

Survey Paper on National Toll Plaza Collection Center

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ABSTRACT

Online toll collection system used for collecting tax automatically. The online toll collection system using Radio Frequency Identification (RFID) tag emerges as a convincing solution to the manual toll collection method employed at tollgates. To overcome the major issues of vehicle congestion and time consumption, we used RFID technology. In our project on the road, and the tag is placed at the bottom of the vehicle. Now a day, there is a huge rush in the toll plazas in order to pay the toll tax. Therefore in order to reduce the traffic jam and to save time & also to reduce the money loss. we have designed project for the automation in toll tax payment using RFID. This makes tollgate transaction more convenient for the public use.

Keywords: RFID Reader, Tags.

I. INTRODUCTION

Now a days, in this world people are very busy with their tight schedules so they have no extra time. The collection of tolls on toll plaza is a time consuming process due to traffic congestion and it also causes inconvenience to the public. Thus we have thought of online toll collection system. The need for manual efforts in toll based system is completely reduced in online toll collection and this system works through RFID technology. RFID is an acronym for Radio Frequency Identification. Our aim behind implementing Online Toll Collection System is to automate the toll collection process by controlling the long queues at toll booth using the RFID tags installed on the vehicle. So the vehicle need not to be stop on the toll gate as the amount is collected from the users account from a tag which is placed at the bottom of the vehicle using RFID technology and transaction details will be send to the users mobile through message. Other general benefits for the motorists includes petrol and diesel saving.

A. Advantages

- ✓ Saves valuable time of customers.
- ✓ Shorter queues at toll plazas by increasing toll booth service.
- ✓ Secure, safe and reliable transaction.
- ✓ Efficient maintenance of customer's data.
- ✓ Reduces human resources on billing sections.
- ✓ The ability to make payments by keeping a balance on the card itself.
- ✓ No need to request for receipts.

B. Drawback

- ✓ Low frequency results in lower maximum data rate, although it is fast enough to allow multiple transmissions to increase reliability.
- ✓ Moderate difficulty in duplicating tags.

C. Applications

- ✓ Faster toll collection system.
- ✓ Less manpower needed.
- ✓ Fuel saving.
- ✓ Low cost and easy to implement.

II. OBJECTIVES

The online tollgate collection system have the better solution than the previous one which overcome the long queues which consumes time and it also reduces the

money loss and manpower at the toll plaza collection. In this project, the technique such as Radio Frequency identification is introduced. This technique consists of RFID tag and reader, which in coordination with each other can be used to detect the vehicle identity. The main objectives of this system are as follows:

- ✓ Reduces the fuel loss.
- ✓ Saving time in collecting toll.
- ✓ Reduce longer waiting time in a toll queue.

III. EXISTING SYSTEM

In existing system, the toll collection or tax collection is the one of the source for the government and maintenance of road. This paper of tax payment system will be an advantage for the government and this system will be monitoring the vehicles which are crossing the gates. This is the first system which has been implemented then only accidents has been reduced. Bean Michal (1994) had proposed the system of toll collection established in England and Wales from about 1986 in responded to the need for better road way. The trusts were ultimate response for the maintenance and improvement of most of the main roads in England. Then after it become good result and implemented in to highway roads. Finkenzell.K (2012) had proposed his technique was implemented for reducing time to waiting in toll gate. And also it is very secured. Data feed system also having to use store customer data's. Gabriel.N and Mitraszewska.I (2010) had proposed the technique implemented here is RFID Based Payment System to reduce the time consumption and easy access of the system, here the money transfer can be done by this method.

Limitations of the manual system:

- ✓ It is tedious and time consuming.
- ✓ It consumes lot of manpower to better result.
- ✓ It lacks of data security.
- ✓ Retrieval of data takes lot of time.

Hence, an android application to reduce the queue in existing system is proposed. The new system completely removes all manual burdens and provide efficient on the entry system.

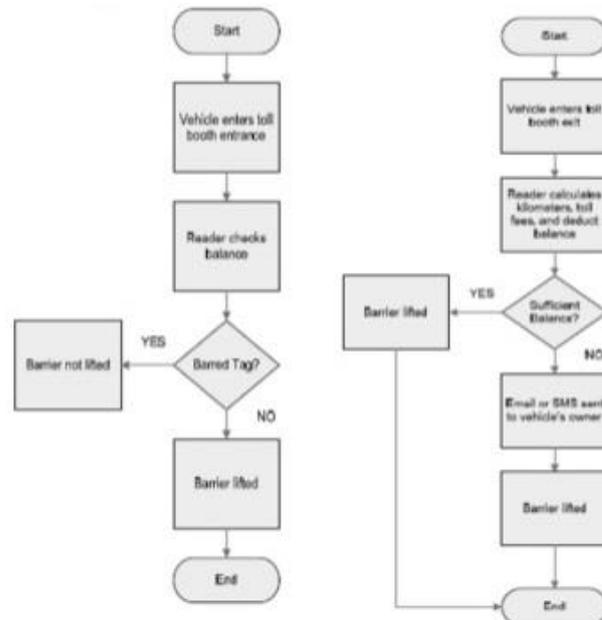


Figure 1. RFID Based Flowgraph

IV. LITERATURE SURVEY

- **Automatic Toll Collection System Using RFID:** This online toll plaza collection system uses RFID which is therefore used for collecting tax automatically. Vehicle will hold an RFID tag and this tag is nothing but unique identification number assigned. ANPR (Automatic Number Plate Recognition) system has been employed which uses a camera to capture the number plate of the vehicle and deducts the toll by matching it with the owner database. With this number we will store, all the basic information as well as the amount the user has paid in advance for the toll collection. Reader will be strategically placed at the bottom of the vehicle. Whenever the vehicle passes through the toll booth the amount will be deducted from the user prepaid balance and after that the new balance will be updated. In this system, we do the identification with the help of radio frequency. The automation of toll plaza has been done based on image processing.
- **Electronic Toll Collection System Using Passive RFID Technology:** This paper focuses on electronic toll collection(ETC) system using radio frequency identification(RFID) technology. The proposed RFID system uses RFID tags that are

placed at the bottom of the vehicle, through which the information embedded on the RFID tags are read by RFID readers. The research on ETC has been around since 1992, during which the RFID tags has been begin to be widely used in vehicles to automate toll processes. The proposed System removes the need for the driver of the car and toll authorities to manually perform the ticket payments and tollfree collection respectively. Data information can be easily exchange between the motorist and the toll authorities. So that traffic crowding at toll plazas and it helps in lower fuel consumption. This is very important advantage of this system.

- **Automatic Toll Gate System Using Advanced RFID and GSM Technology:** The online toll plaza collection system uses RFID and GSM technology so the RFID is used for collecting tax automatically and so the GSM is required to send the message that the amount is deducted. This system around the world are implemented by DSRC (Dedicated Short Range Communication) technology. The concept proposed is of automatic toll tax payment system and the amount transaction information sends to the cell phone of the driver of the car through the GSM modem technology. It is an new technology for express network automatic toll collection solution. In this paper, the frame composing and working flow of ssssthe system is described and data information is also easily exchange between the motorists and toll authorities.

V. CONCLUSION

The online tollgate collection system have the better solution than the previous one which overcome the long queues which consumes time and it also reduces the money loss and manpower at the toll plaza collection. In this project, the technique such as RFID is introduced. This technique will include the RFID tags and reader which can be use to detect the vehicle identity. In this way, the theft vehicle can be

identified easily and the message will be send to the particular user.

By implementing ‘Automatic Tollgate Collection System using RFID and GSM Technology’ we can provide a convenient transportation for the public that is we can avoid traffic load. It is most efficient way of toll collection which can reduced the manual effort at toll plaza. We are avoiding the emergency vehicle such as ambulance, fire force, etc. from the toll collection. In this busy world, we give preference for time and efficiency, so for fulfilling this we can implement this kind of toll collection system.

VI. REFERENCES

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