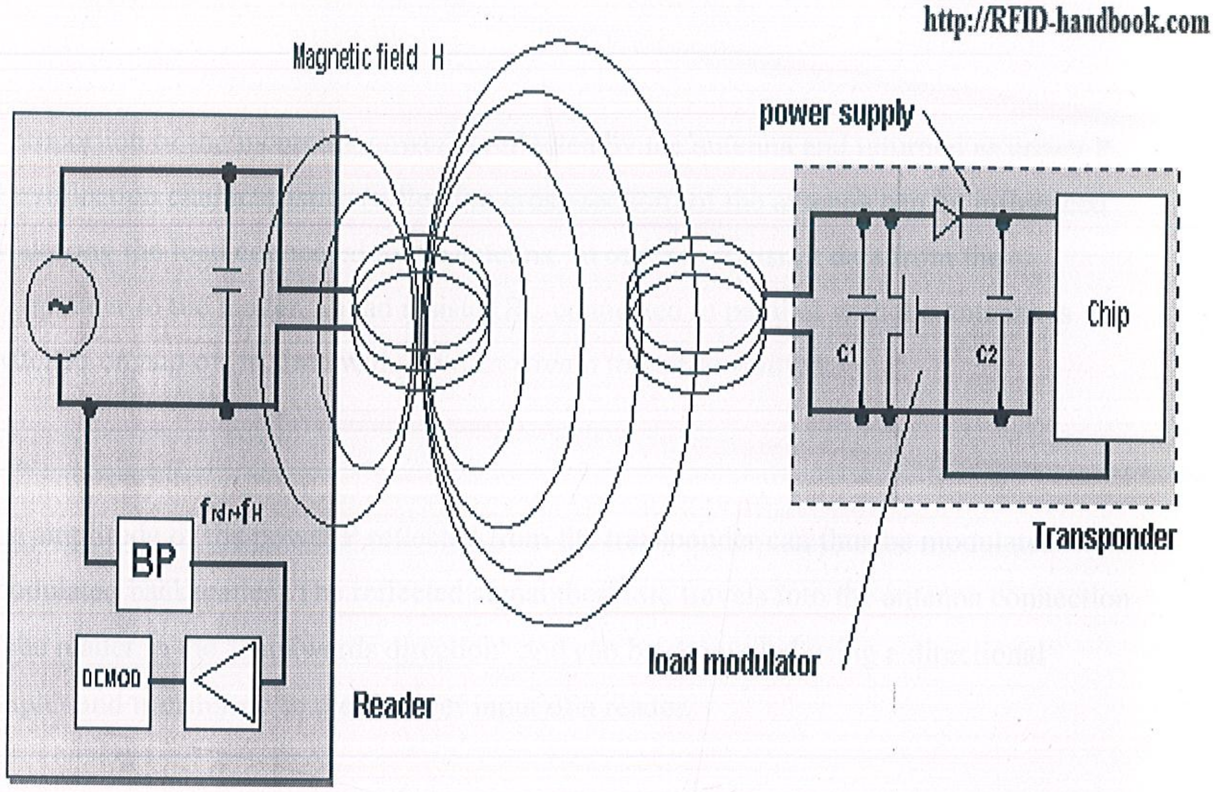

Figure 1.1

Backscatter Coupling

Field Emitted from the reader's antenna, a small proportion of which (free space attenuation) reaches the transponder's antenna. The power is supplied to the antenna connections as High voltage and after rectification by the diodes D1 and D2 this can be used as turn on voltage for the deactivation or activation of the power saving "power-down" mode. The diodes used here are low barrier Schottky diodes, which have a particularly low threshold voltage.

A proportion of the incoming power is reflected by the antenna and returned as power P. The reflection characteristics (reflection cross-section) of the antenna can be influenced by altering the load connected to the antenna. In order to transmit data from the transponder to the reader, a load resistor RL connected in parallel with the antenna is switched on and off in time with the data stream to be transmitted.

The amplitude of the power P reflected from the transponder can thus be modulated (modulated backscatter).The reflected signal therefore travels into the antenna connection of the reader in the "backwards direction" and can be decoupled using a directional coupler and transferred to the receiver input of a reader.

Chapter 2 Toll Collection using RFID

Electronic Toll Collection system is to ease the collecting toll and reduce traffic and improve service. The RFID card will be given to the user which contains the digital code corresponding to details stored in the centralized database system which can be accessed in the relevant office as and when required. However the system can also be used in car alarms, warehouse inventory, security access control, personnel access & tracking without the need to swipe each item individually.

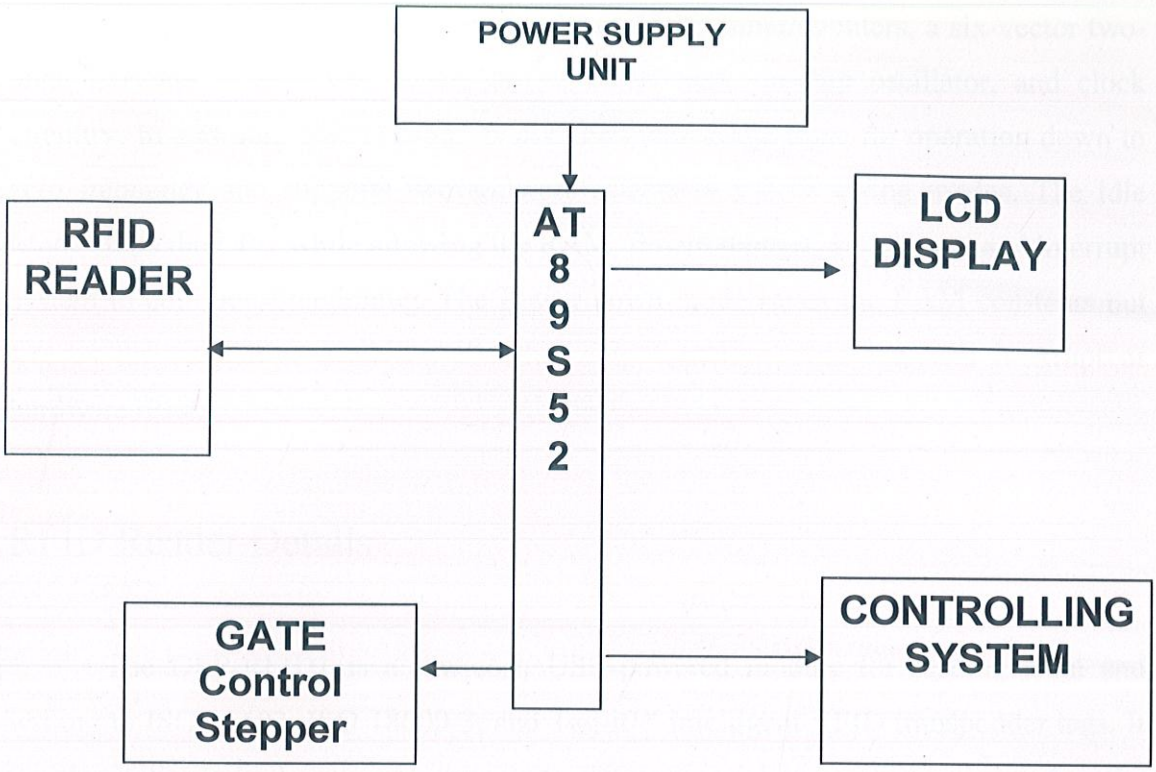

Figure 2.1

DESCRIPTION OF THE BLOCK DIAGRAM

The major components of this circuit are Microcontrollers, RFID Tag Reader and Stepper motor

Power supply

The Entire Project needs power for its operation 5v and 12v dc power supply. So by utilizing the following power supply components, required power has been gained. (230/12v (1A and 500mA) – Step down transformers, Bridge rectifier to converter ac to dc, booster capacitor and +5v (7805) and +12v (7812) regulator to maintain constant 5v & 12 supply for the controller circuit and RFID Reader).

Microcontroller AT89S52

The major heart of this project is At89s52 microcontroller. The AT89S52 provides the following standard features: 8K bytes of Flash, 256 bytes of RAM, 32 I/O lines, Watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry. In addition, the AT89S52 is designed with static logic for operation down to zero frequency and supports two software selectable power saving modes. The Idle Mode stops the CPU while allowing the RAM, timer/counters, serial port, and interrupt system to continue functioning. The Power-down mode saves the RAM con-tents but freezes the oscillator, disabling all other chip functions until the next interrupt or hardware reset.

RFID Reader Details

The DLP-RFID1 is a low-cost, USB-powered module for reading from and writing to ISO 15693, ISO 18000-3, and Tag-it™ intelligent RFID transponder tags. It has the ability to both read and write up to 256 bytes of data in addition to reading the unique identifier (UID/SID). All of the DLP-RFID1's electronics and antenna reside within the compact unit, and all operational power is taken from the host PC via the USB interface

The RFID reader (or "interrogator") is typically a microcontroller-based radio transceiver that powers the tag with a time-varying electromagnetic radio frequency (RF) field. When the RF field passes through the tag's antenna, AC voltage is generated in the antenna and rectified to supply power to the tag. Once powered, the tag can receive commands from the reader. The information stored in the tag can then be read by the reader and sent back to the host PC for processing. MAX 232 inter faced is communicated with serial communication process that with help of modem it can link with RFID reader.

LCD MODULE

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on.

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data. The command register stores the command instructions given to the LCD. A command is an instruction given to LCD to do a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD.

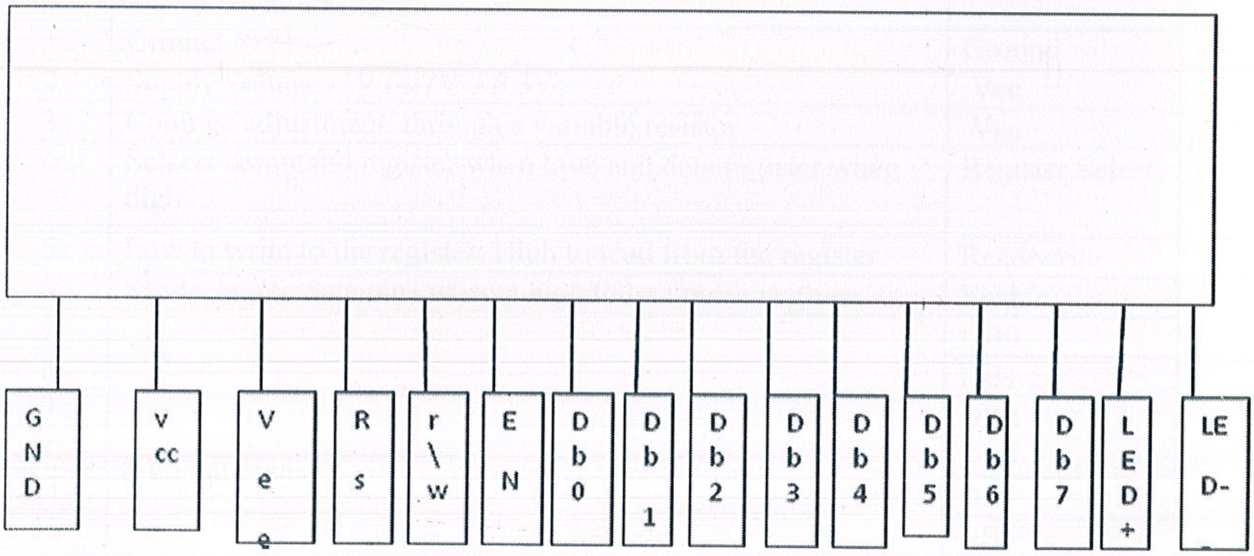

Figure 2.2

Pin Description:

Pin No	Function	Name
1	Ground (0V)	Ground
2	Supply voltage; 5V (4.7V – 5.3V)	Vcc
3	Contrast adjustment; through a variable resistor	V_{EE}
4	Selects command register when low; and data register when high	Register Select
5	Low to write to the register; High to read from the register	Read/write
6	Sends data to data pins when a high to low pulse is given	Enable
7	8-bit data pins	DB0
8		DB1
9		DB2
10		DB3
11		DB4
12		DB5
13		DB6
14		DB7
15	Backlight V_{CC} (5V)	Led+
16	Backlight Ground (0V)	Led-

Table 2.1

MAX 232

The MAX232 IC is used to convert the TTL/CMOS logic levels to RS232 logic levels during serial communication of microcontrollers with PC. The controller operates at TTL logic level (0-5V) whereas the serial communication in PC works on RS232 standards (-25 V to + 25V). This makes it difficult to establish a direct link between them to communicate with each other.

The intermediate link is provided through MAX232. It is a dual driver/receiver that includes a capacitive voltage generator to supply RS232 voltage levels from a single 5V supply. Each receiver converts RS232 inputs to 5V TTL/CMOS levels. These receivers (R_1 & R_2) can accept ±30V inputs. The drivers (T_1 & T_2), also called transmitters, convert the TTL/CMOS input level into RS232 level.

The transmitters take input from controller's serial transmission pin and send the output to RS232's receiver. The receivers, on the other hand, take input from transmission pin of RS232 serial port and give serial output to microcontroller's receiver pin. MAX232 needs four external capacitors whose value ranges from 1μF to 22μF.

Microcontroller	MAX232		RS232
Tx	$T_{1/2}$ In	$T_{1/2}$ Out	Rx
Rx	$R_{1/2}$ Out	$R_{1/2}$ In	Tx

Table 2.2

ULN 2003

ULN2003 is a high voltage and high current Darlington array IC. It contains seven open collector darlington pairs with common emitters. A darlington pair is an arrangement of two bipolar transistors.

ULN2003 belongs to the family of ULN200X series of ICs. Different versions of this family interface to different logic families. ULN2003 is for 5V TTL, CMOS logic devices. These ICs are used when driving a wide range of loads and are used as relay drivers, display drivers, line drivers etc. ULN2003 is also commonly used while driving Stepper Motors.

Each channel or darlington pair in ULN2003 is rated at 500mA and can withstand peak current of 600mA. The inputs and outputs are provided opposite to each other in the pin layout. Each driver also contains a suppression diode to dissipate voltage spikes while driving inductive loads. The schematic for each driver is given below:

Pin Description:

Pin No	Function	Name
1	Input for 1st channel	Input 1
2	Input for 2nd channel	Input 2
3	Input for 3rd channel	Input 3
4	Input for 4th channel	Input 4
5	Input for 5th channel	Input 5
6	Input for 6th channel	Input 6
7	Input for 7th channel	Input 7
8	Ground (0V)	Ground
9	Common free wheeling diodes	Common
10	Output for 7th channel	Output 7
11	Output for 6th channel	Output 6

12	Output for 5th channel	Output 5
13	Output for 4th channel	Output 4
14	Output for 3rd channel	Output 3
15	Output for 2nd channel	Output 2
16	Output for 1st channel	Output 1

Table 2.3

STEPPER MOTORS

This motor is used because this motor rotates trough a fixed angular step in response to each input current pulse received by its controller. When a command pulse is received each time the output shaft rotates in a series of discrete angular intervals. When number of pulses supplied are definite then shaft of the stepper motor turns through definite known angle. This makes stepper motor suited for open loop position control because no feedback needs to be taken from the shaft. The module of stepper motor is interfaced with microcontroller with help of ULN 2003. Pin 3 and pin 4 Of ULN are linked with micro controller. ULN chip pin 12 to pin 16 are output pins that are link with stepper motor.

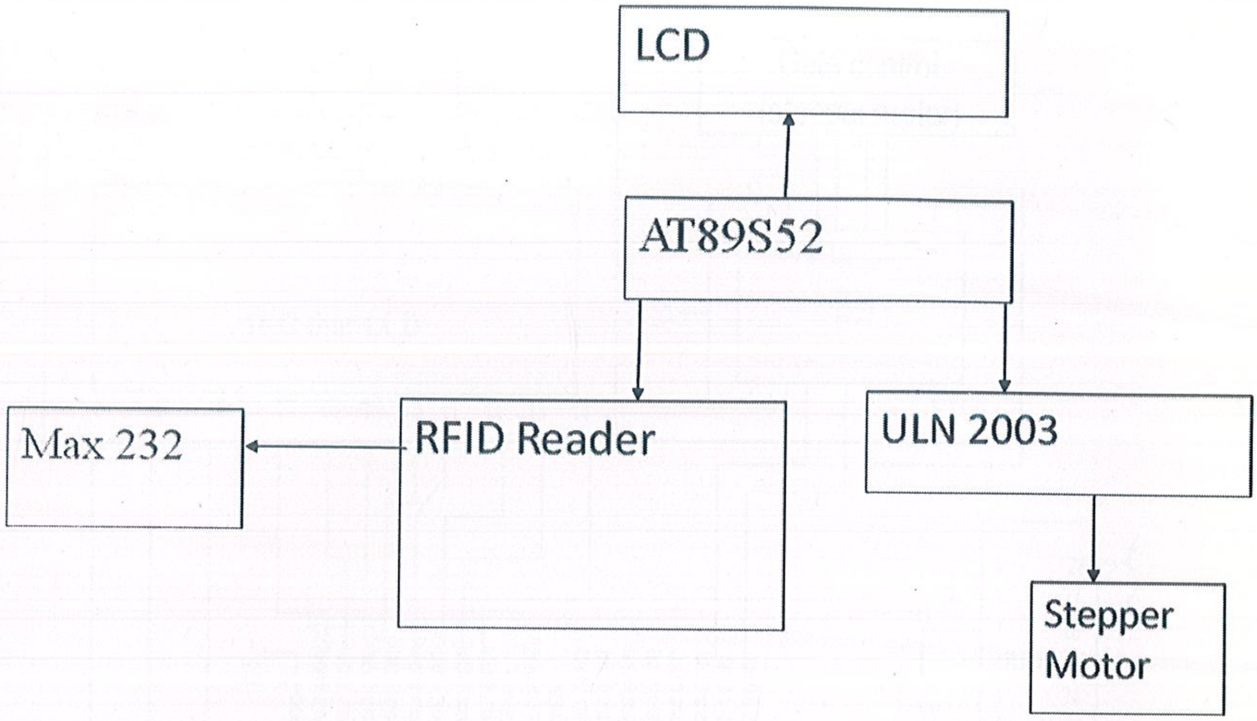

Figure 2.3 Schematic Diagram of RFID Toll collection

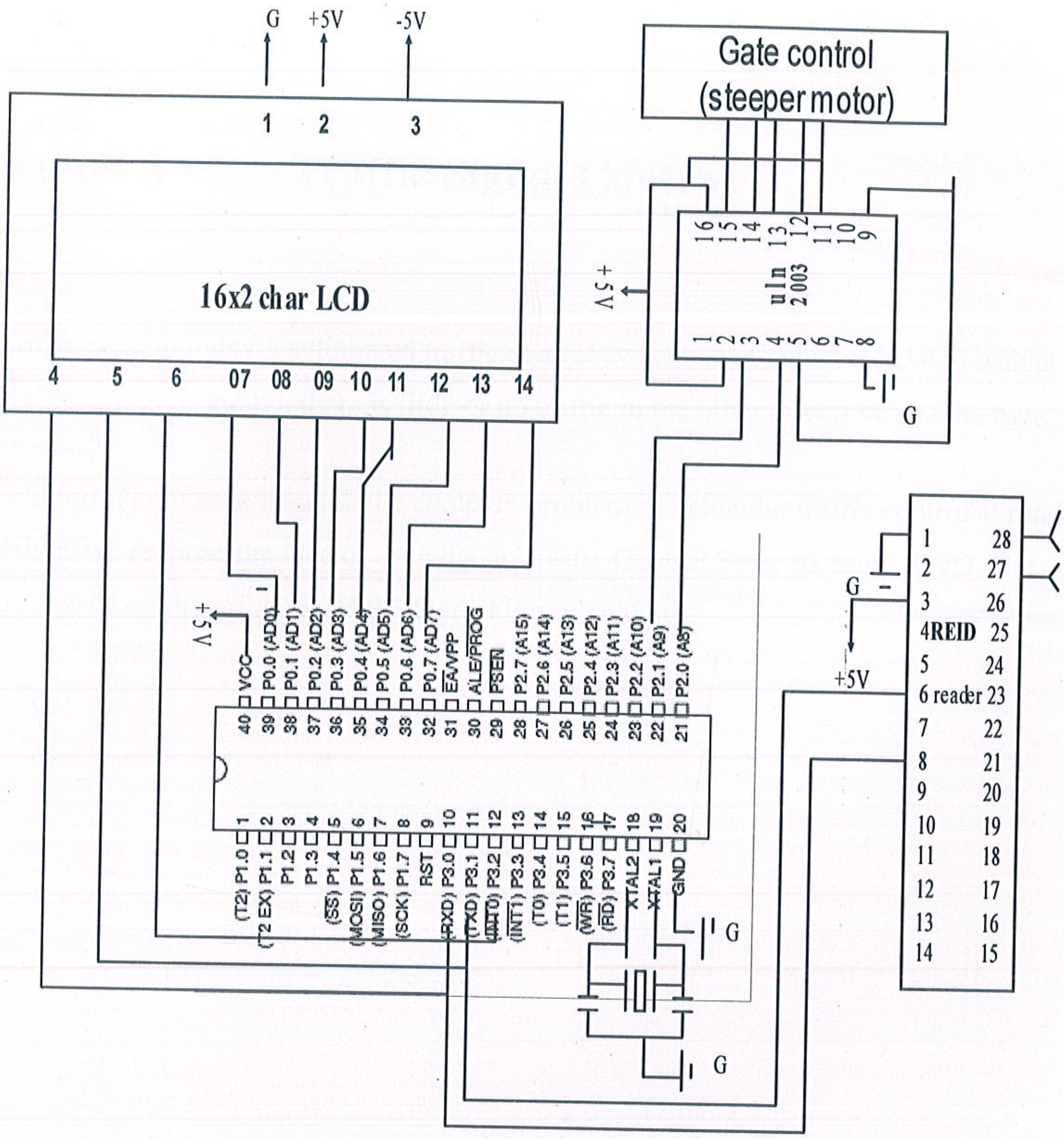
G
+5V
-5V
16x2 char LCD
Gate control
(steeper motor)
uln
2003
4REID
6 reader
VCC
P0.0 (AD0)
P0.1 (AD1)
P0.2 (AD2)
P0.3 (AD3)
P0.4 (AD4)
P0.5 (AD5)
P0.6 (AD6)
P0.7 (AD7)
EA/VPP
ALE/PROG
PSEN
P2.7 (A15)
P2.6 (A14)
P2.5 (A13)
P2.4 (A12)
P2.3 (A11)
P2.2 (A10)
P2.1 (A9)
P2.0 (A8)
(T2) P1.0
(T2 EX) P1.1
P1.2
P1.3
(SS) P1.4
(MOSI) P1.5
(MISO) P1.6
(SCK) P1.7
RST
(RXD) P3.0
(TXD) P3.1
(INT0) P3.2
(INT1) P3.3
(T0) P3.4
(T1) P3.5
(WR) P3.6
(RD) P3.7
XTAL2
XTAL1
GND

Figure 2.4

Chapter 3 - Traffic Signal Control

It is often seen in today's automated traffic control systems that vehicles have to wait at a road crossing even though there is little or no traffic in the other direction. To solve these problems and

To add further enhancements to the complex problem of vehicular traffic control at road crossings we propose the idea of Intelligent Traffic Control Systems using RFID. Our idea is based on the principle of RFID tracking of vehicles.

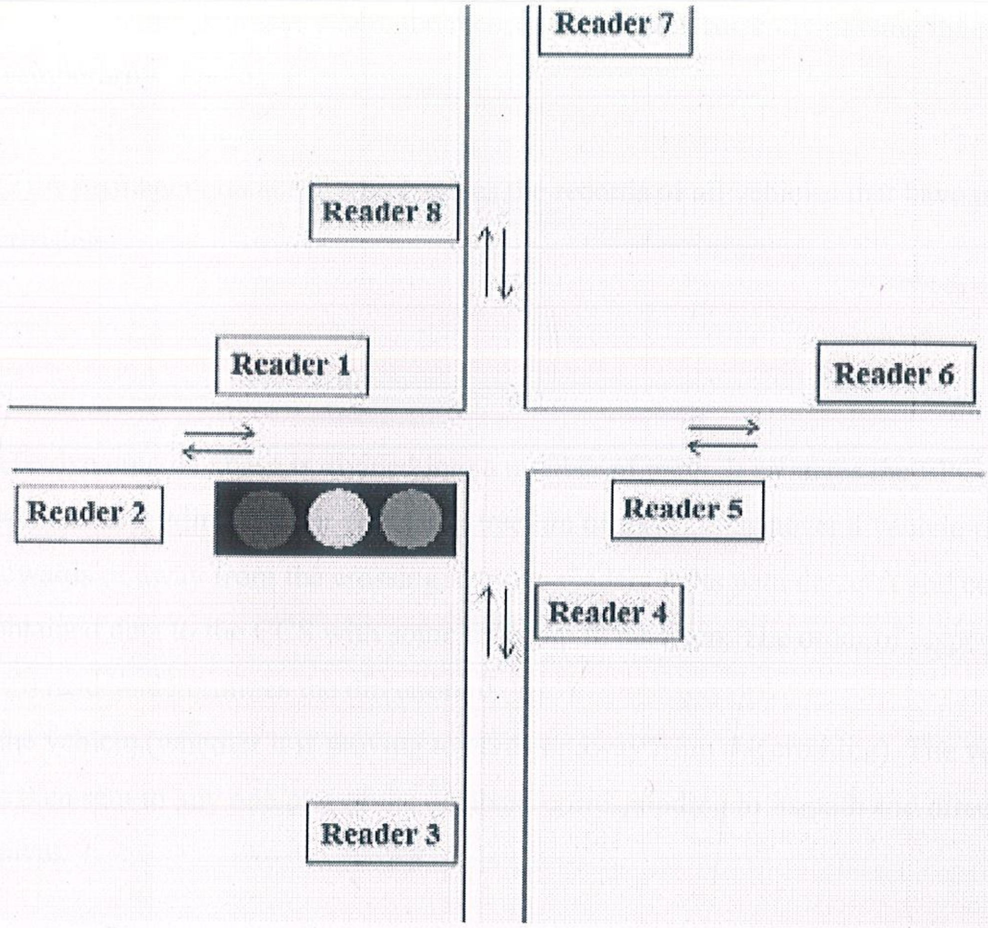

Figure 3.1

Our idea is to place two RFID readers (separated by some distance) in each direction of a road
Crossing and have a Central Computer System (CCS) to control them all. As a vehicle passes by a reader, it tracks the vehicle and retrieves its Electronic Product Code (EPC) data. Currently available hardware can be used to monitor vehicles traveling at normal speed at a read distance of 10m (33 ft.). The data obtained is then sent immediately to the CCS by wireless or wired channels (as found convenient at that location). The CCS contains a Central Database Processing System (CDPS) for processing vehicular data and a Decision Making Section (DMS) for controlling the traffic signals.

The CDPS consists of two parts:-

(1) A dynamic database where the records of vehicles currently passing the crossing are Temporarily stored.

(2) A permanent database which stores the records of all vehicles that have passed the crossing.

The dynamic database is divided into a number of parts. It arranges the EPC data of vehicles according to their path and direction of travel. Whenever a vehicle moves towards or away from the crossing, the two readers in its path detect it and convey the obtained data to the CCS with some time gap in between. The order of response of the two readers determines the direction of
the vehicle (whether it is moving towards or away from the crossing). The vehicular data is then sent to any one part of the database corresponding to its path and direction of travel.

At each instant, the CDPS checks the data in various parts of the dynamic database and computes the volume of traffic for both the roads intersecting at the crossing. It then sends the computed information to the Decision Making Section of the CCS which operates the traffic
Signal according to the current volume of traffic (showing the Green light in the direction of maximum traffic).

So, the volume of traffic takes into account the priority assigned to each vehicle at the present time of the day and also the priority assigned to the two roads intersecting at the crossing.

Once a vehicle has passed the crossing (i.e. it has gone out of the range of the readers), its data is moved from the dynamic database to the permanent database where it is stored along with its direction of travel (both arrival and departure directions) and time.

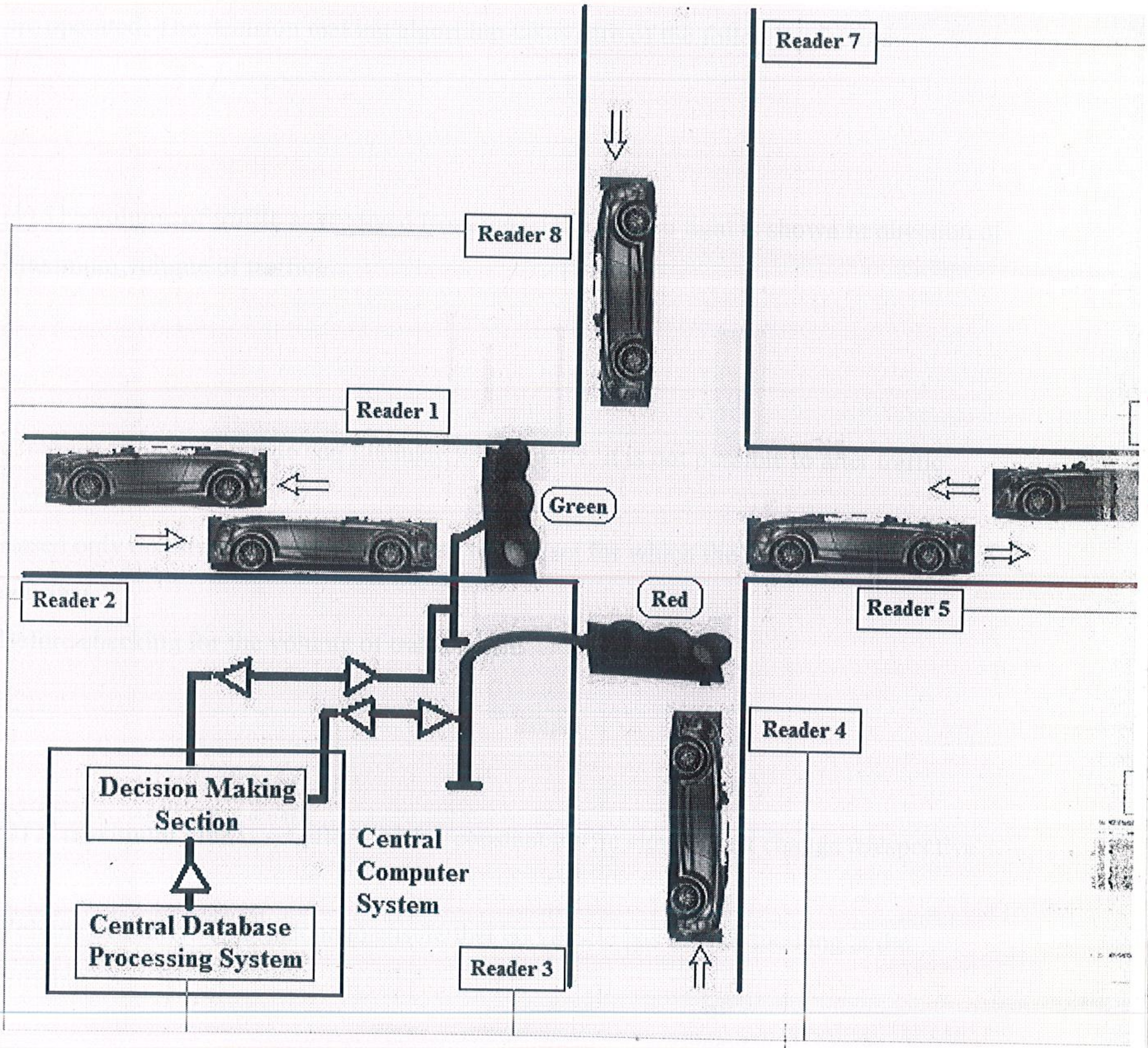

Figure 3.2

DECISION MAKING SECTION

The DMS contains a decision making algorithm which determines how the traffic lights are operated. The decision making algorithm takes care of the following factors:-

(1) The volume of traffic as received from the CDPS (Green light is shown in direction of Maximum volume of traffic)

(2) Since volume of traffic can fluctuate very rapidly, it is not possible to alter traffic signals
Based only on this factor. So, a minimum time is set for which the traffic signals remain constant
Before checking for the volume of traffic again.

(3) A maximum time is set after which a constant traffic signal must change irrespective of
Volume of traffic. This is done to ensure that no vehicle has to wait too long at the crossing.

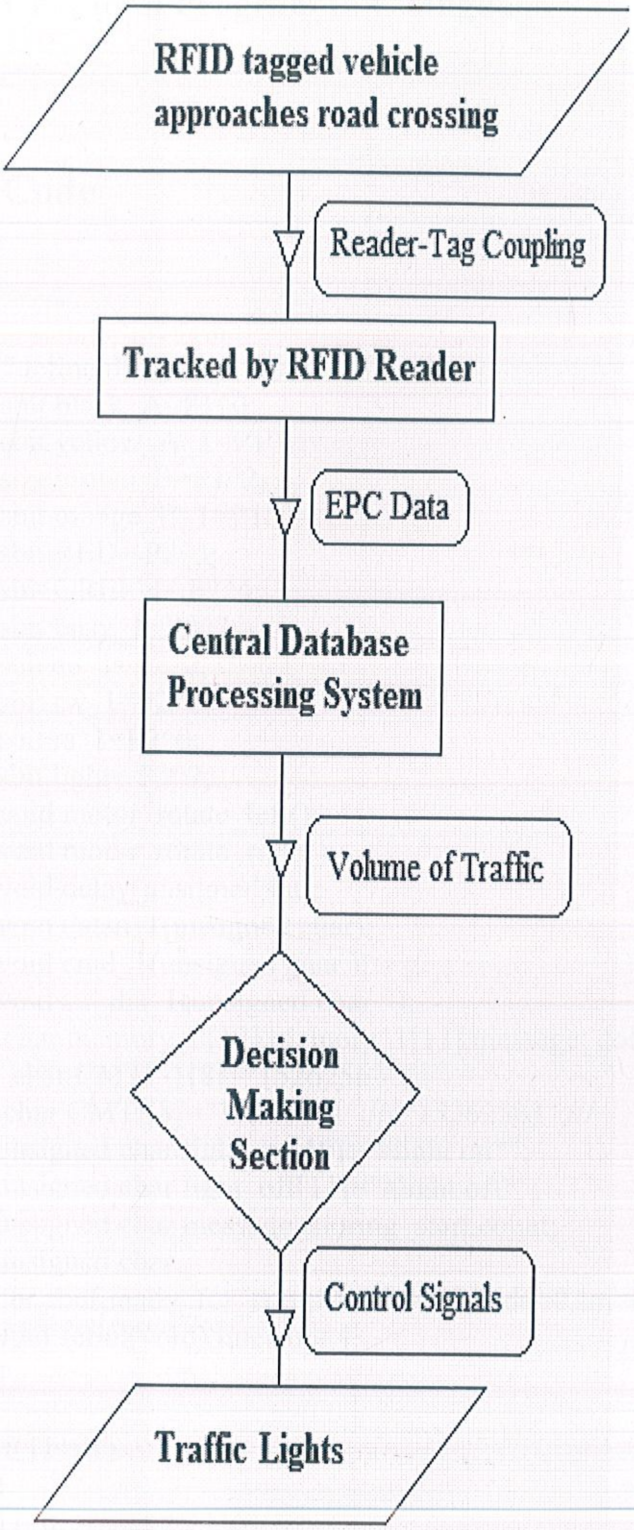
RFID tagged vehicle approaches road crossing
Reader-Tag Coupling
Tracked by RFID Reader
EPC Data
Central Database Processing System
Volume of Traffic
Decision Making Section
Control Signals
Traffic Lights

Figure 3.3

Chapter 4 Program in C language

Code

```
#include<reg51.h>
#define dataport_1 P0
sbit black_A=P1^0;
sbit yellow_A_1=P1^1;
sbit brown_B=P1^2;
sbit orange_B_1=P1^3;
sbit RED= P2^3;
sbit GREEN= P2^4;
sbit busy_1=P0^7;
sbit en_1=P2^2;
sbit rw_1=P2^1;
sbit rs_1=P2^0;
sbit light= P3^7;
void motor_rotate_left();
void motor_rotate_right();
void delay(unsigned int);
void dataa_1(unsigned char);
void cmd_1(unsigned char );
void str_dis_1(unsigned char *);
char memory_0[13],memory_1[13],message_got=0,message_sign;
char CMTI_1[8]="15262563";
char CMTI[8]="15259361";/// "15262563";///
unsigned char light_on[10]="#light on*";
unsigned char light_off[11]="#light off*";
unsigned char message_storing_start,count;
unsigned char
ghr,sbuf,ready_for_compare,abcd=0,bcda=0,sm=0,memory_count=0,match=0;
void serial(void) interrupt 4
{

if(TI==1)
{
TI=0;
}
if(RI==1)
{
sbuf=SBUF;
```

```
RI=0;


///////////message sign{{{{{{{{{{{{{{{{{{{{{{{{{
if(memory_1[0]=='1')
{
memory_1[count]=sbuf;
count++;

if(sbuf==13)//||(count==13))
{
message_storing_start=0;
count=0;
message_sign=1;
ready_for_compare=1;
}
}
if((sbuf=='1')&&(message_storing_start==0))
{
count=0;
memory_1[count]=sbuf;
count++;
message_storing_start=1;
}
//////////message sign}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}

}
}
char compare( char *aray_1,char *aray_2, char compare_count)
{
char array_count=0,compared=0;

        while((*aray_1==*aray_2)&&(array_count<compare_count))
         {
         array_count++;
                                      aray_1++;
                                      aray_2++;
         }
                                      if(array_count==compare_count)
                                      {
                                      compared=1;
                                      }


          return(compared);
```

```
}

void main()
{
unsigned char time_start ;
unsigned long int time ;
black_A=0;
orange_B_1=0;
yellow_A_1=0;
brown_B=0;
light=0;
message_got=0;
message_sign=0;
ready_for_compare=0;
TMOD=0X20;
TH1=0XFD;
SCON=0X50;
IE=0X90;
TR1=1;
////////////
dataport_1=0Xff;
rw_1=1;
rs_1=0;
do
{
en_1=0;
delay(50);
en_1=1;
}
while(busy_1==1);
for(ghr=0;ghr<5;ghr++)
{
cmd_1(0x38);
cmd_1(0x0c);
cmd_1(0x01);
}
dataport_1=0X00;
cmd_1(0x80);
str_dis_1("    Hi         ");
cmd_1(0xC0);
str_dis_1("   WELLCOME     ");
time_start=0;
time=0;
        RED= 1;
  GREEN= 0;
while(1)
```

```
{

if(ready_for_compare==1)
{

ready_for_compare=0;

    match=compare(&CMTI[0],&memory_1[0],8);
 if(match==1)
  {
        RED= 0;
   GREEN= 1;
    IE=0X00;
    TR1=0;
         time_start=1;
         match=0;
cmd_1(0x80);
str_dis_1(" Licence No 369 ");
         cmd_1(0xc0);
str_dis_1(" Tax deducted   ");
motor_rotate_left();

         }

match=compare(&CMTI_1[0],&memory_1[0],8);
if(match==1)
  {
  RED= 0;
  GREEN= 1;
        IE=0X00;
   TR1=0;
        time_start=1;
        match=0;
cmd_1(0x80);
str_dis_1(" Licence No 360 ");
        cmd_1(0xc0);
str_dis_1(" Tax deducted   ");
motor_rotate_left();
        }
}
if(time_start==1)
{
time++;
if(time>65000)
{
```

```
RED= 1;
 GREEN= 0;
time=0;
time_start=0;
motor_rotate_right();
cmd_1(0x80);
str_dis_1("    Hi        ");
          cmd_1(0xc0);
str_dis_1("   WELLCOME    ");
IE=0X90;
TR1=1;
}
}

}
}

 void delay(unsigned int time)
 {
 unsigned int i,j;
 for(i=0;i<time;i++)
 {
 for(j=0;j<1275;j++);
 }
 }


void str_dis_1(unsigned char *str)
{
unsigned char iKK=0;
while(str[iKK]!='\0')
{
dataa_1(str[iKK]);
iKK++;
}
}

void cmd_1(unsigned char value)
{
dataport_1=value;
rs_1=0;
rw_1=0;
en_1=1;
```

```
delay(1);
en_1=0;
}
void dataa_1(unsigned char value)
{
dataport_1=value;
rs_1=1;
rw_1=0;
en_1=1;
delay(1);
en_1=0;

}


void motor_rotate_right()
{
black_A=1;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
delay(5);

black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
delay(5);


black_A=0;
brown_B=1;
yellow_A_1=1;
orange_B_1=0;
delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=0;
delay(5);

black_A=0;
brown_B=0;
```

```
yellow_A_1=1;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=1;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
delay(5);

black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=0;
brown_B=1;
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=0;
```

```
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=1;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
delay(5);

black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=0;
brown_B=1;
```

```
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);
black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

}
void motor_rotate_left()
{
black_A=1;
brown_B=0;
```

```
yellow_A_1=0;
orange_B_1=1;
delay(5);

black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=1;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=1;
yellow_A_1=1;
orange_B_1=0;
 delay(5);


black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=1;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
```

```
orange_B_1=0;
 delay(5);


 black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
delay(5);

black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=1;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=1;
yellow_A_1=1;
orange_B_1=0;
 delay(5);


black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=1;
```

```
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);


black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
delay(5);

black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=1;
 delay(5);


black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=1;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=1;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=1;
yellow_A_1=1;
orange_B_1=0;
 delay(5);
```

```
black_A=0;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

black_A=1;
brown_B=1;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

black_A=1;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
 delay(5);

black_A=0;
brown_B=0;
yellow_A_1=0;
orange_B_1=0;
delay(5);
}
```

Future Scope

- In future vehicle toll collection easy without jam at centers and it will be good to government authority.
- This technique can also be used to determine a vehicle's speed Controlling Traffic accidents.
- This system operates traffic signals based on the current situation of vehicular volume in different directions of a road crossing and not on pre-assigned times.
- This technique Helps in Reducing man-power
- Reportedly stolen vehicles, or vehicles booked for offence can be tracked and the time and
  Direction of travel can be obtained.
- E-Tolling of vehicles can be done (for all directions or for any particular direction of travel).
- Reliable traffic data

CONCLUSION

In order to implement contemporary system of Automatic Transportation System based on RFID" the embedded systems plat form has been utilized. For this purpose, a new RFID technology based on micro-controller was implemented and tested in this study. The verification system presented has the following advantages: The verification system consists of data base about the user of RFID multipurpose card.

The state of art of microcontroller AT89S52 used as a mediator in between PC and RFID; it act as user interface whenever user shows RFID card it will read out RFID card reader then it transfer code to PC interfacing/ front end software. The RFID security system is major role of this project.

Structural and process designs were made, in addition, a new RFID authentication and authorization protocol model was used to guarantee system security.

We have proposed architecture for creating Intelligent Systems for controlling road traffic. Our system is based on the principle of RFID tracking of vehicles.

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