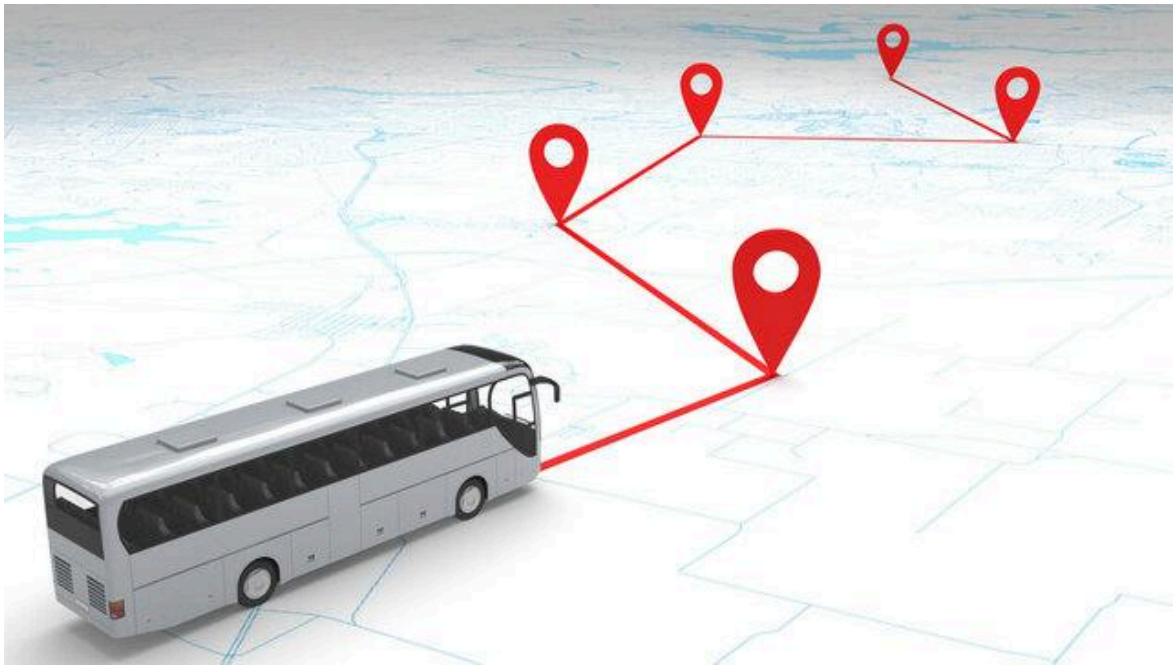
Delhi Open transit App



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Objective:

The aim of this project is to provide users with real-time information about the location of the bus they are traveling on, along with upcoming stops. This app serves as a guide for users unfamiliar with Delhi's bus system.

Overview:

The Delhi Open Transit App is a groundbreaking project designed to revolutionize public transportation in Delhi, India, by providing commuters with a seamless and efficient way to navigate the city's bus network. Developed using Kotlin, a modern programming language for Android app development, the app offers a user-friendly interface and innovative features to enhance the commuting experience.

- Real-time Bus Tracking
- User Interaction
- Location-Based Services
- To and From Stops
- Route Information

Flow:

First, the application prompts users to indicate if they are currently traveling. If the response is affirmative, it directs users to a screen where they can input the bus route number. Utilizing GeoFusion, the app retrieves real-time information about the ongoing bus stop based on the bus's location and the user's coordinates.

Alternatively, if the user responds negatively, the app presents another screen where users can input the source and destination bus stops. From a pool of 4000 buses, the app filters the buses that serve these stops and displays their route numbers. Upon selecting a bus, users are redirected to a screen showing all the stops along the selected bus route.

Scope:

The Delhi Open Transit App for tracking buses is a project aimed at enhancing public transportation services within the city of Delhi, India. The scope of this project encompasses the development of a mobile application that enables commuters to track the real-time location and arrival times of buses operating across different routes within the city.

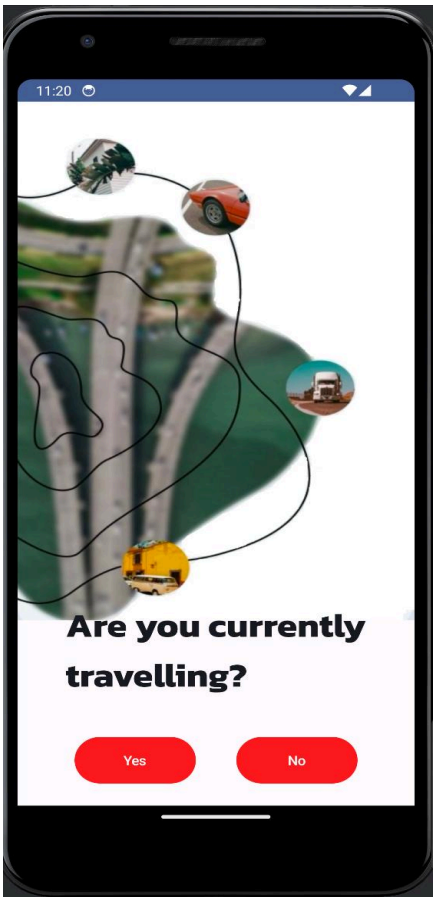
- Real-Time Bus Tracking
- Route Planning
- Bus Schedule Information
- Integration with Other Services

User Interface:

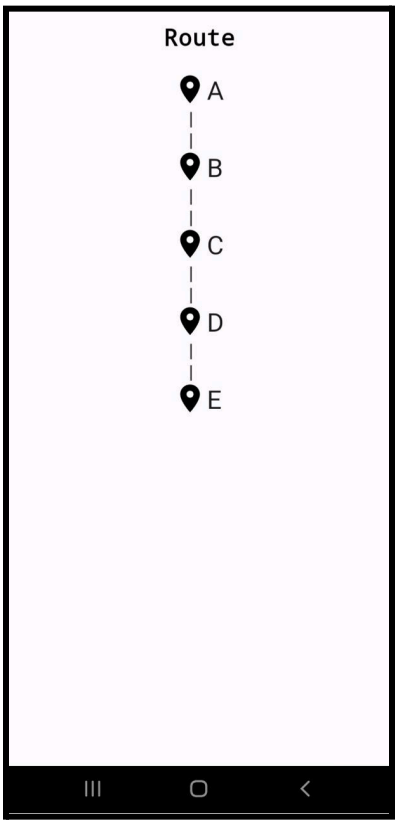
- Splash Screen: Introduces the app.

- Home Screen:Central hub of the app.

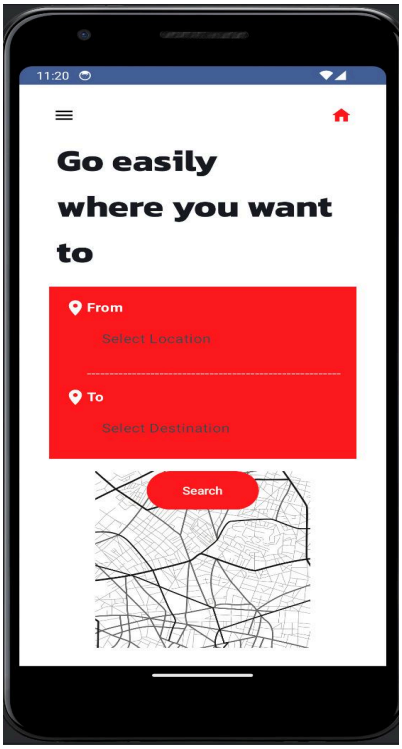
- Yes/No Screen: Asks if the user is currently traveling.



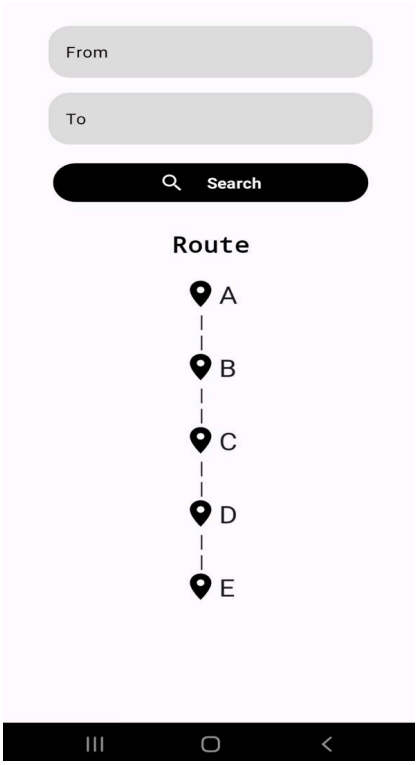
- Live Location Screen:Shows live bus location and upcoming stops.



- Bus Selection Screen: Displays available buses based on source and destination stops



- Route Stops Screen: Lists all stops for the selected bus route.



Main Features:

- Live bus location tracking.
- Information about upcoming bus stops.
- Notification when the destination is approaching.

Formula Used:

Euclidean Distance formula for calculating distance between bus stops and user location:

distance = sqrt((x2 - x1)^2 + (y2 - y1)^2)

Libraries Used:

- GeoFusion
- Google Play Maps API

Sensor Used:

- fusedLocation

The Delhi Open Transit App leverages the Fused Location Provider API, a part of Google Play services, to obtain accurate and up-to-date location information from various sources such as Wi-Fi and cellular networks. This integration ensures that users receive precise location data, enabling the app to deliver real-time bus tracking and personalized route planning features effectively.

Database:

- SQLite
- Database created using Open Transit Delhi API maintained by IIITD.

Database Creation:

A Python script was used to extract data from the protocol buffer file provided by the API.

Assumptions:

- Utilizing static data from the Delhi Open Transit website.
- Assumes users know the source and destination bus stops.
- Assumes direct bus routes without interchanges.
- Assumes users know how to reach the source bus stand.

Conclusion

This project bridges the gap for users unfamiliar with Delhi's bus system, providing them with essential real-time information for a smoother travel experience.