

Comparison of Web and Mobile UTS E-Governance Application – A Case on Mumbai Railways

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Abstract: The advancement in the field of information technology has motivated the government to introduce E-Governance. E-Governance is a tool that uses ICT to deliver various government services to the citizen in a convenient way. The Government of India has introduced many e-governance projects to the citizens. Even though many services are implemented, the adoption rate is very low. To overcome this low usage, the government has introduced some of their services to mobile phones called as M-Governance. The main objective of this study is to identify the implementation challenges of e-Governance and m-Governance in Mumbai Railways-UTS (Unreserved Ticketing System), to understand and identify the problems in the existing system as well as to provide a suitable solution for the problems in UTS application.

Keywords: E-Governance, M-Governance, mobile app, UTS

I. Introduction

E-Governance has turned the whole attention towards it in governing process all over the world. It is not to post all necessary information on the government website, but it is a process of reformed governance. e-Governance denotes the application of IT (Information Technology) to the process of government functioning in order to bring about better governance, which has been an innovative term as SMART (Simple, Moral, Accountable, Responsive and Transparent) [1]. The mobile density and smartphone usage are much higher in India compare to computers. To increase the utilization of e-governance projects, the government administration can take the benefit of technology advancements like high-speed broadband technologies like UMTS (Universal Mobile Telecommunications System), wireless networks and high speed in 3G and 4G networks. With a clear foresight, the Indian government has taken many initiatives to modernize Indian railways through e-governance. In 2005 they launched Unreserved Ticketing System (UTS) to provide a centrally administered computerized ticketing system over the entire Indian Railways. Taking a note from the statistical data the ministry of Indian railways found that more than Twenty-one million passengers travel daily on Indian Railways using the unreserved ticket because they have to travel a short distance. The increased volume of daily passengers travel by train attracted their attention to developing e-Governance system to provide them with the greater ability not only in urban and remote areas. UTS is a mobile and web application which was developed by Centre for Railway Information Systems (CRIS) and launched in 2014. Initially, it was implemented for the metropolitan cities for reducing the crowd standing in a long queue at the ticket booking centers and making the ticket booking process efficient. In December 2014 the government has also launched UTS mobile apps [2]. The objective of the mobile app is to provide a paperless ticket.

II. Background - E-Government And E-Governance

E-Government refers to the applications of Information and Communication Technology (ICT) to deliver the government services electronically to the citizen in their doorsteps. E-Governance has the ability to govern with enhancing transparency, efficiency, accountability and citizen participation. E-Governance is a tool that uses ICT tool to deliver various government services to the citizen in a convenient way. It's broadly classified into Government to Government (G2G), Government to Citizen (G2C), Government to NGO (G2NGO), Government to Employee (G2E) [3].

III. M-Governance

Regardless of literacy levels and simplicity in its operation the Mobile governance brought under its board wings millions of population to use a mobile phone. Mobile phones have the innovative potential to provide public services to citizens more effectively and efficiently. The main aim of M-Governance is to provide the government services to all citizens by using the wireless technology. M-Governance is a part of e-governance which extends government services to mobile platform by using a mobile phone, laptop, PDA, tablet etc. It provides various government services to the citizens on the move using their own small devices at

any time and anywhere. M-Governance is possible because the mobile penetration is high in India when compared to using internet with a desktop system. Mobile usage has hit large numbers in rural areas. The Indian government has taken many M-Governance initiatives in past [4].

IV. E-Governance in Mumbai Railway

In 2008 government had launched Indian Railway Catering and Tourism Corporation (IRCTC) for booking of reservation ticket well in advance as specified by the government. It is one of the biggest e-commerce portals and fastest growing websites in Asia Pacific region. It is noteworthy to say that the Indian Railways had won the website award for the year 2014. In 2011 government introduced Enhanced National Train Enquiry System (ENTES). It provides features like passengers name record (PNR) status enquiry, train schedule, train between stations, spot your train 'live station' and 'information on canceled rescheduled & diverted trains'. 'Live Station' query provides a list of trains expected to arrive at/depart from any station in next 2/4/6/8 hours. And all the new IT features have been implemented on this website only. In 2014 the government had also launched a project named as Control Office Application. The main objective of this application is to monitor the movement of the trains in an efficient manner. This application also feeds the National Train Enquiry System (NTES) that provides passengers up-to-date information on running train. The objective is to improve the operations by using the latest technology [2][5].

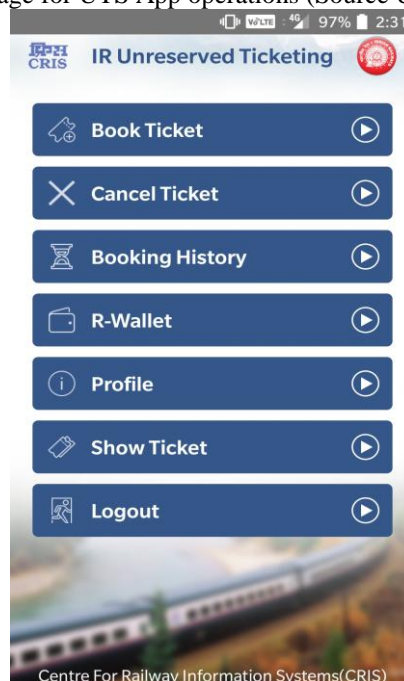
V. Description of UTS (Unreserved Ticketing System)

More than 21 million passengers travel every day on unreserved journey facility which means that the service does offer no reserved seats or berths, as well as the ticket, is not for specific services. The main purpose of using unreserved ticket is to facilitate economically backward people who cannot bear the burden of reservation charges for short and long distances. Booking of unreserved tickets is available round the clock. In an attempt to reduce the cost, labor, time and to give better services, Indian railways implemented the use of the digital system in 2005[6].

VI. UTS Mobile App

The UTS mobile application is available for both Windows and Android mobile operating system platforms. To access features of UTS application the user needs to register first with username, mobile number, city, train type, class, most frequently traveling five routes from source to destination. If the user successfully registered the Home page (Fig-1) will consists of menus like Book ticket, cancel the ticket, booking history, R-wallet, profile, show ticket and log out options. In order to utilize this facility, the user needs an internet connection. At the first time, the R-Wallet will have zero balance the user needs to refill amount in the wallet by using any UTS counter or through recharge operation [6]. Following is the screenshot of the UTS App.

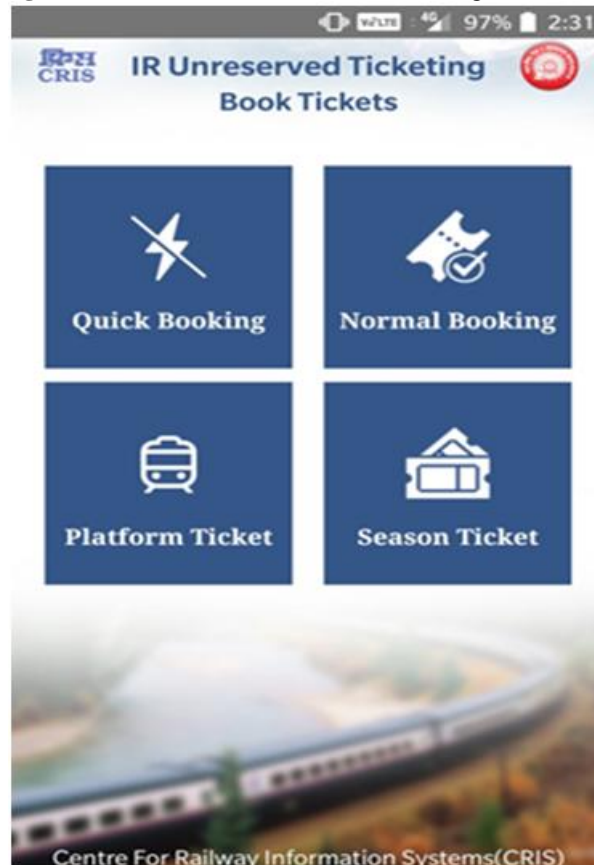
Fig 1.1: Home page for UTS App operations (Source UTS app Playstore)



Once the user clicks book ticket option the following menu display which is depicted in Fig1.2.

1. Quick booking - These features allow the user to book advance and current ticket faster as compared to previous booking method because in the menu the information's are already entered by the user.
2. Normal booking- Every time you have to enter the necessary information about the booking of the ticket from source to destination.
3. Railway pass- This feature allows you to book the monthly pass also known as a season ticket.
4. Platform ticket-These features allow booking platform ticket for the passenger's train.

Fig 1.2:- Book ticket section and the booking ticket mode



VII. DRAWBACKS IN UTS Mobile App

There are many drawbacks are encountered while the UTS mobile app which is listed below.

1. In the mobile app, it does not have the facility of saving the password in the app. Every time the user needs to enter the login details before using the app. If the user forgot the password there is no option to reset the password. Instead, the app will provide a one-time password (OTP) to the user registered mobile number to continue using the services.
2. High-speed internet Connectivity is requiring to run this app as well as it requires accurate GPS location to synchronize the nearest railway station. If the system is not able to track the accurate station with 10-15 seconds the session will expire. Again the user needs to enter all the necessary details.
3. The UTS app provides a very limited mode of payment services like R-wallet and Paytm.
4. In order to use this app user needs have a technical knowledge of using mobile apps. The system has a more complicated process. The app does not provide any tutorial or user manual for the user who is using for the first time.
5. The app does not provide an alert message after successful booking of a ticket to the user registered mobile.

VIII. UTS Web Application

Similarly to the mobile application, the Indian railways also launched UTS web application. To use the web application the user first needs to register with their information. Once the user successfully registered then the application will provide the menu option for further process. If the user is not registered cannot access any information about UTS web application. The Fig 1.3 below depicted the first page of UTS web application.

It has the following features:

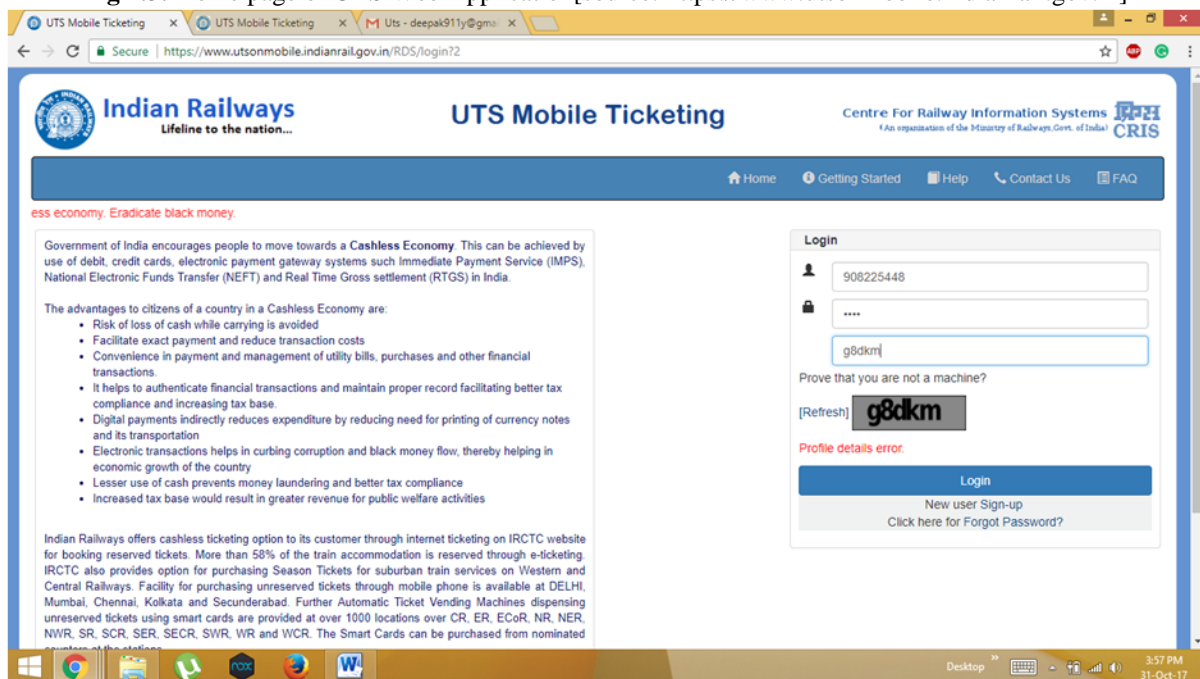
1. Ticket booking history: This feature allows you to see your past booking which has been successfully done.
2. R-wallet balance: You can also add some money to your R wallet which is specific for UTS; it allows you to book the ticket faster as compared to the other mode of payment.
3. Ticket cancel history: This is the feature where we can see all the cancellations which have been made by the user after booking the ticket.
4. Handset change request: While we are using the UTS app on a particular device it is specific for that device only and if the user wants to log in the UTS app with the same ID on another device then the user has to make handset change requests.
5. Change password and edit profile: This feature allows you to change your password temporarily to log in to your device and also allow the user to make necessary changes to the profile.

IX. Drawbacks in UTS Web Application

The major drawback of the UTS web application is as follows:

1. You cannot book any ticket using web application.
2. You cannot cancel ticket using web application.
3. Bad session management: The web application does not maintain the session properly from one page to another page.
4. The website has a completely different user interface than the mobile application which makes it difficult for the user.
5. No schedule: No information about the train schedule or any alerts.

Fig 1.3: Home page of UTS Web Application [source: <https://www.utsonmobile.indianrail.gov.in>]



X. Challenges of UTS Mobile app and Web Application

The major challenges of UTS mobile app and the web application are summarized in Table 1.

Table 1: Challenges of UTS applications

Web Application	Mobile App
1. Cannot book ticket on website	1. Save password option is not available
2. Cannot book railway pass or season ticket	2. Changing password option missing
3. Cannot access "About us", page without login	3. Lack of standardization
4. Complete different User interface from mobile app	4. Loading time is more
5. Maintaining session is not proper	5. High-speed internet connectivity is required
6. No schedule or alerts on train	6. No alert on the app about train schedule and inquiries.
7. No multilingual support	7. Payment gateway is not user-friendly
	8. Response time is very high

XI. Suggestions to improve UTS application

This research study points out the following suggestions to improve the UTS application which will increase the acceptance and usage of this application.

Web Application	Mobile App
1. Ticket booking features on the website must be introduced.	1. The UTS app is of size 2.9 MB. They need to make the app lightweight in order to work faster.
2. User manual must be provided.	2. The simple user interface should be provided.
3. The website should support multi-languages.	3. The user manual should be provided to use the app.
4. The web application should be created based on a responsive website that means the web application and mobile app user interface will look same to avoid confusion while using the services.	4. Alerts must be given on ticket booking and train schedule.
	5. Should introduce more payment option.
	6. The app should be compatible with multiple operating systems.

XII. Conclusion

The perceptual technological innovation and a change in economy compel public services to rethink and re-examine the possible expectations of the people and technology to provide speedy and quality services [7]. This research study pointed out that both UTS mobile and web application has many drawbacks which can be overcome with proper infrastructure and maintenance. It is observed that the user interface of the web application is completely different for the mobile application, so if users suddenly switched from mobile to web application it will be difficult for them to understand the process and it will take some time to get familiar with the user interface. The website is not developed based on responsive web design principles. In the mobile application, the user cannot save password and reset the password. The developer should provide password saving and reset option like other e-commerce applications providers. After login, ticket booking process is not easy because it will take time to synchronize stations depending on internet connection and if the internet connection is not very fast then most of the time the system specifies session time expires and the application needs to restart the process and log in again. At the same time, it requires very accurate GPS location also to work properly. In all, if a person wants to book a ticket from this app then he requires high configuration smartphone with a very high-speed internet connection. The developer should take the inspiration from another government app like BHIM app and IRCTC to make this app more usable. Ticket booking process is also not very easy it requires a person to have some technical knowledge to use this app. The app does not provide any tutorial for a new user who is not familiar with this app. Schedule and the alert option should be included in the app so that before booking ticket user will not use the explicit resource to get this information. This app has a very limited option for payment mode which is R-wallet, Mobiquick and paytm. The developer should include other payment modes which help more people to use this application. The success of E-Governance projects like UTS depends on simplicity, user-friendliness, and an easy to use interface. The acceptance rate will increase if the government will do more promotional activities to enhance the usage of these applications.

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