

# Vehicle Monitoring System Using RFID

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**Abstract-**In present world, human population is growing bigger in its count. So the vehicle used by them will be more in number. Monitoring is becoming a big challenge. The parking area has to be secure with enforced entrances and exits. It should have automated and efficient monitoring system. With RFID vehicle monitoring system vehicle information can be automatically gathered for efficient and safe vehicle management. For every vehicle RFID tag will be given. RFID readers are present at the IN and OUT gates. Using reader tag, information is retrieved. Automatic vehicle identification can increase the security and prevent loss of vehicles.

**Keywords:** RFID tag, RFID reader

## I. INTRODUCTION

The main objective of the "Vehicle monitoring system" is to manage vehicles. Maintaining records of vehicles and data are a complicated task in manual process moreover it is difficult to generate reports. Maintaining records of vehicles reports is much easier with "vehicle monitoring System", It's easier to maintain entries of vehicles in database automatically by software rather than doing it by manual process, with this system there is a possibility to maintain in and out times easily.

There is a feature provided in this system to generate daily reports monitoring of vehicles can be done automatically. Whenever vehicle entered into the organization the in time and out time is noted automatically by the RFID device. Monitoring can be done easily administrator can easily generate reports and verify the owner of the vehicle. This system helps in Loss of vehicles because of automated system. The records which are maintained manually are automated with this device and our software. Overall this Vehicle monitoring system simplifies the task of managing vehicles by security guards and made automated system.

### System Essentials

- RFID tags, or transponders, carry object-identifying data.
- RFID readers, or transceivers, read and write tag data.
- Databases associate arbitrary records with tag identifying data.

## II. EXISITING SYSTEM

The task of monitoring vehicles is done manually. Monitoring vehicles of every individual member is complex task for security guards and generating reports is not accurate as number of vehicles increases. Vehicle monitoring is done manually. Security guards manage all the vehicles. The entry time and exit time is not maintained. Space management can't be done properly, Security problems aren't solved.

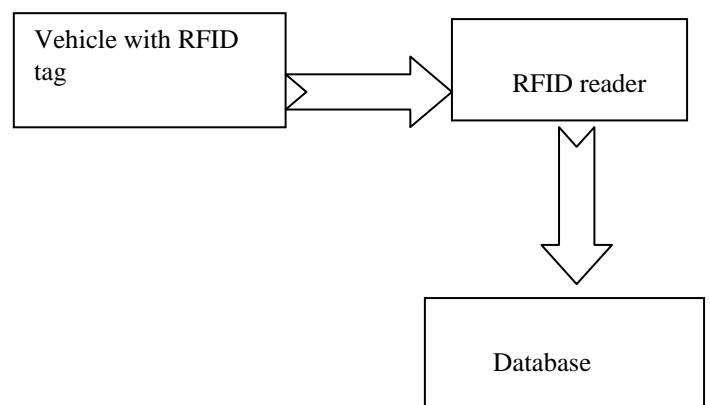
## III. PROPOSED SYSTEM

Monitoring the vehicles will be easy by using RFID technology. RFID readers are present at entry and exit gates. RFID tags are given to every vehicle and readers are used to retrieve information. Entry and exit times can easily stored in database and viewed.

### Advantages of the proposed system

- The application is being developed in HTML, PHP languages, which have the flexibility of platform independent access. Thus application would be portable to any environment where web browser exists with connectivity to web server hosting Application.
- Using this system automatic vehicle identification can be done.
- Security constraints can be easily solved.
- Marinating the records of vehicles is done easily.
- Monthly reports and weekly reports can be viewed.

## IV. BLOCK DIAGRAM



## V. SOURCE CODE: READ IN-OUT TIMES

```

import gnu.io.CommPortIdentifier;
import gnu.io.SerialPort;
import gnu.io.SerialPortEvent;
import gnu.io.SerialPortEventListener;
import java.io.BufferedWriter;
import java.io.File;
import java.io.FileWriter;
import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;
import java.io.PrintWriter;
import java.io.*;
import java.text.DateFormat;
import java.text.SimpleDateFormat;
import java.util.Date;
import java.util.Calendar;
import java.util.Enumeration;
import java.lang.String;
import java.sql.*;

    public class StaffRFID12 implements
SerialPortEventListener {
    String a,b,c,d,e,f,g,i;
SerialPort Port;
    int status1=1,ser=0, ser1=0;
    String
flag="IN",content=null,s1=null,s2=null,mobile=null,temp
="n" , inoutflag="0";
    public static int serial=0;
    String s_id=null, s_rfid=null, s_name =null,
gender=null, s_desg=null, s_dept=null,
job_type=null,date_from_db=null,time_record1=null,time
_record2=null,time_record3=null,time_record4=null,time
_record5=null,time_record6=null,time_record7=null,time
_record8=null;
    long seconds=0l,seconds1=0l;
    int sec1=0l;
    //int i =-1,i1=-1,i2=-1,i3=-1;
    public static intcont=1;
    private static final String Ports[] = { "COM1",//
Windows
"COM2", // Windows
"COM3",// Windows
"COM4", // Windows
"COM5",// Windows
"COM6", // Windows
"COM7", // Windows
"COM8", // Windows
"COM9", // Windows
"COM10", // Windows
"COM11", // Windows
"COM12" };

    public static void main(String[] args) throws
Exception {

        StaffRFID12 RfReader = new StaffRFID12();
RfReader.initialize();
//RfReader.filewrite_template();
    }
    private InputStream input;
    private OutputStream output;
    private static final intTimeOut = 1500, DataRate =
9600;

        public synchronized void close() {
            if (Port != null) {
                Port.removeEventListener();
                Port.close();
            }
        }

        @SuppressWarnings("rawtypes")

        public void initialize() {
            CommPortIdentifierRFPort = null;
            Enumeration getports =
            CommPortIdentifier.getPortIdentifiers();
            while (getports.hasMoreElements()) {
                CommPortIdentifierPid = (CommPortIdentifier)
                getports.nextElement();
                for (String portName : Ports) {
                    if (Pid.getName().equals(portName)) {
                        RFPort = Pid;
                        break
                    }
                }
            }

            if (RFPort == null) {
                System.out.println("COM port not available.");
                return;
            }

            try {
                Port = (SerialPort)
                RFPort.open(this.getClass().getName(), TimeOut);
                Port.setSerialPortParams(DataRate,
                SerialPort.DATABITS_8,
                SerialPort.STOPBITS_1, SerialPort.PARITY_NONE);
                Port.setFlowControlMode(SerialPort.FLOWCONTROL_
                NONE);
                input = Port.getInputStream();
                Port.addEventListener(this);
                Port.notifyOnDataAvailable(true);
            }
            catch (Exception e) {
                e.printStackTrace();
                Port.close();
            }
            } //initialize()

        public void rffilewrite(String content) throws Exception {
            String s=content.trim();

            // flag= 0 in ; flag = 1 out ; s = 4149529;

            System.out.print(s + " RFID.\n");

            inoutflag = s.substring(0,1);
            s= s.substring(1);
            //System.out.println(s.substring(0,1));
            //System.out.println(s.substring(1));
            System.out.println(inoutflag);
            System.out.println(s);
            PreparedStatement p5 = null;
            PreparedStatement p7 = null;

```

```

//seconds=timedifference(s);
//System.out.print(seconds + " seconds.");
/*if(temp.equals(s)){
System.out.println("\nAlready your record inserted");
} */
//else{
temp=s;
try {
Class.forName("com.mysql.jdbc.Driver");
Connection con=DriverManager.getConnection(
"jdbc:mysql://localhost:3306/vehicle","root","root");
//Connection
con=DriverManager.getConnection("jdbc:mysql://localhost:33
06/vehicle","","");
//PreparedStatement ps1=con.prepareStatement("select * from
vehicle_details where RFID_tag=?");

//PreparedStatement ps2=con.prepareStatement("insert into
lupadte_attendance values(?,?,?,?);");

//PreparedStatement ps3=con.prepareStatement("select
s_rfid,status,s_no,attend_date from lupadte_attendance order
by s_noasc");
Timestamp now = new Timestamp(new Date().getTime());
String sql = "SELECT Vehicle_no from vehicle_details where
RFID_tag="+s +"";
Statement stmt = null;
String vt = null;
stmt=con.createStatement();
ResultSetrs = stmt.executeQuery(sql);
if(rs.next())
{
vt=rs.getString("Vehicle_no");
}

try {
// Prepare INSERT through Connection
System.out.println("countr value is "+cont);
if(cont==1)
{
System.out.println("in");
// PreparedStatement ps4=con.prepareStatement("insert
into report values(?,?,?);");
PreparedStatement ps4=con.prepareStatement("insert into
in_time values(?,?)");
// Bind values
ps4.setString(1, vt);
ps4.setTimestamp(2, now);
// ps4.setTimestamp(3, null);
cont=2;
ps4.executeUpdate();
}
else if(cont==2)
{
System.out.println("out");
//PreparedStatement
ps4=con.prepareStatement("insert into report
values(?,?,?);");
PreparedStatement ps4=con.prepareStatement("insert into
out_time values(?,?)");
// Bind values
ps4.setString(1, vt);
//ps4.setTimestamp(2, null);
cont=1;
ps4.executeUpdate();
}
// Insert
} catch (SQLException e) {
e.printStackTrace();
}

//String query = "update REPORT2 set rfid = ? where sid
=? ";
//pstmt = conn.prepareStatement(query); // create a statement
//DateFormatdateFormat = new
SimpleDateFormat("dd/MM/yyyy");
//DateFormat dateFormat1 = new
SimpleDateFormat("kk:mm:ss");
//Date date = new Date();//String s1=dateFormat.format(date);
//String s2=dateFormat1.format(date);
//ps1.setString(1,s);
//ResultSet rs1=ps1.executeQuery();
System.out.println("record inserted");
} //end try
catch(ClassNotFoundException) { ce.printStackTrace();
}
catch(SQLException se){
se.printStackTrace();
}
catch (Exception e) {
System.out.println("This is not registered");
}
//} // end else
} //end rffilewrite method

public void serialEvent(SerialPortEvent event) {
if (event.getEventType() ==
SerialPortEvent.DATA_AVAILABLE) {
try {
Thread.sleep(1000);
int available = input.available();
byte data[] = new byte[available];
input.read(data, 0, available);
rffilewrite(new String(data));
}
catch (Exception e1) {
e1.printStackTrace();
}
}
}
}

```

## VI. OUTPUTS

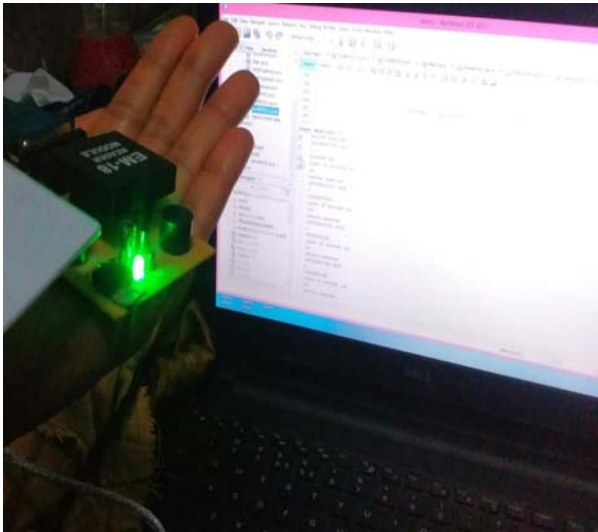


Fig 1.The RFID Tag value is read in to the software

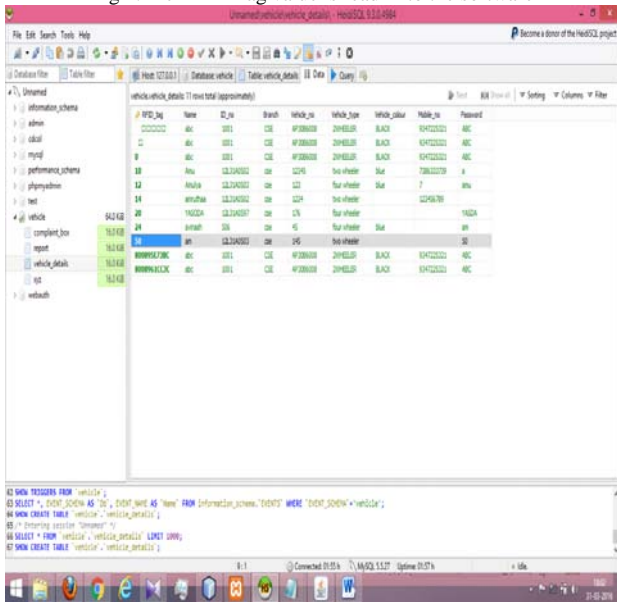


Fig 2.The Rfid tag values are stored in database

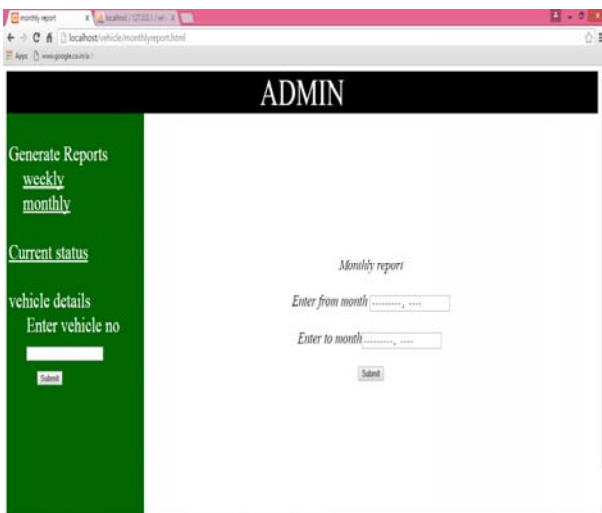


Fig 3. Giving range for Monthly reports

vehicle no	in_time	out_time
ap100191	2016-05-09 11:04:07	2016-04-01 08:43:37
ap100191	2016-05-09 11:04:31	2016-04-01 08:47:47
ap100191	2016-05-09 11:04:44	2016-04-01 08:47:50
ap100191	2016-04-01 08:53:27	2016-04-01 08:53:27
ap11a121	2016-04-01 09:53:41	2016-04-01 09:53:41
ap100191	2016-04-01 09:53:54	2016-04-01 09:53:54
ap11a121	2016-04-01 09:54:20	2016-04-01 09:54:20
ap100191	2016-04-01 09:54:30	2016-04-01 09:54:30
ap100191	2016-04-01 15:02:37	2016-04-01 15:02:37
ap11a121	2016-04-01 15:06:28	2016-04-01 15:06:28

Fig 4. Monthly report generated

## VII. CONCLUSION

With RFID vehicle monitoring system vehicle information can be automatically gathered for efficient and safe vehicle management. For every vehicle RFID tag will be given. RFID readers are present at the IN and OUT gates. Automatic vehicle identification can increase the security and prevent loss of vehicles.

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