

Automated GPS Toll System

Ankush Shiyale¹ Jaideep Dhotre² Prof. Niyamat Ujloomwale³

^{1,2,3}MES College of Engineering, Pune, India

Abstract— Transportation has emerged as a dominant part of Republic of India. Toll plazas play an important role in maintaining the road transportation. At present, manual toll assortment is most widely used assortment methodology in Republic of India. It considerably needs a toll gatherer or attendant. Thanks to manual intervention, the interval at toll plazas is highest. The project has been designed for the automation in toll tax payment victimization GPS Technology and mechanical man primarily based application. This paper demonstrates the need of sensible tolling systems for sensible main road. In sensible main road operators and drivers would be ready to see in real time the data of traffic. The sensible main road is next generation road aimed toward Congestion Free, Stop Free and Accident Free through traffic data services. This study defines needs and functions for development of sensible tolling system as a four-lane free flow road charging systems. The sensible tolling systems support toll collect, no overlade vehicles, speed enforcements then aboard on wireless communication systems. In our system we develop a mechanical man application during which driver when reached at toll plazas five hundred m range victimization GPS, driver gets locations of piece of land. In our system, driver can add money in mechanical man application and it get all data concerning toll and driver can pay toll quantity. Therefore driver no got to wait in queue for pay toll quantity. In toll counter, admin person can check all details concerning vehicle and examine payment details. Using our system, we will simply resolve main road traffic drawback.

Key words: GPS, Toll System

I. INTRODUCTION

In our way of life we have a tendency to seeing toll gate. We have a tendency to getting to pay specific amount to the government in variety of tax through this toll gate. we are able to see this toll gates being placed in some national high ways in which etc., thus so as to pay tax we have a tendency to normally getting to pay in variety of money, however rather than that because the technology is growing we are able to build use of robot application. The most objective of this project is to pay the toll gate tax exploitation robot application. Robot application allows user to register and pay toll gate tax and whenever someone needs to pay the toll gate tax, he has to open robot application login and pay his tax. By exploitation this sort of application there's no got to carry the quantity in form of money and then we are able to have security additionally. These toll assortment systems are a mixture of utterly automatic toll assortment systems” requiring no manual operation of toll barriers or assortment of tolls and semi-automatic lanes. Within the current times of skyrocketing traffic on the road, it's necessary to collect the toll tax during a managed and controlled method so it doesn't result in a total unorganized jungle of traffic. It's terribly difficult to handle a conveyance flow by a manual system of revenue assortment.

II. LITERATURE SURVEY

A. Paper 1: Automatic Toll E-ticketing System for Transportation System

In this Paper, the concept of Automated toll ticketing using MSP430 Launch pad. We have used an innovative approach where a traveler will be able to pay the toll while in motion using RFID communication technology. Through this process of toll collection will save time, effort, and man power. How many vehicles passing through the toll gate stored in a database. We can also find out a vehicle how many times passing through the toll gate in a day. The improvement can be done to develop a multi vehicle amount deducted and send a SMS at a time multi vehicle.

B. Paper 2: Automation of Toll Gate & Vehicle Tracking

This paper explains the implementation of Toll Gate Automation which is a step towards improving the Tracking & monitoring of vehicles, traveling in predetermined routes. In this system, a computerized system automatically identifies an approaching vehicle and records the vehicle number & Time. If the vehicle belongs to the authorized person/group, it automatically opens the Toll Gate and a predetermined amount is automatically deducted from its account.

C. Paper 3: Automation of Toll Gate & Vehicle Tracking

Toll gate Automation and Vehicle Tracking is designed to automatically keep track of the vehicles movement, record the time and the details like Owner's name, date of registration, vehicle model etc. This system is very useful for automatic vehicle tracking, time management and also for automation of Toll gate. This paper explains the implementation of Toll Gate Automation which is a step towards improving the Tracking & monitoring of vehicles, traveling in predetermined routes.

D. Paper 4: GPS based Automatic Toll Collection System

Has emerged as a dominant part of India. Toll plazas play a crucial role in maintaining the road transportation. At present, manual toll collection is most widely used collection method in India. It significantly requires a toll collector or attendant. Due to manual intervention, the processing time at toll plazas is highest. The paper proposes a design for the automation in toll tax payment using GPS and GSM Technology. Automation of toll plaza has been experimented using combination of Microcontroller, RFID, Global positioning system, Global system for Mobile.

E. Paper 5: Intelligent Toll Path System Using GPS & GSM

Transportation has emerged as a dominant part of India. Toll plazas play a crucial role in maintaining the road transportation. At present, manual toll collection is most widely used collection method in India. It significantly requires a toll collector or attendant. Due to manual intervention, the processing time at toll plazas is highest. The project has been designed for the automation in toll tax

payment using GPS and GSM Technology. Automation of toll plaza has been experimented using combination of PIC Microcontroller, IR transmitter and receiver, Global positioning system, Global system for Mobile. Implementation of automation in toll plaza enhances the monitoring of vehicles that are travelling in predestined routes.

III. EXISTING SYSTEM

The smart tolling systems support toll collect, no overloaded vehicles, speed enforcements and so on base on wireless communication systems. In our system we develop an android application in which driver after reached at toll plazas 500 m range using GPS, driver gets locations of toll plaza. Existing system is time consuming and need to stay in line more time. So using our system we can easily remove toll system problem.

IV. OBJECTIVE

- 1) Lower fuel consumption of vehicle. Data
- 2) Decrease is transportation time.
- 3) Reduce the traffic jams at toll plaza.
- 4) Dont need to pay the toll tax at the same location of toll plaza at same time.

V. PROPOSED SYSTEM

Vehicles queuing up to pay toll tax at a road toll gate may be a common sight .The toll assortment system largely works on a manual method and might take up to a second to method every vehicles dealing. We tend to develop an automaton application within which driver pays toll quantity exploitation application thus no have to be compelled to wait in queue for pay tax. The good tolling systems guarantee traffic free flow of good road, that it will charge the toll fare through one device with many toll fare policies. good tolling systems isn't any restriction regarding the lane dynamic or passing another automotive ahead at charging purpose of your time, it's occurred in communication and social control issues.

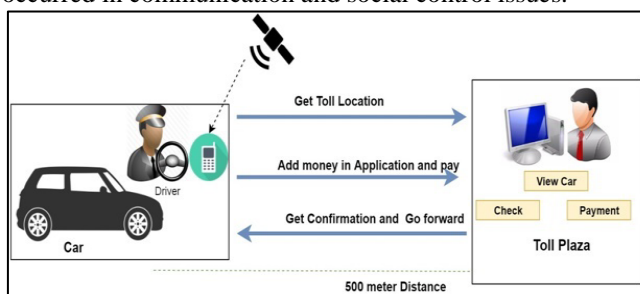


Fig. 1:

A. System Requirement & Specification

1) Hardware Resources Required

- 1) Processor : Pentium –IV
- 2) Speed : 1.1 GHz
- 3) RAM : 256 MB (min)
- 4) Hard Disk : 20 GB
- 5) Key Board : Standard Windows Keyboard
- 6) Mouse : Two or Three Button Mouse
- 7) Monitor : SVGA

2) Software Resources Required

Operating System: Windows 07/08/Above
Programming Language: JAVA/J2EE/XML, Android
Database: MY SQL

VI. CONCLUSION & FUTURE SCOPE

GPS tolling systems is transferal during a huge amendment within the gift pay toll assortment strategies, enabling vital time and value savings and inflated convenience for commuters whereas at the same time generating bigger revenues for operational agencies. We tend to gift a GPS toll system application. It terribly helpful for pay toll quantity and no ought to wait in queue for a protracted time. GPS toll system is extremely effective and helpful on road.

ACKNOWLEDGEMENTS

This Work is supported by Prof. Niyamat Ujloomwale (MES College of Engineering, Pune)

REFERENCES

- [1] S1, Mohana Arasi M2, "Intelligent Toll Path System Using GPS and GSM, 2016, pp. 457-473.
- [2] Lakshmi K 1, Megha R 2, Abhilasha B K 3, Kruthi P 4, Harshitha K S 5, "GPS Based Automatic Toll Collection System," 2017.
- [3] Janani Krishnamurthy1, Nitin Mohan2, Rajeshwari Hegde3, "Provably Automation of Toll Gate and Vehicle Tracking.
- [4] Daniele Inserra, Wei Hu, and Guangjun Wen, "Planar antenna array design considerations for RFID electronic toll collection system," IEEE Trans. 2016.
- [5] A. Dhurat, P. Magal, M. Chheda, and D. Ingle, "Gateless electronic toll collection using RFID," IOSR Journal of Computer Engineering, vol. 16, pp. 73–80, Mar. 2014.
- [6] Z. Feng, Y. Zhu, P. Xue, and M. Li, "Design and realization of expressway vehicle path recognition and ETC system based on RFID," in Proc. IEEE 3rd International Conference on Computer Science and Information Technology (ICCSIT) 2010, Jul. 2010.
- [7] F. Don, "Electronic toll collection: An introduction and brief look at potential vulnerabilities," 2004.
- [8] T. V. Ho and W.-C. Tang, "Electronic toll collection system with multi beam antennas," US Patent US 0 278 347 A1, Nov 13, 2008.
- [9] ISO 18000-63:2013 Radio frequency identification for item management – Part 6: Parameters for air interface communications at 860 MHz to 960 MHz Type C, ISO/IEC Std., Rev. first edition, 2013.
- [10] EPC radio frequency identity protocols class-1 generation-2 UHF RFID, protocol for communications at 860 MHz 960 MHz, EPC global Std., Rev. Version 1.1.0, 2005.