

# Digital MTC Pass using PWA

## Team Members

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## Guide

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# Problem Statement

Now a days, at Tamil Nadu Depot , MTC bus passes are processed manually such as bus pass fares are calculated manually, consumes more time on waiting in queue to renew bus pass. On other side, commuters are carrying bus pass on hand which has more probability of missing it. Also, the entry in bus pass are done manually by the conductors. This process becomes too hectic in a crowded bus.

# Abstract

As digital Technology dominates the current situation, the objective of this app is to provide the latest digital way of using MTC Pass which allows commuters to mark their trip by scanning QR codes to monitor their travel. With the help of the Progressive web app, bus commuters can digitally mark their trip by just scanning a QR code. Instead of carrying an MTC card, commuters can install this app and mark their trip digitally by scanning the QR Code. Also, bus commuters can check the dashboard provided by the app to see the number of trips taken on a respective day with the boarding and destination point. This app maintains a database that stores the commuter's trip details and updates the trip count every day. This app also provides an option to renew the current bus pass. Once renewed, this app starts monitoring the trips till the next renewal. For security purposes, commuters must log in to the app with their mobile number/ bus pass id with their Date of Birth. The login credentials are verified with the details provided at the time of applying for a bus pass.

# Existing Work

- Manual MTC Bus pass Renewal at Tamil Nadu Depot (Renewal Counters) - More waiting time
- Manual Fare Calculation at Depot - Manual Work
- Manual entry of rides in MTC card - Lots of Paperwork

# Proposed System

- Online Bus pass Renewing Process - Saves time
- Automated Fare Calculation - Reduces manual work
- Route Detection and Validation - Prevents Illegal use of Pass

# Literature Survey

*“Smart Bus pass System Using Android”, 2019 1st International Conference on Innovations in Information and Communication Technology (ICIICT), 25th April 2019*

- Online Platform for buying and renewing bus pass.
- Focusses on Monthly, Student & Senior citizen pass.
- Documents will be verified by School/ College Admin or Depot officer.
- Bus pass will be sent to the registered email id.
- Adds watermark to reduce duplicate passes.

*“Smart City Bus Application With QR Code : A Review”, 2019 IEEE International Conference on Automatic Control and Intelligent Systems (I2CACIS), 29th June 2019*

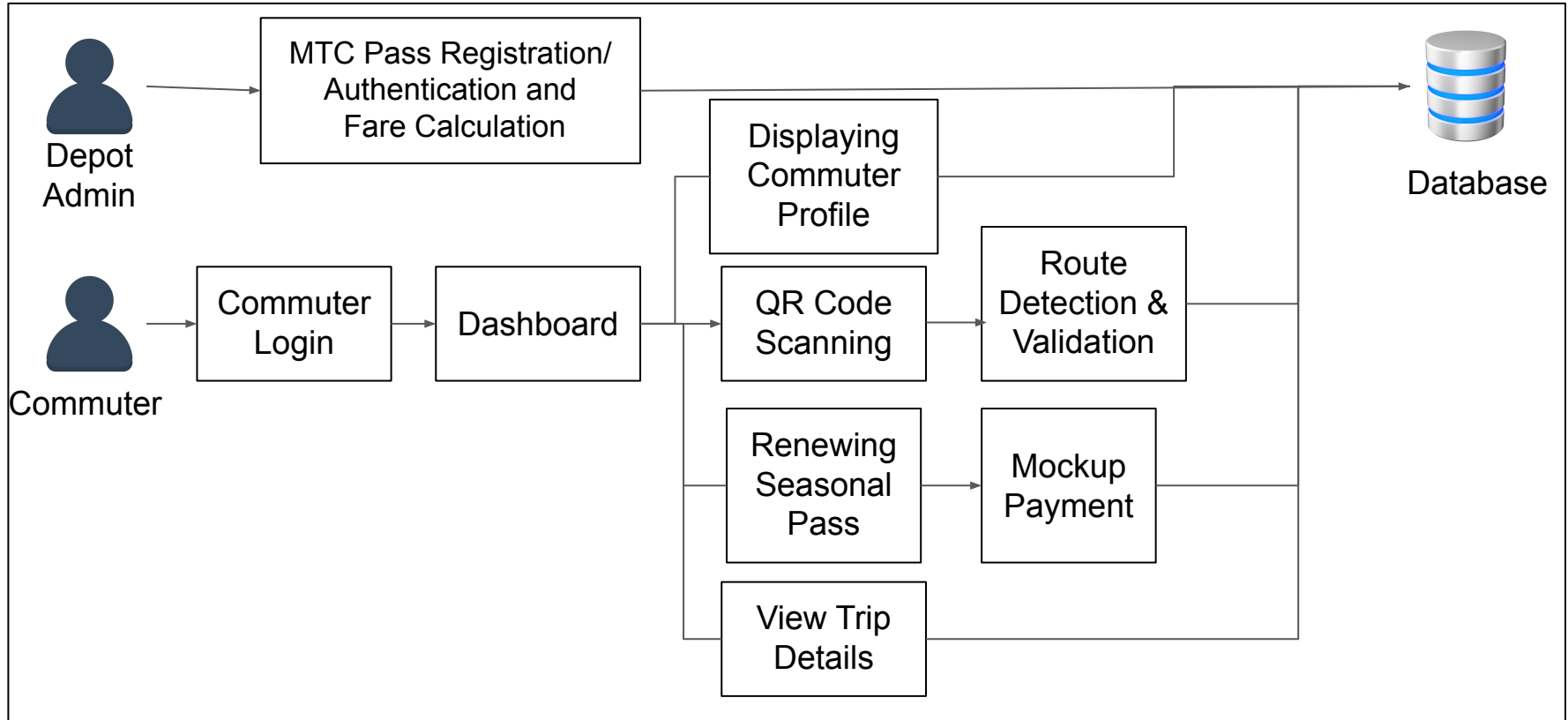
- Displays Bus routes using Google Maps API
- Tracks the live location of the bus
- Focusses on QR Payment for buying tickets

*“Bus Pass and Ticket automation System”, International Journal of Computer Engineering In Research Trends (IJCERT), 8th August 2016*

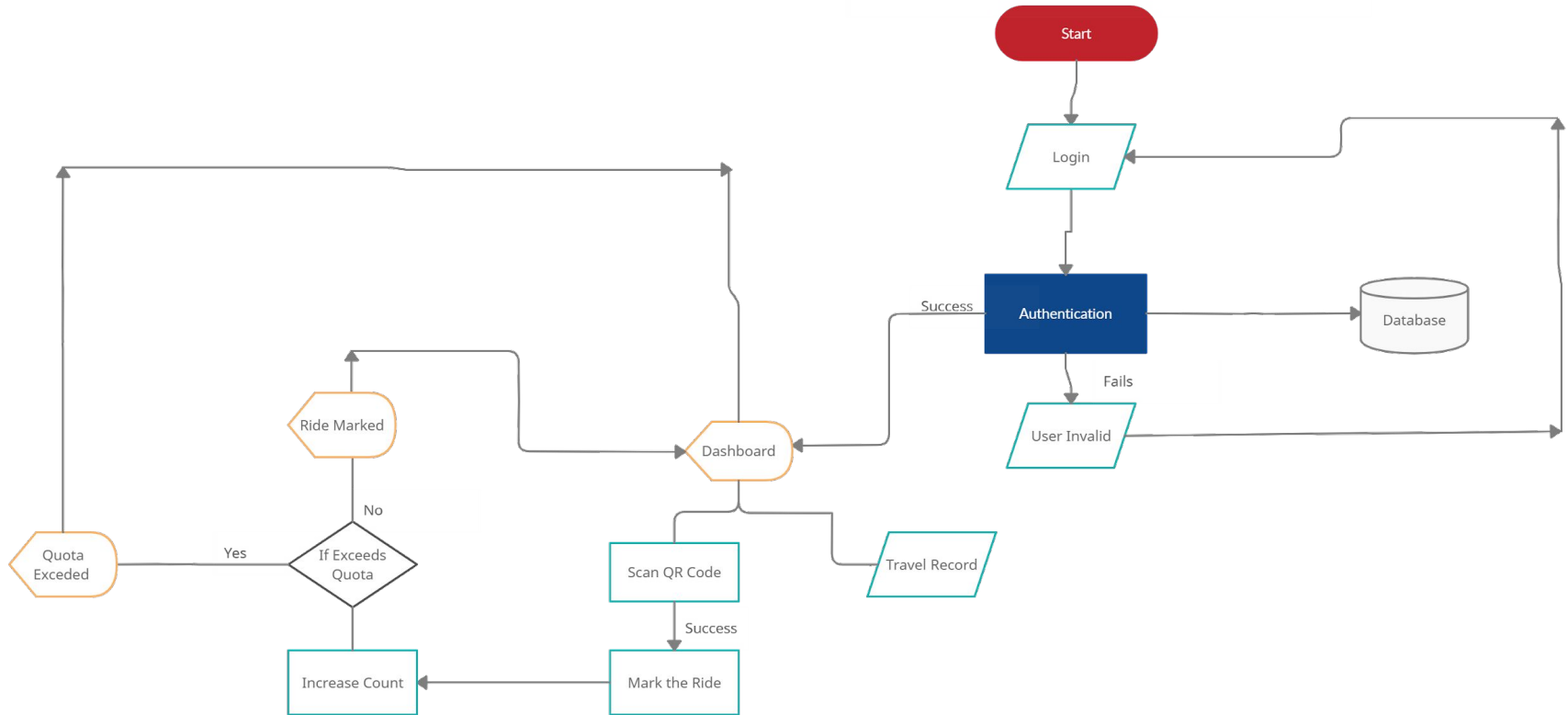
- Provides an android application to avail and renew bus pass through online.
- Also user can buy tickets using this app.
- QR Code will be pasted on the bus containing bus details
- Tickets can be bought by scanning the QR Code.
- Notifies the user if bus pass gets expired.



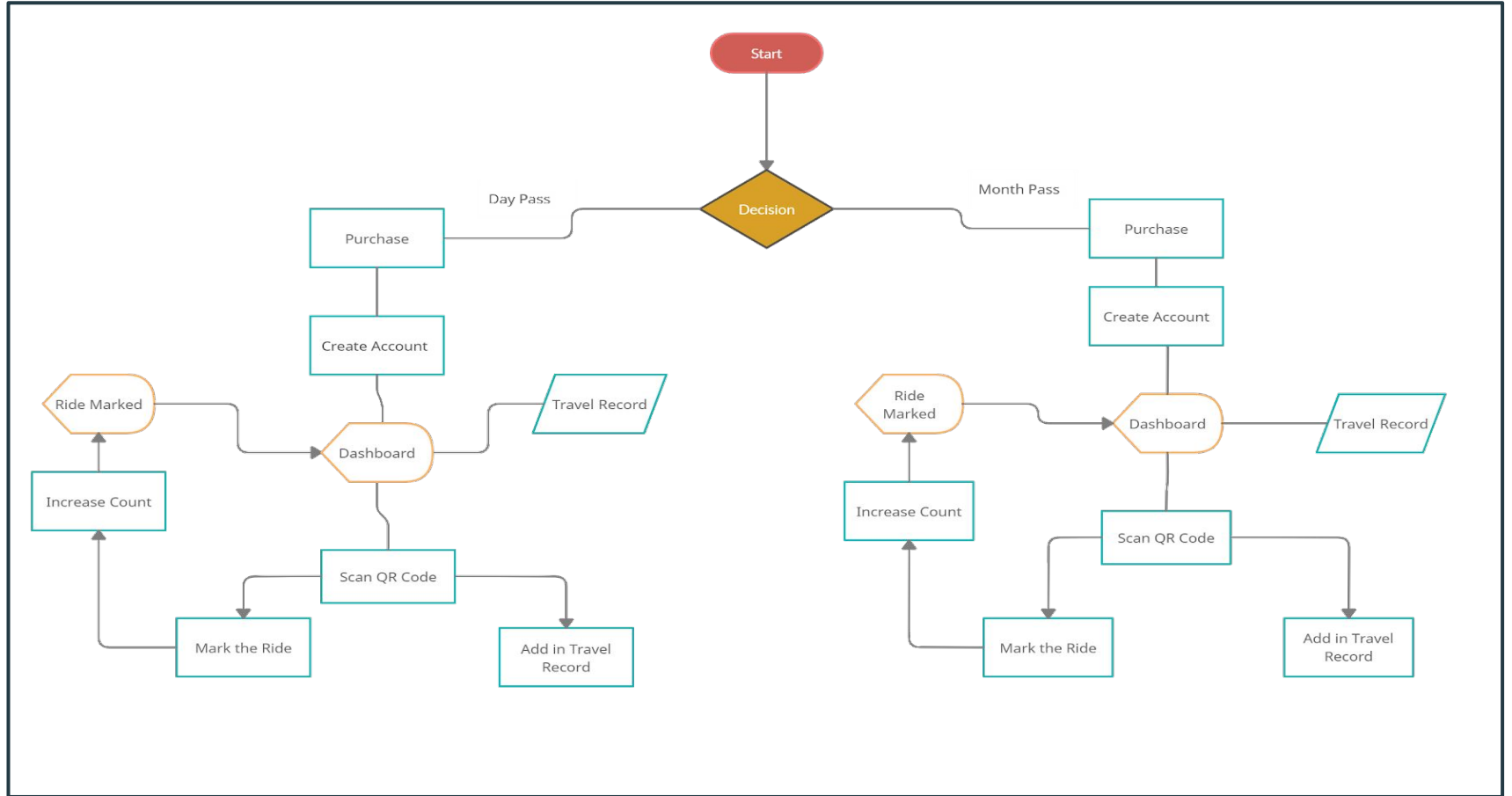
# System Architecture Diagram



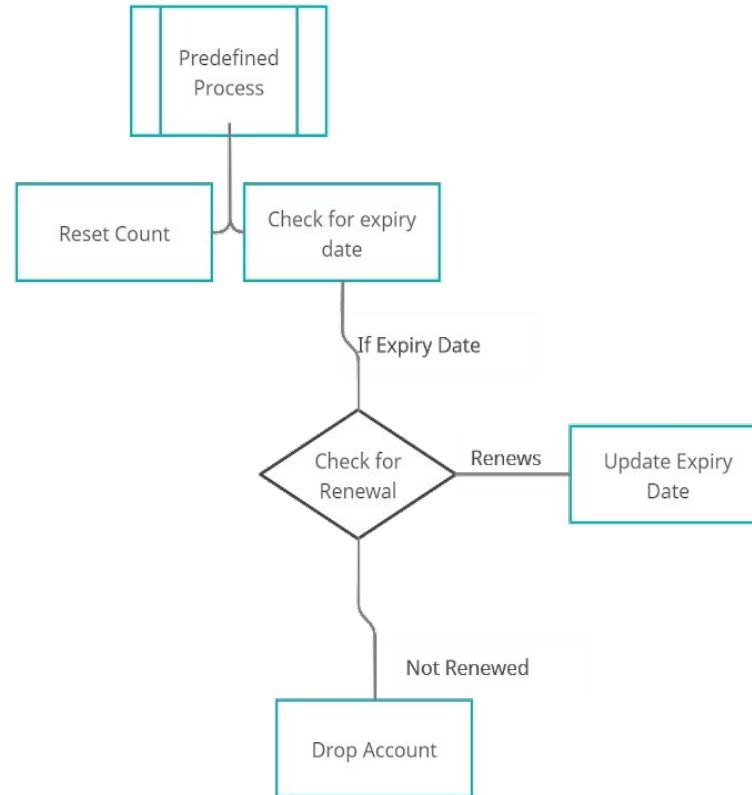
## Student Bus Pass and Season Ticket



# Travel as you like



## Pre-defined Process



# Modules

## Commuter End

### 1) Login

Authenticating the bus commuter

### 2) Dashboard

Provides an option to scan qr or renew bus pass

### 3) QR Code Scanning

Scanning the QR code to mark the trip.

### 4) Route Detection & Validation

Detecting the right route traveled by user

### 5) Trip Details

Capturing & Storing the trip details for monitoring purpose

### 6) Renewal Process

e-Renewal of bus pass.  
Available only for seasonal pass

## Admin End (Depot)

### 1) Registration

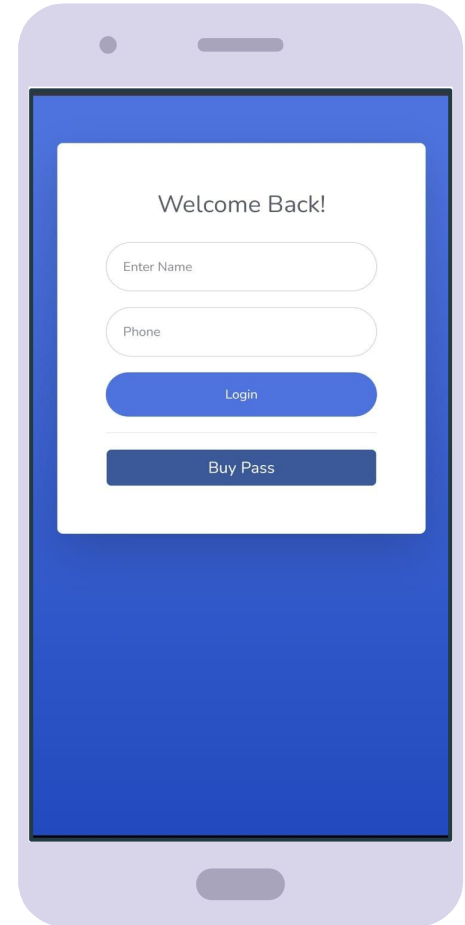
User Registration at depot. For college and regular commuters

### 2) Fare Calculation

Fare calculation is based on types of user , travelling routes

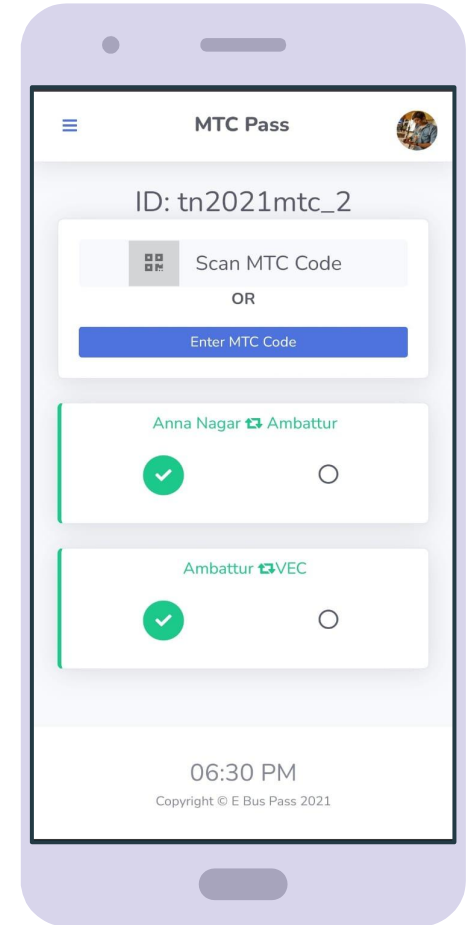
# Login Module

- Contains login form for authentication purpose.
- A Commuter can login into the app using their mobile number and Name.
- Also , commuter can buy monthly / daily pass from this page.



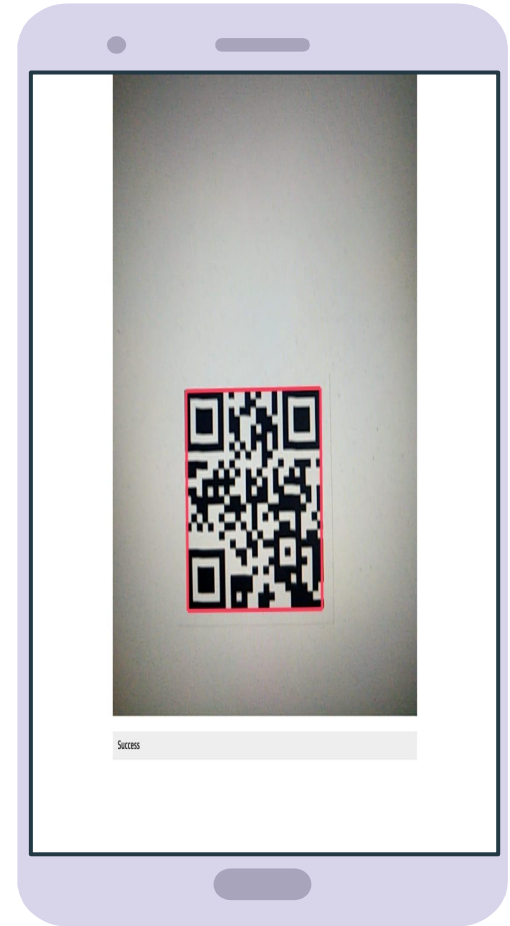
# Dashboard

- Option to Scan the QR code
- Option to renew the bus pass
- Displays the count of trips taken
- Displays the route details - Boarding point & Destination point



# QR Code Scanning

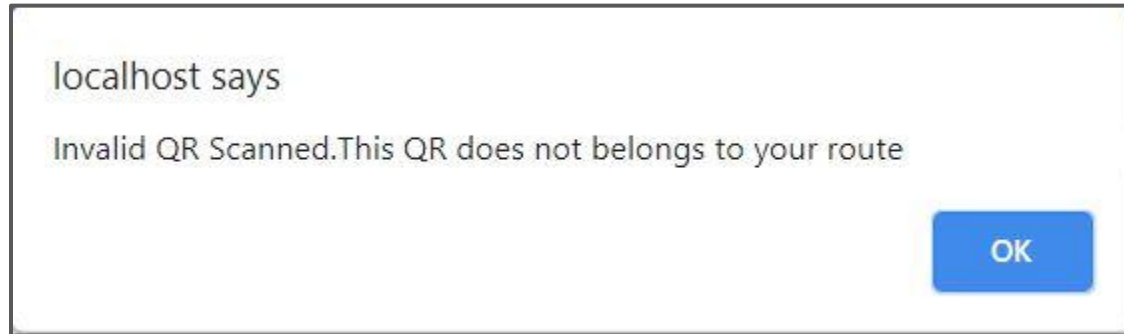
- Marking the trip by scanning the QR Code
- QR Code contains the MTC bus number
- Scanning invalid QR Code will be alerted





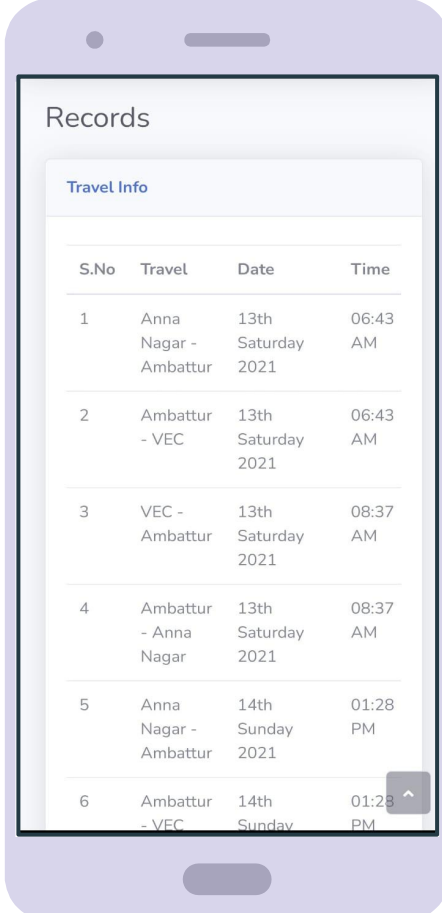
# Route Detection and Validation

- Validates whether the commuter scans the QR belongs to his bus pass route
- Throws alert, if commuter scans the QR of different route
- Otherwise, mark the trip in epass



# Trip Details

- Displays the following trip details
  - Route
  - Date of the trip
  - Time when trip is marked



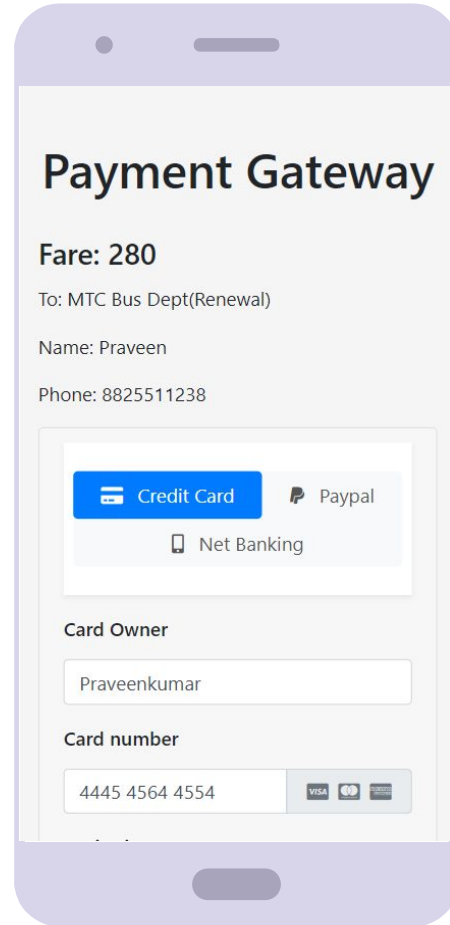
The image shows a smartphone screen with a purple border. The screen displays a 'Records' section with a 'Travel Info' header. Below the header is a table with 6 rows of trip data. The table has four columns: S.No, Travel, Date, and Time. The data is as follows:

| S.No | Travel                | Date               | Time     |
|------|-----------------------|--------------------|----------|
| 1    | Anna Nagar - Ambattur | 13th Saturday 2021 | 06:43 AM |
| 2    | Ambattur - VEC        | 13th Saturday 2021 | 06:43 AM |
| 3    | VEC - Ambattur        | 13th Saturday 2021 | 08:37 AM |
| 4    | Ambattur - Anna Nagar | 13th Saturday 2021 | 08:37 AM |
| 5    | Anna Nagar - Ambattur | 14th Sunday 2021   | 01:28 PM |
| 6    | Ambattur - VEC        | 14th Sunday 2021   | 01:28 PM |

A small grey button with an upward arrow is located at the bottom right of the table.

# Renewal Process

- Online Bus pass Renewal process
- User can renew from the 1st day of the month.
- Once the bus pass gets expired, user must renew their bus pass to continue
- Once renewed, user can use the bus pass



**Payment Gateway**

**Fare: 280**

To: MTC Bus Dept(Renewal)

Name: Praveen


Phone: 8825511238

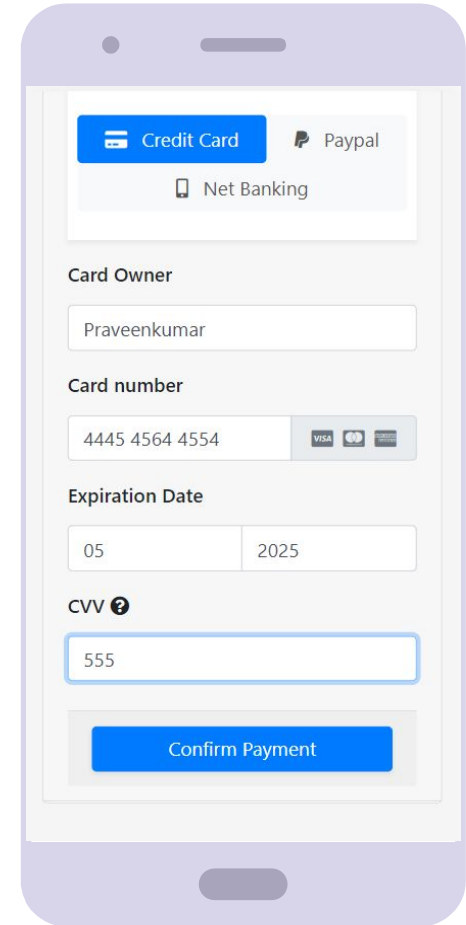
☒ Credit Card ☐ Paypal ☐ Net Banking

Card Owner

Praveenkumar

Card number


4445 4564 4554 



Card Owner


Praveenkumar

Card number

4445 4564 4554 

Expiration Date

05 2025

CVV 

555

**Confirm Payment**

# Registration and Fare Calculation

- Fare is calculated based on the number of stages between the Boarding and Destination Point
- In case of more routes, fare is calculated with the route which has maximum number of stages

## MTC Pass Registration

Full Name \*

Company / College Name \*

Email \*

Phone number \*

Person Type \*

☐ College 1 Way  
☐ College 2 Way

User picture \*

Choose File No file chosen

Aadhaar Card \*

Choose File No file chosen

College / Company I'd \*

Choose File No file chosen

Route 1

From \*

To \*

Route 2

From

To

Submit

Reset

# Conclusion

- Makes the application more user - friendly for the bus commuters.
- Provides easy platform to buy and renew the MTC pass.
- This single app takes care of all types of Bus Passes and their Renewal Process.

# Future Work

- In future, this application will be replaced with simple PVC card
- In future, Bus pass process for Handicap will be included.
- In future, the mockup payment will be replaced with paid payment gateway.

# References

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- [3] P.Sharmila ,A.Ponmalar, Skanda Gurunathan R, “Bus Pass and Ticket automation System” , International Journal of Computer Engineering In Research Trends , Volume 3, Issue 8, August-2016.
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[6] Nwakanma Ifeanyi Cosmas, Etus C, Ajere I.U. & Agomuo Uchechukwu Godswill , “Online Bus Ticket Reservation System” , International Journal Of Computer Science And Statistics Vol. 1 No.2, 2015

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**Thank You !!**