Android Based Smart Toll System Using QR Code

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ABSTRACT: Last few years have been characterized by incredible growth in android application and in online payment. The payment system consist an application that generate QR Code with verified documents that will be display on mobile for the process of payment. The generated QR code scanned through mobile camera which is connected to server then payment will automatically deduct from user wallet. In thissystem we have been focused on illegal collection of toll plaza as well on illegal vehicle.

KEYWORDS: GPS(Global Positioning System), QR Code (Quick Response Code), E-Toll, Java, Vehicle, MySql.

I. INTRODUCTION

In today world expressway transportation become one of the most important part of human life daily routine.And the manual toll collection system become outdated because number of drawbacks like illegal toll collection, It require more man power and vehicle congestion.

This system makes the work easier at both sides, to keep track as well as pay the amount in very efficient way. This system is based on android application and web application. The front end uses Android Studio and back end use Sql Server.

Firstly user must be sign up in android application of toll system with using verified documents like driving license, Id proof. Then user can login in application after login user can vehicle details and app will generate QR code for the particular vehicle. It features that user can add more than one vehicle in one account. This application provide money wallet for purpose of online payment. In this application we include road details like budget of road, year of establishment, present toll plaza's on road. This system provides another important feature is that user get notification before 2-3 KM of toll plaza.

When the vehicle enters into toll plaza user has to show the QR code and payment receiver will scan the QR code. Then payment receiver will get pop-up on his system for approve or decline transaction and then payment will be deducted from user wallet balance and user will get notification of payment successful.

II. RELATED WORK

In manual toll collection system they collecting toll manually and also they fill up details manually. This system does not have centralized system.

ETC [1] system based on RFID tag and GPS system. They have used RFID tag for vehicle identification and GPS system for tracking vehicle. This system takes very less time to identify vehicle.

The toll collection system in Philippines are based on E-Pass system. [2] The vehicle have provided unique tag for identification of vehicle. When vehicle enters in toll plaza that tag read by receiver, automatically balance deducted from registered account.

[3] Toll collection system in Canada is OCR (optical character recognition). The means OCR cameras are used to photograph license number plate of vehicles that do not pay the bill. The toll bill will be directly send to the registered vehicle owner.

III. PROPOSED ALGORITHM

A] Introduction:-

This paper presents a proposed system which is the web application and android application. System designed primarily for devices such as smart phone, personal computers and for all the devices which support web services. The main objective behind this paper is to design the application which would provide an effective and easier way to payment of road toll. This paper is keeping in mind the cost, ease of use, less overhead for target users like vehicle driver.

This application contains QR code for recognition with centralized availability of vehicle data. It also maintains statistics of Toll plaza's.

Advantages of proposed system
   a) Online toll collection system is very fast and efficient
   b) Cash handling is eliminated
   c) Data cauterization
   d) Reduce vehicle congestion
   e) Notification
   f) Avoid Financial loss
   g) Save the time in collecting toll at toll plaza

Application of the proposed system
   a) In Toll plaza system
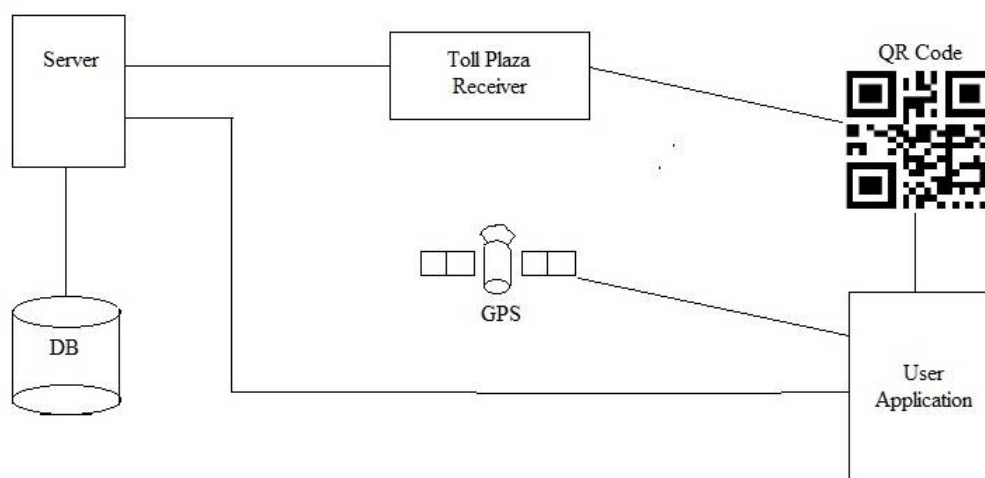   b) At parking place

B] System architecture of proposed system

Fig. System Architecture

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IV. CONCLUSION AND FUTURE WORK

The automated toll system provides a better way to carry out very effectively and efficiently. Throughout the system it enables user to pay toll from his created account within second after reaching toll booth.This system gives many advantages, such as waiting time of the vehicles, no traffic congestion, assured and accurate collection of toll amount, free from cash, minimum emissions which are harmful for living. This paper investigates how to use GUI for collection of toll, the real time management and monitoring is done.

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