

Kiosk Helper For Railway Reservation

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Abstract - The Passenger Railway Reservation system is old and clunky and not suitable for fast and confirm booking of tickets. By some modifications or interface we can increase the efficiency and performance of the system. In current reservation system, a passenger requires to fill the form and Railway official's reserves a ticket accordingly. Approximately, the process takes 3-4 minutes depending on the efficiency of the official's. To add a helping hands; We are trying to develop a system that will reduce the amount of time required for this process.

We are trying to develop an interface which can be linked to the ATVM machines available only at Railway stations. When the passenger want to book a ticket; he can use kiosk terminal to generate a special token which includes all the necessary information required to book a ticket in encoded format. The passenger have to produce this token to the Railway officials within time. Officials then insert this token number into his screen which will show all the passenger journey details and with very less efforts tickets can be booked. This new interface can increase the efficiency and performance of reservation system. The idea of the project is to decrease the burden on the people and the railways too.

Keywords - Kiosk, Terminal, Railway Reservation, Token, Smart Card.

I. INTRODUCTION

The Indian Railways carries more than 10 lakh reserved passengers a day. The Passenger Reservation System (PRS) of the Indian Railways carries out more than 15 lakh transactions a day. The number of transactions far exceeds the number of passengers, because of wait-listed tickets and cancellation. Only about 4 lakh transactions a day are done through the IRCTC website. The remaining transactions, more than 10 lakhs a day, are carried out at the PRS counters. Therefore the importance of the PRS counters cannot be disregarded [1].

In PRS, a person has to visit nearest Railway station where he required to fill the form. Railway officials collect the form and makes entry in his register, mentioning number of passengers, train number, etc. Afterwards, he opens his terminal and marks the entry where he has to fill all the necessary information requires to reserve a seat. Approximately, the process takes 3-4 minutes depending on the efficiency of the official. Situation becomes worst at crowded places or when to book a Tatkal ticket.

To overcome this situation, we are trying to develop an interface, which could help to reduce the burden on Railways as well as passengers. The idea of the project is

to generate a special token through ATVM machines only available at Railway Station which includes all the necessary information required to book a ticket. The passenger has to produce this token to the Railway officials within a given time only and with very less efforts ticket can be booked.

II. LITERATURE SURVEY

2.1. Railway Reservation

Current system that exists in the Railways for booking of tickets is old and clunky. Any fairly important station should have a computerized reservation office that will allow you to book a ticket. Large cities may also have what are known as satellite reservation offices spread across the city. This allows passengers the convenience of a shorter journey to the closest reservation office, especially when the railway station and main reservation office are located far away. Reservation centers are open from 8 AM to 8 PM from Monday to Saturday and 8 AM to 2 PM on Sundays [5].

Normally, to book a counter ticket passenger has to follow the steps mentioned below [5],

1. Visit to the nearest Reservation Center
2. Fill the form which includes all the information, like List of Passengers, Train Name/Number, Date of journey, address, etc.
3. Produce this form to the Railway officials.
4. Railway officials enters this information in the network connected terminal and after completion makes an entry in the daily register.

Approximately, the process takes 3-4 minutes depending on the efficiency of the official. Situation becomes worse at crowded places like Mumbai or when to book a Tatkal ticket.

Also, to book an online ticket, passenger has to follow the steps mentioned below [6],

1. Login to the IRCTC website
2. Select appropriate journey details.
3. Fill passenger details.
4. Do e-Payment.
5. If succeed, ticket will be displayed on the screen. We can travel by taking print of this ticket or by the message sent on mobile.

2.2. Drawback of Reservation System

Online and offline both systems are heavily used nowadays. If Internet sources are available; the passenger can easily book a ticket through IRCTC. If Not, then passenger can use counter ticket facility (available at specific railway stations). To book a ticket by any way passenger faces some problems. Some of them are listed below,

Offline/Counter Reservation:

1. Heavy rush at the booking counters
2. Limited numbers of counters
3. Time Consuming
4. Standing long time in queue.
5. Complete Manual work.

Online Reservation :

1. Server Failure
2. Wait listed Ticket gets canceled if not confirmed on the day of journey.
3. Booking limit in peak hours.
4. Payment Failure
5. Network problems.

2.3. KIOSK

2.3.1 What Is Kiosk

A "Kiosk" by definition is a small stand-alone unit that performs a specific function, generally without management intervention and is generally intended to provide information to those that use it [2].

Kiosks can be as simple as an information center designed to hold brochures or as complicated as a computer terminal designed to collect and distribute information. On one end, an ATM is an example of a sophisticated interactive kiosk with high security.

Kiosks have two general purposes. First, they are designed to deliver or collect information to the consumer in the absence of a human. While they obviously don't have the ability to interact on the same level, they can sometimes provide information or services to more than one individual at a time, and they are terribly cost efficient in terms of delivering information.

Second, *kiosks* are meant to go wherever they are needed and stay there as long as you want them there. As such, they are rugged attractive units that break down easily and can generally be handled by one or two people.

2.3.2. Kiosk Functions

Kiosks can be made to do just about anything you want. If all you want to do is distribute written information or brochures, a simple kiosk will attractively display this information in a way that consumers can easily find what they are looking for Interactive kiosks can be coupled with computers and touch screens to allow the consumer to see videos, get a visual perspective of the kinds of services that you offer and enter their contact information to have someone call them later.

Various types of kiosk are available today out of which we are going to see the some details of ATVM available at railway station for booking a local journey ticket with valid *Smart Card* provided by the railways.

2.4 ATVM

2.4.1 What is ATVM

Automatic Ticket Vending Machine (ATVM) was first introduced in India in Western Railways (Mumbai) in 2010; to reduce passengers queuing up at the Ticket counters at the Railway Stations. ATVMs are touch screen based ticketing kiosks operated using Smart cards. The passenger can purchase and recharge the Smart cards from nominated ticket counters. The Smart card has to be placed on slot in the ATVM and user has to select the route and destination using the touch screen. After the confirming the details, the ticket is printed. Once the ticket is issued the charge is debited from the Smart card [3].



Fig1. ATVM and Smart Card

2.4.2 ATVM Smart Card

ATVM Card is a card used to buy a ticket from ATVM machines. Smart card is available at selected ticket counters from where the general local train tickets are purchased. This card will cost an initial amount of Rs. 100/- from which the first time usable amount will be Rs. 52/- and Rs.50 is kept by Railway as one time security deposit (Refundable). At any given time you can cancel and return the smart card. Recharge of ATVM smart cards can be done on any ticket booking counters [4].

2.4.3 Features of ATVM

- No need to stand in long queue to buy ticket.
- Only need to carry smart card and no money to buy a ticket.
- The equipment withstand heavy usage 24 hours a day, 365 days an year.
- Supports the Indian Railways application and backend for ticketing.
- Supports Smart Card Reader, Touch Screen Calibration Utility

2.5 Motivation

To buy a counter ticket, passenger needs to follow the queue which works on First-Come-First-Serve basis. One by one passenger submits the form to counter officials and then he/she fills the details on the computer terminal; based on availability he reserves a ticket. In this process

ticket will be booked and passenger will receive a printed ticket of the journey. Passenger can travel by this printed ticket even if his ticket is not confirmed or is in wait-listed state. Passenger could not travel if his ticket is not confirmed, if booked by IRCTC. So, normally passengers prefer counter ticket.

But booking a counter ticket is actually headache for the passenger if the queue is big. To reduce this burden on Railways as well as passenger, we need an interface or some procedure that will save time while performing all the activities.

We are trying to develop an interface that will enhance the current reservation process. Idea is to design a new procedure to Reservation scheme, based on a kiosk system. With the help of token, passenger can carry all his journey details in digital format and counters official uses this data. The proposed scheme can be easily integrated to Kiosk terminal or ATVM machines available at railway stations.

III. SYSTEM OVERVIEW

3.1 Introduction

In the proposed system, passenger will login into the ATVM (After Modification) and can fill journey details. After submission, kiosk will generate the token immediately. This token includes journey details like Date of Journey, Train Name/Number, Passenger List, Address, etc., provided by passenger in encrypted format. This token will be valid for some amount of time after generation. Passenger will show this token to the counter official. Counter official enters the token number into his screen and passenger details will get displayed on screen and based on availability ticket can be booked. This new interface can save plenty of time wasted for manual work without disturbing the generic reservation process.

3.2. Reservation Process using Kiosk

This new idea do not disturbs the generic reservation process, instead it adds a new interface *Kiosk Terminal* as middleware between the passenger and Railways officials as follows,

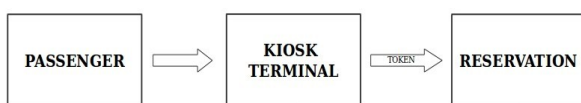


Fig2. Reservation Process

Above process passing through three phases,

- Passenger :

In this phase Passenger has to register himself. Passenger here can be of two types,

- Registered Passenger
- New Passenger

If he/she is already registered, then moving to further steps. If not, then passenger has to create his account. For new user he/she has to fill the personal

information such as date of birth, contact number, address, etc. After successful registration *username* and *password* will be allocated, which can be used at any kiosk terminal only available at Railway stations. Already registered user has to further add the passenger list and he/she can.

- Kiosk Terminal:

In this phase, token is generated through Kiosk terminal. After filling the reservation form, user can see the list of counters available and also position number in that counter to avoid long queues; accordingly he/she can take the particular counter. After submission, token will be generated in paper format. User has to submit this token to the counter clerk for further process.

- Reservation Process:

This is the last phase of the process, in which user have to produce valid token to the counter officials. Officials enter token number into the screen which will show the passenger details and then he only required to check seat availability and allocate ticket by collecting payment.

New interface need to add to the existing computer screen of counter official. So that official's can simply enter token number to get the passenger information.

By this process, the burden on the passenger as well as railways can be reduced to some extent.

3.3 Token

Token is basically a paper print generated by ATVM, containing details of token and passenger. Passenger have to show this token to the railway official. Based on the availability of reservation counters at particular Railway Station token number will be generated.


<div>  <div> <div> <div>सुख यात्रा</div> <div>HAPPY JOURNEY</div> </div> <div> <div>TOKEN NO.</div> <div>TNA - C1/02</div> </div> </div> </div>	
ATVM GENERATED TOKEN FOR RESERVATION	
TOKEN DETAILS	
PASSENGER NAME	MR. JAYENDRA JADHAV
STATION	THANE - TNA
GENERATED ON	20/02/2016 : 08:00 AM
VALID UPTO	20/02/2016 : 10:00 AM
ATVM : 1234	
PASSENGER SHOULD SHOW THIS TOKEN WITHIN GIVEN TIME TOKEN VALID FOR 2 HOURS ONLY	

Fig3. Token

Above figure shows a sample format which includes following information,

- Token No:
Includes station code, counter number and position at respective counter.
- Passenger Name :
Person who generates the token
- Station :
Indicates the details of station from where passenger want to book a ticket.
- Generated On :
Token generation date and time.
- Valid Upto :
Token validity includes date and time.
- ATVM ID:
Includes ATVM machine number.

3.4. Advantages of The Proposed System

1. Easier and simplified self-service ticketing helping solutions for ticket purchasing.
2. Self-service kiosk offer greates convenience and considerable time savings
3. By using our system user can put an end to long queues and delays
4. Accept all forms of reservation (General, Tatkal, Cancel, etc).
5. Less queuing and convenient ticket booking will improve our customer's experience and ensure higher levels of satisfaction.
6. Railways burden will reduced to some extent.

IV. CONCLUSION AND FUTURE WORK

Through our system we are trying to introduce a Kiosk helper to Railway Reservation System. By computerizing the manual Reservation Process, we will be able to overcome many of its limitations and existing system can be used more effectively. The basic function being performed by our system is generation of token which will be helpful for further reservation process. This idea is more suitable for the places, where typing speed of clerk is not good. For booking a normal ticket typing speed is not a big issue, but for booking a tatkal ticket considerably high typing is required.

Nowadays, Kiosk terminal is made available at metro as well as urban places for performing certain operations. By little modifications in the system, can reduce the burden on Railways as well as passenger to some extent. Thus, our project can help in managing existing system very efficiently and conveniently.

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