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## Scan and drive: An Android-based application

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### ABSTRACT

*Recently we have noticed that there is huge congestion that is escalating at the toll plaza on the expressways and highways. These toll plaza mostly uses the traditional way of issuing toll ticket which causes heavy traffic of vehicles on the road. In the traditional way of issuing ticket manual ways are used because of which a lot of time is wasted of the travellers. To avoid such problems we are developing the android application which will make easier for the travellers to get the toll ticket without wasting any time. This application which will display the toll price of the different toll plaza and if you're visiting through that toll plaza you just need to make a payment online. After your payment, a QR code will be given to you and while visiting at toll plaza you just need to scan the QR code. QR code generated will be unique for each transaction made by the traveller.*

**Keywords**— QR code, Toll plaza, Transaction, Android application

### 1. INTRODUCTION

In today world expressway transportation becomes one of the most important parts of human life daily routine. And the manual toll collection system becomes outdated because a number of drawbacks like illegal toll collection, It requires more manpower and vehicle congestion. This system makes the work easier on both sides, to keep track as well as pay the amount in a 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 sign up in the android application of toll system with adding its personal credentials. Then the user can log in in the application after login user can add vehicle details and app will generate QR code once the user pays the specified amount of that particular toll for the vehicle. It features that the user can add more than one vehicle in one account. This application provides a money wallet for the purpose of online payment. In this application, we include road details like the budget of the road, year of establishment, present toll plazas on road.

This system provides another important feature is that the user gets notification before 2-3 KM of the toll plaza. When the vehicle enters into toll plaza user has to display the QR code at the scanner that will be placed at the doorstep of the toll plaza counter. Then payment receiver will get pop-up on his system for approval or decline transaction.

### 2. LITERATURE SURVEY

Kasturi Shah, Prajakta Joshi, Dishaa Garg “Automatic Toll Collection Using QR Code” e-ISSN: 2395-0056, p-ISSN: 2395-0072©2016 IRJET. In this survey Kasturi Shah, Prajakta Joshi, Dishaa Garg examined the Automatic toll collection Using QR code. In this study, he focussed on collecting toll according to a vehicle and provides a uniform toll collection system. The approach of automatically toll collection helps to avoid unnecessary delay in the collection of toll and provide a safe, secure, effective strong system in the real world transport system. For an effective and fast collection of toll on toll plaza, he developed a QR code based toll collection system. QR code mounted on the vehicle used to read vehicle with the help of QR code reader. [1]

Yudhi Kristanto, Bagus Priambodo “Application Design of Toll Payment using QR Code a Case Study of PT. JasaMarga” ISSN: 2231-2803©2016 IJCTT. In this study the YudhiKristanto, BagusPriambodo examined the validity and reliability. The test application is the main process in the Android platform. This will test the application to make transactions on the QR Code interface and the results that come out will be recorded into the history menu automatically or not. In the QR Code interface, then we will fill the user data such as user ID, username, and the credit balance amount. However, the data to be entered into the history interface is user data after the transaction occurred such as user ID, the location of toll gates, the amount to be paid and the date and time of the transaction.[2]

Kinjal.H. Pandya, Hiren J. Galiyawala “A Survey on QR Codes: in context of Research and Application” ISSN 2250-

2459©2014 IJETAE. The author examined that it includes the basic understanding of QR code. It shows a comparison between one dimensional and two-dimensional barcodes. Also, it includes the various examples of the use of QR codes and all different techniques of diverse fields that have been proposed by using a QR code for the research is mentioned. [3]

Vinod Suryawanshi, Aditya Gosavi, Unmani Joshi, Sagar Suri “Automatic Toll Collection Using QR Code” ISSN: 2319-7242©2017. The authors declared the different types of methodology like QR Code Generation, QR Code Printing, QR Code Paste/Show, Recharge Money, Manage Vehicles, Check Deduction, and QR Code based toll payment system, Revenue Analysis etc. [4]

### 3. PROPOSED SYSTEM

The purpose of this system is to develop and implement payment of the toll road system based on Android application development. Several parameters are used for paying the toll roads is QR Code and Reader. Utilization of QR Code is payment function in real time without any delay, while the Reader sensor used to capture the QR Code on Android Smartphone which is then processed in a database.

A recent trend among small businesses is the growing use of QR (Quick Response) codes. QR codes can be scanned and read by a camera-equipped Smartphone. A QR code on an item scans it with your Smartphone and immediately has access to a lot of information electronically. QR Code on a business card might contain a V-card (digital business card) that you can save without having to manually input the card on user information. E-payment by doing this pre-banking Tollgate transaction processing the drivers will have QR code as a proof in the mobile phone or V-card to move to the concern location without any waiting time in tollgates.

To use you need an Android application (Smartphone) finish the payment processing automatically QR code generates on giving a mobile number. After generating the QR code our payment is completed and when reaches the tollgate to show the QR code in front of the QR code reader (it scanned our data as digital) and leave from the tailgate without waiting time.

In this project, there are two types of android application and one admin panel. The first application is Toll User, in this application user need to register with own details and the user also adds multiple vehicles and manage the vehicle. The QR code generated with the details of added vehicles and prepaid account.

The first vehicle owner needs to download the application and has to register by giving basic details such as username, vehicle details and then registering an account pertaining to the owner either prepaid or postpaid. During the registration, the owner needs to deposit a certain amount in his account.

The registration provides QR code to the vehicle. The second module is toll management. The gate needs to register for the various toll amounts levied on different vehicle types that approach a toll gate. As the vehicle approaches the gate, the QR code reader captures the QR code and decodes, authenticates and the respective amount will be deducted from the owner account.

## 4. COMPONENTS

### 4.1 Toll User

It is an android based application, in this application user need to register with user details like username, password, email id, mobile number. After registration, the user can be logging in the application by our registered mobile number and password.

### 4.2 Start Journey

To get easy, turn-by-turn navigation to places, use the Google Maps app. The maps will show you directions and use real-time traffic information to find the best route to your destination. So that we are using the Google Maps API in this project to navigate our current location, nearby toll notification, nearby restaurants, nearby hospitals, a nearby school, nearby petrol pumps etc.

### 4.3 Wallet

In this project, the user has a prepaid account for paying the toll amount online. The user needs to deposit a certain amount in his account at the time of registration in this application. The wallet can be recharged by the Credit Card/ Debit Card. The toll amount is deducted at the time of vehicle passing through the toll booth.

### 4.4 QR Code

The user selects options based on his choice of the journey and frees them to the system. Input data include vehicle identification, journey type and owner identification details. The QR code for input data is generated using input data. Generated QR codes may be saved into the system and printed when possible. This is beneficial for users without a smartphone.

### 4.5 Monthly Pass

For the daily traveller, there is also the option of the monthly pass which will make a digital pass on your mobile phone for 1 month. The monthly pass payment can be done by the Credit Card/ Debit Card or you can pay by the wallet. At the time of the toll booth, you just need to show the digital pass on your mobile phone.

### 4.6 Toll Operator

This is the second application of this project; this application is used by the toll operator for collecting the toll amount of an online. This application has a QR code scanner for decoding the user QR code and collecting toll amounts from user wallet.

### 4.7 Scan QR Code

Printed QR Codes can be pasted onto windscreen or side screen or Generated QR codes can be scanned by toll operator application. They will be scanned by the QR code scanner and their data will be used for processing user requests.

## 5. DIAGRAMS

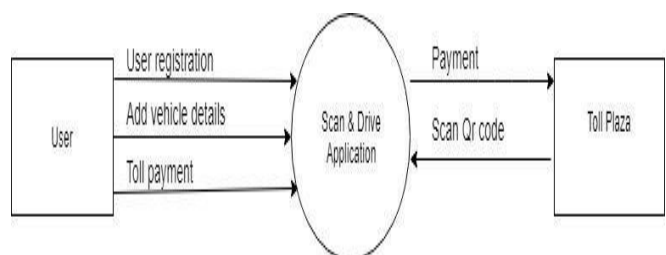


Fig. 1: Data Flow

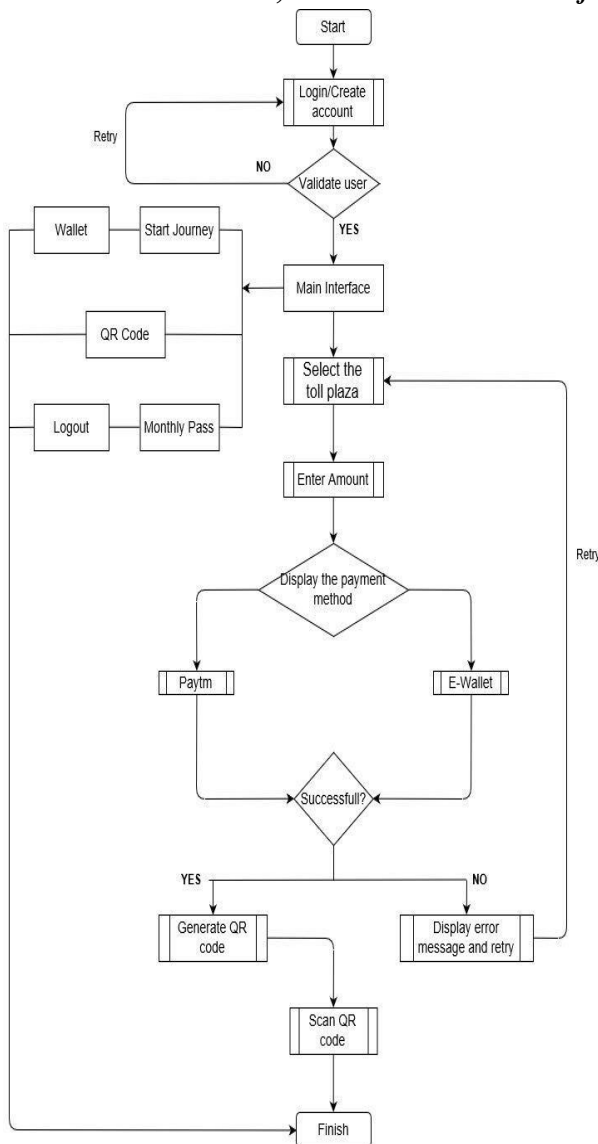


Fig. 2: Workflow

## 6. CONCLUSION

This proposed system is based on an android application which helps the traveller to eliminate the long queues and congestion on the highways. The QR code generated after the payment of the toll ticket will be scanned at the toll booth.

## 7. REFERENCES

- [1] Kasturi Shah, Prajakta Joshi, Dishaa Garg “Automatic Toll Collection Using QR Code” e-ISSN: 2395 -0056, p-ISSN: 2395-0072©2016 IRJET.
- [2] Yudhi Kristanto, Bagus Priambodo “Application Design of Toll Payment using QR Code a Case Study of PT. JasaMarga” ISSN: 2231-2803©2016 IJCTT.
- [3] Kinjal H. Pandya, Hiren J. Galiyawala “A Survey on QR Codes: in context of Research and Application” ISSN 2250-2459©2014 IJETAE.
- [4] Vinod Suryawanshi, Aditya Gosavi, Unmani Joshi, Sagar Suri “ Automatic Toll Collection Using QR Code” ISSN: 2319-7242©2017.
- [5] Ms Galande, Mr Oswal S. J, Mr Gidde V. A., Ms Ranaware N. S., Prof. Bandgar S. B., ‘Automated Toll Cash Collection System For Road Transportation’, IJCSMC, Issue 1, 2015 pg. 216-224.
- [6] S. Lauren, B. Mariko (2007, June 20). Electronic Toll Collection Online.
- [7] S. Lauren, B. Mariko (2007, June 20). Electronic Toll Collection Online.
- [8] P. Khali, C. W. Michael, H. Shahriyar ‘Toll Collection’.