Abstract—Our topic “DIGITAL RTO WITH AUTOMATIC TOLL COLLECTION” will surely help people in their daily life. The purpose of our RTO management system is to provide a leading technological tool for the easy function of RTO such as registration, learners license etc. it will reduce considerably the difficulty faced on existing system, with minimum error and difficulty.

Today, due to the increase in the vehicles, there is a lot of gathering of the traffic at the toll booths. The main reason for this traffic at the toll booths is due to the manual working of the toll tax collection at the booths. Each vehicle on an average needs to stop at the toll booth for about a minute for the payment of the toll tax. In order to decrease this traffic, we decided to work on the construction of a project which reduces the manual work and hence increases the vehicle speed passing by the toll booth. Also we decided to develop a project which allows the vehicles just to pass through the booth without the need to stop.

Keywords— RTO office, Toll Booth, Automatic toll collection system, IR Sensors, RF Sensors.

I. INTRODUCTION

Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles and issue of Driver’s License in India. RTO management will be having lot of work regarding registration of vehicles and issue of driver’s license. Similarly the vehicle owner sometimes forgets to carry the license, and forgets the insurance at the time of enquiry.

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The main system components are as follows:

RFID card: This is one of the most important part of the project. RFID cards are used for applications as access control in security system, cashless payment etc.

RFID reader: A RFID reader is a device which is used to interrogate an RFID tag. It reads the unique number from the RFID cards and sends it to the microcontroller.

LCD: It is called Liquid Crystal Display. We are going to use 16x2 character LCD. This will be connected to microcontroller. The job of LCD will be to display all the system generated messages coming from the controller.

Power Supply: This unit will supply the various voltage requirements of each unit. This will be consists of transformer, rectifier, filter and regulator. The rectifier used here will be Bridge Rectifier. It will convert 230VAC into desired 5V/12V DC.

Motor driver: Motor driver is an IC which is used to drive the motor.

DC Motor: Motor is used to open the gate.

II. RELATED WORK

In [1], We all know existing RTO office work is how much lengthy as well as very time consuming process. In many villages there is only one day camp of RTO and the people who want driving license they should remain present on that day if they missed that day then they have to go to the district RTO office. So it is disadvantage because that may be not able to go or he having work on that day. so that here we are developing one web application which provide easiest and efficient way for RTO works like making driving license, insurance of vehicle, registration number of vehicle, etc.

In many cases we found that RTO office work get complete through third party called agent. When a person go to the RTO office for driving license, vehicle passing, and registration number of vehicle then a person go through the agent and agent will complete person work by taking lot of money and that person is unaware about all this system. According to the TOI new on dated 3 September 2015 RTO office is more corrupted area. So using our web application we are somewhere to help to reduce corruption.
The work in [2], Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles and issue of Driver’s License in India. RTO management will be having a lot of work regarding registration of vehicles and issue of driver’s license. Similarly, the vehicle owner sometimes forgets to carry the license and forgets the insurance at the time of inquiry. This paper proposed an approach to solving such problems that are by storing all the information related to vehicle and driver at database by RTO administrator.

RTO is an advanced “RTO management System “which is design keeping in a view to make the existing registration and issues of information about licence easier and faster. It includes the entire registration and insurance procedure starting from the initial phase of entering till the result. It is a more reliable, accurate, time-saving and free from any misuse. The system provides information regarding the RTO Application.

In Reference [3] Regional Transport Office (RTO) is an Indian government bureau which is responsible for the registration of vehicles and issue of Driver’s License in India. RTO management will be having lot of work regarding registration of vehicles and issue of driver’s license. Similarly the vehicle owner sometimes forgets to carry the license, and forgets the insurance at the time of enquiry. This paper proposed an approach to solve such problems that is by storing all the information related to vehicle and driver at database by RTO administrator. This application is a service oriented Android application specifically designed for transport department which allows efficiently managing and verifying the documents related to vehicle and license.

This project targets to store the information related to vehicle such as insurance, license, emission testing details, personal details of the applier and registration date. This application would be installed in Android phones of traffic police. And it will provide input fields to traffic police to enter the vehicle number as well as license number in order to retrieve the information related to vehicle and license from database. In case of civil police, a web page will be provided where he can update the stolen status of the vehicle to database in order to catch the thief. This application also generates fine and stolen status of vehicle. Hence it is completely service oriented application. This application uses JSP at server side and Android application is used at client side. To build the JSP application this paper uses NetBeans IDE 7.2.1, server Wamp (Windows Apache mysql processor) and Macromedia Dreamweaver and MS Expression software’s.

Similarly in case of Android application uses ECLIPSE with ADT (Android Development Tool) Plug-in, Android Emulator tools. Advantages of this application are- Considerably reduce the corruption in transport department. Keep the license documents safely. In case of accidents helps to identify the injured person and also helps to find out stolen vehicle effectively. To offer the drivers to be independent of vehicle related papers.

The work in [4], Any structure, building or system needs maintenance and rehabilitation, which are of course costly. Highways and roads are also not an exception. From the very past, the construction, extension, maintenance and operating costs of highways, roads, bridges and tunnels were collected directly or indirectly[1]. In the old indirect method[2], the expenses are compensated either by the tax payment for fuel or by budget allocation of the national income. The shortcoming of this method is that a number of taxpayers, who do not use any of the roads and carriageways, have to pay extra money. However, in the other system, called direct method, the tolls are taken directly from the drivers passing that road or street. The other three main reasons why tolling, or road pricing, is implemented are the The advances in the technologies related to wireless communication has led to the emergence of several engineering designs to aid the human requirements. Today on one side the importance for secured access is growing in several fields and on the other side with technology advancements the RFID cards and readers are becoming low cost. Both these aspects are the primary reasons for rapidly growing RFID based authentication system. Today, several wireless technologies are used for building wireless networks. Among them the 2.4GHz wireless network is most widely deployed and used. The wide usage of 2.4 GHz wireless communication indicates that this infrastructure can give near real time responses and makes suitable for crucial industrial systems. Global system for mobile communication is that it is an international standard. If you travel in parts of the world, GSM is the only type of cellular service available. Implementing mobile communication based health monitoring via short message service (SMS). Simple wireless control device to achieve the targets, or use the GSM network technology to achieve. Nevertheless, the functions of these devices are too simple to prevent the vehicle theft crimes from happening, furthermore, their burglar-proof methods are not only character. There are millions of drivers passing through Toll Gate Stations every day.
The conventional or the traditional way of collecting the toll from the vehicle owners or the drivers is to stop the car by the Toll Gate Stations and then pay the amount to the toll collector, standing (or perhaps sitting!) by the side of the toll booth, after which the gate is opened either mechanically or electronically for the driver to get through the toll station. So in order to stop all these problems and inconvenience, we introduce an automated or a more convenient way of collecting the toll and traffic management. It’s called Electronic Toll Gate Stations using RFID Technology.

The work in [5], As we all know that transport is the backbone of any country’s economy. Improvement in transportation systems result into the good lifestyle in which we achieve extraordinary freedom for movement, immense trade in manufactured goods and services, as well as higher rate of employment levels and social mobility. In fact, the economic condition of a nation has been closely related to efficient ways of transportation. Increasing number of vehicles on the road, result into number of problems such as congestion, accident rate, air pollution and many other. All economic activities for different tasks use different methods of transportation. For this reason, increasing transportation is an immediate impact on productivity of nation and the economy. Reducing the cost of transporting resource at production sites and transport completed goods to markets is one of the important key factors in economic competition. Automatic toll collection is a technology allows the automated electronic collection of toll costs.

As it is studied by researchers and also applied in various expressways, bridges, and tunnels require such a process of Automatic Toll Plaza. ATP is capable of determining if the vehicle is registered or not, and then informing the management censer about to process violations, debits, and participating accounts. The most excellent advantage of this ATP system is that it is capable of eliminate congestion in toll plaza, especially during those seasons when traffic seems to be higher than normal.

And nowadays each and every person is in hurry so by analyzing and considering these problems we are developing one web application which overcomes this problem and get a solution in an efficient way.

- The existing system is not online
- Lack of security: the details and information’s about the vehicles are highly vital. Since data are stored in a particular system, it is freely available to anyone. If the information falls into the wrong hands, it can be processed in a wrong way.
- Inconsistency: data might get misplaced during manual filling. So data won’t be preserved properly for future use.
- Queue problem
- Fuel loss
- Data duplication: same data are used at many places cause data duplication.
- More manpower will be wasted
- More time consuming
- Processing delays
- Shorter queues at toll plazas by increasing toll booth service rates.
- Faster and more efficient service
- Lowered toll collection costs

**IV. PROPOSED WORK**

**Flowchart For Digital RTO**

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Flowchart For Automatic Toll Collection:

V. CONCLUSION AND FUTURE WORK

The purpose of Digital RTO Management System is to provide leading technological tools for the case of Digital RTO function such as registration, learner license, permanent license, vehicle registration etc. In today’s world with the increasing traffic and longer commuting distances it is becoming very difficult for people to travel for their particular licenses issue.

In Digital RTO management System administrator has the power to verify the data entered by the user, processing of data and provide appropriate solutions.

This system collects toll from the vehicles driving on toll roads without making the vehicle stop at Tollbooths. The automation of toll plaza can have the best solution over money loss at toll plaza by reducing the manpower required for collection of money and also to reduce the traffic indirectly resulting in reduction of time at the toll plaza.

VI. COMPARISON WITH SIMILAR APPLICATIONS

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<tr>
<th>Features of Existing System</th>
<th>Features of Proposed System</th>
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<tr>
<td>There may be chance of data duplication.</td>
<td>In the online system the repetition of work &amp; duplication of data can be avoided</td>
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<tr>
<td>Complain facilities are not available.</td>
<td>Complain facility is available</td>
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<tr>
<td>No security provided for downloading a form</td>
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