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Bus Ticket Vending System

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Abstract: ***The main objective of Bus Ticket Vending System is to provide an alternate option for Bus Ticket Vending, also implementing a computerized system will benefit the transport organization as it can keep track of passengers. This system can also provide a feedback from passengers indirectly.***
As we know in India public transport is used excessively. Mainly in transport public transport buses, they are heavily crowded. In these buses ticketing is done by a conductor which is present in the bus. We have to request the bus ticket by telling the destination stop to him, exact cash is always demanded by the ticket conductor.
The passenger is not required to carry the exact change.
Keywords: Internet of Things(IOT), Ticket Booking System, Local Buses Routes, etc

I. INTRODUCTION

The main objective of Bus Ticket Vending System is to provide an alternate option for Bus Ticket Vending, also implementing a computerized system will benefit the transport organization as it can keep track of passengers. This system can also provide a feedback from passengers indirectly.
As we know in India public transport is used excessively. Mainly in transport public transport buses, they are heavily crowded. In these buses ticketing is done by a conductor which is present in the bus. We have to request the bus ticket by telling the destination stop to him, exact cash is always demanded by the ticket conductor.
Also we need to know the bus number and the destination stop name. There is no information provided by the transport organizations for passengers regarding the bus routes, bus stops etc.
Sometimes passengers are unable to get the tickets because of rush, as the conductor doesn't reach quickly to the passenger .Also because of this issue the Ticket Checkers are always argued that conductor has not reached the passenger for tickets.
This existing system of ticketing is working but quite uncomfortable. Also this is the only available Ticketing system and no other option is available to the passenger for obtaining valid tickets.
Keeping in mind the drawbacks of the existing ticketing system this application is targeted towards providing an alternate easy way for ticketing.
For this system a small machine is to be placed on the bus stops. The passenger will have to enter the necessary details regarding the tickets and then command the machine for printing the ticket.
In this way the passenger will have the ticket before entering the bus. Also
The passenger is not required to carry the exact change. As this will be an alternative method it will also reduce the strain on the existing system of ticketing. Above all, implementation of this system will provide yet more benefits to that transport organization. It can keep track of the passengers; it will provide information regarding the rush of the passenger, regarding the rush hours, and other similar information. We are attempting to give an alternate option to the ticket vending process in public transport services. Along with it we are trying to give an ability to the transport organization to advertise their facilities and services which was not possible earlier.

II. EARLIER SYSTEMS

The BEST organization also implemented GO NASHIK cards. Unfortunately these cards didn't got good public response. Following is the implementation of the Go Nashik cards.
In a move to aid commuter convenience, and to mitigate its cash handling pains, BEST, 'Nashik's Lifeline' has adopted a new alternative method of paying for bus fares. From 2nd January 2007,. The multi-application card system is called "GO Nashik" is made available to the desired commuters. This card is issued as a bus pass.
The multi-application cards that is widely used by the BEST bus commuters will also be used by the Central Railway passengers to have cash-less transactions, both by daily as well as season ticket holders.The multi-application cards, already in use in countries like Singapore, Hong Kong, USA, Australia, and Europe. The debit card has to be swiped against validators.
THE GO Nashik CARD Facilities:

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III. CURRENT SYSTEMS

Nowadays the BEST has introduced RFID Smartcards for Bus pass. This is as follows:

A. Monthly Bus Pass Scheme Through - RFID Smartcard

Figure 1

Through this scheme we are providing cards for daily travelling people like for the company employees who travel daily from their nearby pick up point to the destination point

B. Bus Pass Scheme

The scheme of Bus Passes was introduced in BEST Undertaking w.e.f. 2nd January 2013. There is card available to the passengers for daily Transport which is a plastic card resembling to Debit/Credit Cards of Banks with a built in electronic chip that stores information of period of the bus pass, the destinations of travel permitted on the pass, and type of pass. Conductors working inside the buses validate these bus passes with the help of a ETIM. These Smart Cards are contact less cards and can be validated by Bus Conductors / Inspectors by simply holding these Smart Cards close to the ETIM. The screen displays the validity period of the pass, the permitted origin and destinations for travel on bus pass. Passenger can register / renew these Smart Cards at any of the convenient Point Of Sale (PoS) located at various important Bus Chowkies& Bus Depots in the City. At a time passenger can load maximum 2 type of bus pass on the same Smart Card as per his requirements. Passengers can also apply for new or renew the RF-ID based Smart Cards through Internet.

IV. USE OF ELECTRONIC TICKET MACHINES (ETIM)

In the year 2013, the BEST Undertaking has introduced ETM's on all the buses for issuing tickets. The conventional Ticket's are now changed with e-Tickets through Electronic Ticket Machine .

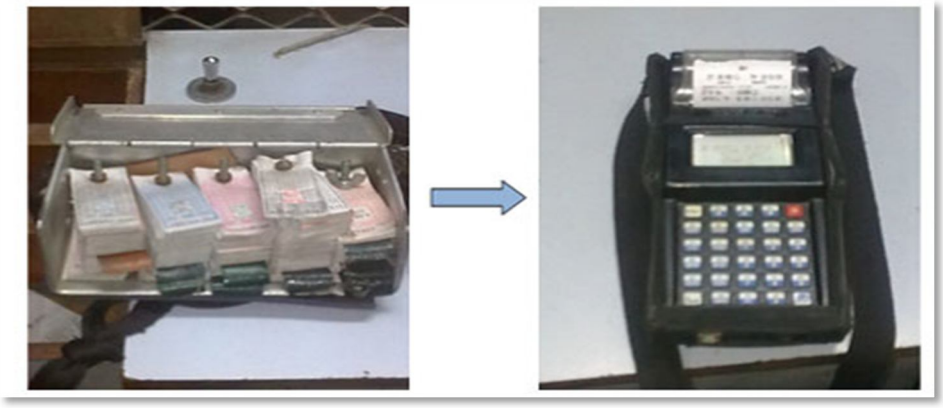

Figure 2

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Figure 3

The Mechanism

1) Every Bus Conductor is carrying an ETM for issuing tickets on-board.
2) These ETMs are also capable of Validating, and Renewing the RF-ID based pre-paid Smart Cards.
3) RF-ID card based pre-paid Smart Cards are issued to the commuters through 74 web based Points of Sales equipped with more than 100 Counters.

V. PROPOSED SYSTEM

In all the earlier and current systems, passengers can avail the tickets only after boarding the bus. This current ticket vending system has many disadvantages like:

A. Exact change of rupees is needed to be carried.
B. It's very uncomfortable to get tickets in crowded bus.
C. Sometimes the ticket conductor is not able to reach the passengers.
D. There is no record keeping of how many tickets are sold, total amount collected etc.

In our proposed system the ticket vending machines will generate the tickets for the passengers before they board the bus.

The idea behind introducing this system is to aim for total cash-less transaction also we are adding new system for payment such as UPI transaction with complete security and safe.

If the proposed system of ticket vending system is implemented then the ticket vending system will be as follows:

1) Passenger will login to his account with some card.
2) Enter the necessary ticket details.
3) Give command for printing the ticket.
4) If fare is less than his prepaid amount then ticket will be generated and the fare amount will be deducted from his account.

VI. PLAN OF WORK

The primary objectives of this phase are to identify the scopes of the new system, ensures that the project is feasible, develop a schedule, allocate the resources and budget for the remainder of the project.

The plan for the project was made in the month of august with some amount of research for the components and similar systems present in the market. We scheduled the work according to our academic calendar in a way that it would not affect our studies.

After the analysis phase we started our work directly in December with designing and modelling phase.

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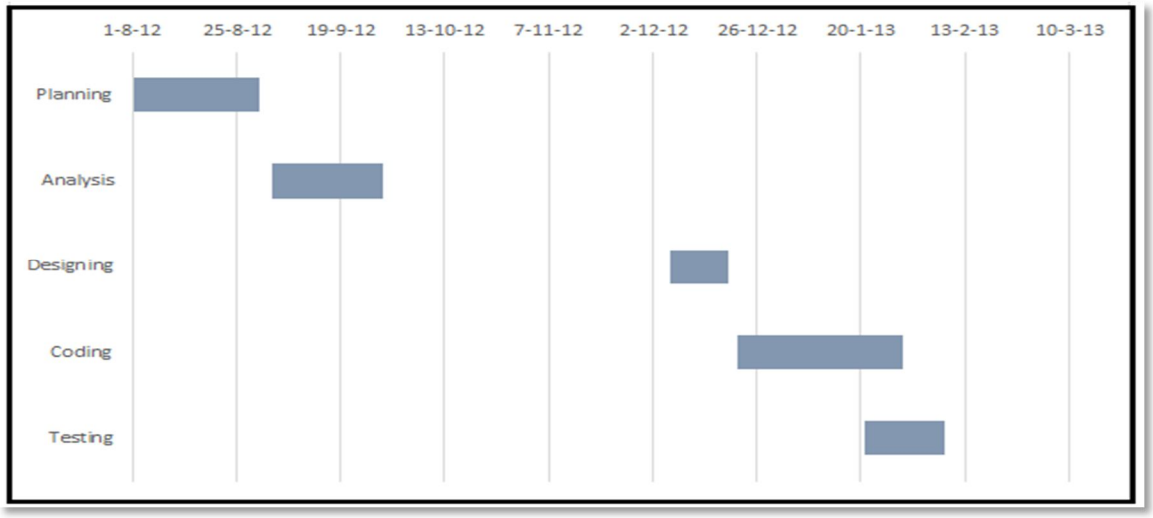

Figure 4 Gantt chart

Coding phase was started in last week of December and went on for 5 weeks. In the 3rd week of coding we began with the 1st part of testing phase where we tested the basic features provided and decided to add some features which would add more value to the system

In the modelling and designing phase we made the flow charts, use case diagrams and also discussed the waterfall model on which our project was based on.

VII. BENEFITS AND OUTCOMES

A. Benefits

1) Easy to operate.
2) No requirement of keeping the exact change of rupees for the passenger.
3) Passenger will get the tickets before boarding the bus.
4) Provide an alternative to the current ticketing system.
5) Can provide information and updates about the transporting organization to the passengers directly.
6) Passenger can locate himself and his destination stops on the goggle map provided.
7) Transport organization can track the passengers travel record.

B. Outcomes

1) English interface is only available currently.
2) Requires additional staff for the transport organization.
3) Requires installing of a separate machine on each bus stop.

VIII. CONCLUSION

From the above web applocations all the earlier and current systems, passengers can avail the tickets only after boarding the bus. This current ticket vending system has many disadvantages like:

Exact change of rupees is needed to be carried.

It's very uncomfortable to get tickets in crowded bus.

Sometimes the ticket conductor is not able to reach the passengers.

There is no record keeping of how many tickets are sold, total amount collected etc.

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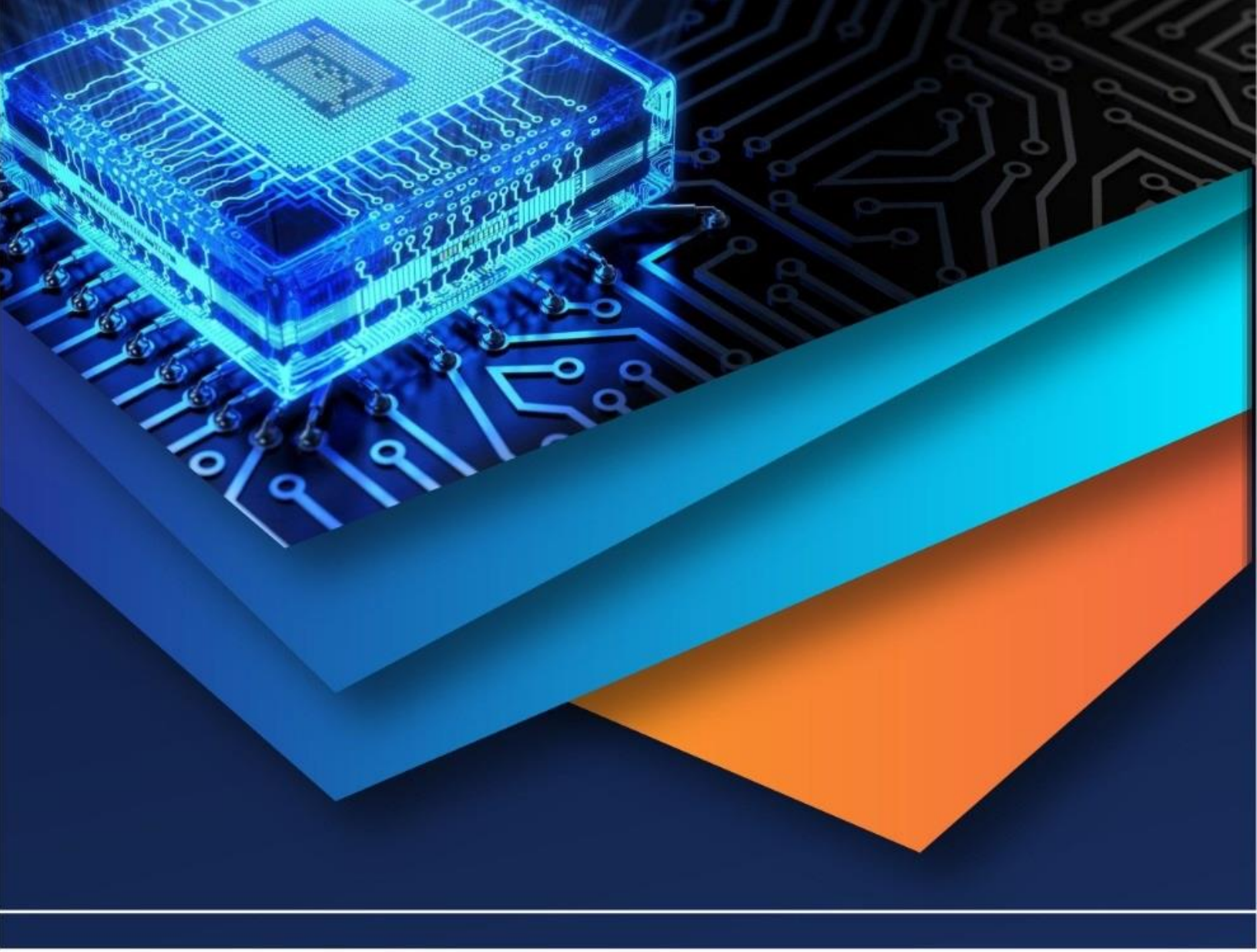

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