**S****cope Document for**

**AI-Powered Travel Booking Platform**

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# Project Overview

NeeloBus is an innovative transport-tech startup based in Nepal, dedicated to digitizing and transforming the country's local and intercity transportation ecosystem. With the vision of making transportation more efficient, accessible, and transparent, NeeloBus aims to create a unified digital platform that brings together passengers and a wide range of transportation services under one roof.

The platform will be available both as a web application and mobile apps, ensuring maximum accessibility for users across different devices and regions. Through this platform, passengers will be able to directly connect with various types of public and private transport vehicles—including buses, hiaces, tempos, and e-rickshaws.

# Goal

* Enable real-time seat booking for local and intercity transport
  + Customers can book seats instantly in real time.
  + Applicable for both local and intercity transport.
  + Supports various vehicle types: buses, hiaces, tempos.
  + No need to visit physical counters—booking is fully digital.
* AI-powered travel suggestions
  + Uses AI to recommend the best travel options based on user preferences.
  + Suggests optimal routes, vehicles, and timings.
  + Considers factors like traffic, weather, seat availability, and past behavior.
  + Helps users discover faster, cheaper, or more comfortable travel options.
  + Also include AI chatbots and customer representatives.
* Offer live vehicle tracking
  + Allows users to track vehicles in real time on a map.
  + Provides accurate ETAs (Estimated Time of Arrival).
  + Helps reduce waiting time and improves trip planning.
  + Enhances safety and transparency for passengers.

# Project Requirement Scope for Mobile/Web Application

# Public Page (Web/Mobile)

## **Home Dashboard**

* 1. Quick view of travel stats & platform activity.
  2. Access bus listings, ticket booking flow, and support services
  3. Notifications, updates, and user role shortcuts

## **Login/Signup**

* 1. Login/Signup option for all user roles
  2. Role-based redirection after login (eg, enduser, vehicle owner, etc.)
  3. Unified login page with clean, minimal UI.

## **Search**

* 1. Search vehicles by location, date of journey,
  2. Instant filters, such as selecting buses by route, price, and availability.

## Multiple travel options for every journey

* 1. Wide traveling section.
  2. Mode-specific filters and listing.

## FAQ Section

* 1. Answers to common travel booking questions.
  2. Easy navigation by travel category or service type.
  3. How do I activate/deactivate my account?

## 24/7 Customer Support

* 1. AI-based 24/7 customer support

## Multi-Language Selection

* 1. Support multiple languages like Hindi, English, Nepali, and Maithli.

## PWA Install Prompt

* 1. Suggest installing the app on mobile for a faster and smoother experience.

## Dynamic Promotions and Advertising

* 1. Partnered business promotions (Hotels, Bus Owners, Agents)
  2. Travel deals and seasonal discounts.
  3. Platform-driven campaigns & announcements.

# End User (Web/Mobile)

## End User Authentication

* 1. Registration/Login (Phone, Email, Google, Facebook, SOS)
  2. Forgot Password Option
     1. Email, Phone -> OTP

## Vehicle Search

* 1. Search for an available vehicle
  2. Use filters like (vehicle type, ride, price, traveling location, date)

## AI suggestions for the best route and times.

* 1. Get smart route recommendations based on real-time traffic and road conditions.
  2. AI suggests the best departure times to avoid delays or peak hours.

## Booking & Snack Ordering

**→ For Seat Booking**

* 1. Real-time seat booking
     1. Name
     2. Age
     3. Phone no
        1. Save button for saving the (Name, Age, Phone no) for fast booking in future
     4. Add from where to where (Source A to Source B)
     5. Seat preference
     6. Email ID (Optional)
     7. Payment using a wallet
  2. View seat layouts and availability for buses, hiaces, or other vehicles.
  3. Get digital tickets instantly in a PDF format after booking confirmation.
  4. Tickets are stored in the profile section and can be downloaded or shared.
  5. Also, add-on snacks while traveling.

**→ For Logistics**

* 1. Real-time booking
     1. Name
     2. Phone no
     3. Logistic weight, size, type, quantity
     4. Select Vehicle (According to distance, price)
        1. Buses
        2. Tempo
           1. Support for both: infra-city & inter-city
           2. Ideal for local shifting, retail supply, and warehouse transfer.
           3. Multiple tempo type support
           4. Single or Multi-stop delivery
           5. Track charge based on per km

**Note:-** After the weight is added by the end user of logistics, the vehicle is automatically filtered by weight and availability.

* + 1. Add from where to where (Source A to Source B)
    2. Email ID (Optional)
    3. Payment options
  1. Get a digital slip in a PDF format after booking confirmation.
  2. Slips are stored in the profile section and can be downloaded or shared.

## Live Vehicle Tracking

* 1. Track the vehicle in real time on an interactive map.
  2. Get accurate ETA (Estimated Time of Arrival) updates.
  3. See the vehicle’s route, stops, and current location.

## QR check-in for free wifi

* 1. Scan a QR code to access free internet.
  2. Login/Register (OTP, social login, or email)
     1. Authenticate -> redirect to landing page to internet access
     2. Apply restrictions (time-limit, speed-limit, access-control)
     3. Option to purchase additional access (e.g., daily/monthly pass)

## Profile

* 1. **Wallet** 
     1. Add money to your wallet using a predefined payment gateway for secure transactions.
     2. Earn rewards on the ride and through referrals.
     3. Get a reward like:
        1. Free rides
        2. Discount coupons
        3. Partner offers
     4. Track Tires: Bronze -> Silver -> Gold with increasing benefits.
     5. Redemption via app wallet or coupon code.
  2. **Ride History**
     1. View all past and upcoming rides in one place.
     2. Download and share tickets or slips anytime.
  3. **Support Chat**
     1. AI-based chatbot and customer representatives.
     2. Get real-time responses and quick issue resolution.
  4. **Cancellation & Refund Management**
     1. Easy ticket & logistic cancellation
        1. Option to cancel ride before X minutes (Dynamic penalty if canceled on short notice)
        2. List of rules for refund/penalty (only for viewing purposes)
     2. Raised a refund request via the application
        1. Failed transaction
        2. Service not rendered
        3. Cancellation before ride start
        4. Track refund status (approved/refused)

**Note:** Refund takes X days (3-7)

* 1. **Journey Remainder & Alerts**
     1. Get notifications for boarding time, delays, etc
  2. **Monthly Passes**
     1. Purchase and Activation
        1. Purchase via wallet
        2. On payment success, the pass is activated and linked to the User ID/mobile/device.
     2. Strategy and Service Dual Role
        1. As a strategy, monthly passes support user retention and predictable monetization.
        2. As a service, they offer a seamless and premium travel experience, reducing the friction of repeated bookings.
     3. Pass Validity Types:
        1. **Day-wise Plan:** Valid for the continuous period (eg, 30 calendar days from activation).
        2. **Count-specific Plan:** Offer a fixed number of rides (eg, 20 rides/month), regardless of the date.
     4. Route-specific Configuration:
        1. Admin can create route-specific pass plans

Note: Passes are non-transferable and linked to the user via User ID, mobile number, or device.

- Implement an identity verification mechanism like OTP-based validation or OR code scanning at the time of use

* 1. **Rating & Review System**
     1. Rate the vehicle, driver, and amenities, and provide suggestions for improvement.
     2. Rate the vendor's service and product.

# Vehicle Owner (Web)

## Vehicle Owner Authentication

* 1. Registration/Login (Phone, Email, Google)
  2. Forgot Password Option
     1. Email, Phone -> OTP

## Registration & Profile Management

* 1. Upload the Business name, GST, PAN, and license document for verification and track the status (Approved, Rejected, or Need Reupload).
  2. Bank account, KYC details, and payment settlement setup.
  3. Contact person details.

## Vehicle Listing & Seat Management

* 1. Add/Edit/Delete vehicle details (type, model, number, capacity, amenities, driver name, helper name, seat type configuration).
  2. Upload RC, insurance, permits, fitness certificate
  3. Vehicle inspection, its history, and compliance tracking
  4. Real-time seat availability dashboard.
  5. Block or reserve a seat for a partner or staff member.
  6. Get vehicle service and permit renewal reminders.

## Route Management

* 1. Define the boarding and dropping point, and also track the vehicle's current location.
  2. Get AI-based popular route suggestions

## View Booking

* 1. View upcoming and past bookings
  2. View passenger and staff/driver manifest details.

## **Revenue Tracker**

* 1. Track/View trip-wise earning summary and settlement statement.

## 24/7 Customer Support

* 1. Get 24/7 AI-based customer support for queries.

## See KYC status

* 1. See KYC status as: Pending/Approved/Rejected.

## Driver Assignment & Management

* 1. Add/manage driver profiles per vehicle.
     1. Driving license and KYC details verification
     2. Submit verification details to the admin for further verification.
  2. Assign a driver to the trip directly.
  3. Track report incidents sent by staff/employees

## Push Notification Panel

* 1. Send announcements or delays to the admin team.
  2. Improves communication during issues.

**Note:** Initially, all the data will be verified by the admin.

# Vehicle Staff/Employee (Mobile)

## Vehicle Staff/Employee Authentication

* 1. Registration/Login (Phone, Email, Google)
  2. Forgot Password Option
     1. Email, Phone -> OTP

## Ticket & Pass Validation

* 1. Via QR code scanning
  2. NFC-based verification

## Passenger Monitoring

* 1. Track passenger count per ride and maintain a record.

## Incident Reporting

* 1. Option to report incidents or violations directly to the vehicle owner and admin with location.
  2. Check the vehicle (before/after) every trip.
     1. Update status -> Available/Not Available

## Schedule Access

* 1. View assigned route schedule or trip details in real-time.

**Note:-** Initially, all the data will be verified by the admin.

* The overall work of the Vehicle staff/Employee is also done by an AI named AI Khalise

# Agents (Web)

## Agent Authentication & Registration

* 1. Registration/Login (Phone, Email, Google)
  2. Forgot Password Option
     1. Email, Phone -> OTP
  3. Add agency name, contact number, and owner details (for admin approval)
  4. Upload documents:
     1. PAN/GST
     2. Business registration certificate
  5. Track the approval status (Approved, Rejected, or Need Reupload).
  6. The agent can also access the e-advertisement feature using the same user ID and password that was created during the initial registration.

## Ticket Booking

**→ For Seat Booking**

* 1. Book Tickets (bus, haice, e-rikshaw)
  2. Track past booking history.
  3. Add single/multiple passenger details:
     1. Name
     2. Age
     3. Gender
     4. Add from where to where (Source A to Source B)
     5. Seat Preference.
  4. Add contact details
     1. Phone number with country code
     2. Email ID (Optional)
     3. State of Residence (Required for Tax Invoicing)
  5. Make payment & Download ticket
     1. By using an agent wallet
     2. By using the customer online
     3. By using cash
     4. Print and download the ticket (PDF format)

**→ For Logistics**

* 1. Real-time booking
     1. Name
     2. Phone no
     3. Logistic weight, size, type, quantity
     4. Select Vehicle (According to distance, price)
        1. Buses
        2. Tempo

**Note:-** After the weight is added by the vendor of logistics, the vehicle is automatically filtered by weight and availability.

* + 1. Add from where to where (Source A to Source B)
    2. Email ID (Optional)
    3. Payment options
  1. Make a Payment and get a digital slip in a PDF format after booking confirmation.

1. **Customer booking history**
   1. Search customer booking history (use filter: customer name, journey date, time, location, etc)
   2. Mark a regular/repeated customer

## Payout Management

* 1. Earning dashboard (0% commission)
  2. Payment method setup (Bank, UPI, Wallet)
  3. GST invoice download

## 24/7 Customer Support

* 1. Raise a ticket to the admin
     1. Booking issue
     2. Payment error
     3. System bug

## See KYC status

* 1. See KYC status as: Pending/Approved/Rejected.

## Live Seat Availability View

* 1. Real-time seat map access.
  2. Prevents double booking issues.

**Note:-** Initially, all the data will be verified by the admin.

# Vendor (Web)

## Vendor Authentication

* 1. Registration/Login (Phone, Email, Google)
  2. Forgot Password Option
     1. Email, Phone -> OTP

## Vendor Registration

* 1. Add basic information
     1. Vendor name, contact number, business address
     2. Service area: city/region/route/bus
  2. Upload documents (for approval by the admin)
     1. PAN
     2. FSSAI License (for food)
  3. Track the status (Approved, Rejected, or Need Reupload)
  4. The vendor can also access the e-advertisement feature by using the same user ID and password that were created during the initial registration

## Snack & Drink Management

* 1. Add/Edit/Delete items (Chips, Water, Cold drink, Wet wipes, etc)
  2. Upload images and set the item's price, description, and availability.
  3. Low-stock or out-of-stock alerts.

## Order Management

* 1. View incoming pre-orders (bus name, passenger name, seat no, etc).
  2. Track order delivery per vehicle, ensure on-time dispatch.

## Payout & Earning Dashboard

* 1. Track daily earnings status and commission

## See KYC status

* 1. See KYC status as: Pending/Approved/Rejected.

## 24/7 Customer Support

* 1. Get AI-based customer support on payout and any query issues.

**Note:** Initially, all the data will be verified by the admin

# E. Advertisement (Web)

## Authentication and Access Control

* 1. Registration/Login with (OTP/Email/Google)
  2. Forgot Password Option
     1. Email, Phone -> OTP
  3. Role-Based Access Control (eg, campaign managers, analysts, etc).

## Campaign & Budget Setup

* 1. Define campaign objectives, duration, and budget caps.

## Creative Management

* 1. Upload and manage image and video assets (verified by the admin first)
  2. Preview creatives, assign to specific campaigns or ad groups.
  3. Track the status (Approved, Rejected, or Needs Reupload)

## Reporting & Analytics

* 1. Analyze performance report at daily, weekly, and monthly intervals.

## Key Metrics Dashboard

* 1. Engagement Rate
     1. Click-throughs, impressions, and conversions
  2. Zone Targeting
     1. Device distribution and performance by geographic zones.
  3. Demographics
     1. Audience breakdown by age, gender, and other segments.

# Super Admin (Web)

## Authentication and Access Control

* 1. Registration/Login with 2FA (OTP/Email)
  2. Forgot Password Option
     1. Email -> OTP
  3. Role-based access (Admin, KYC team, etc.)

## Partner KYC & Onboarding

* 1. View & Manage KYC documents for:
     1. Vehicle Owner, Hotels, Agents, Vendors, Vehicle staff/Employee.
  2. Approved/Rejected uploaded documents with reason (if needed, request for re-upload)

## Fair Management

* 1. Define the price (fixed or dynamic)
     1. For tickets (AC/non-AC and sleeper vehicles)
     2. For Logistics
  2. Discount offer or Promo management.
  3. Define a route-based pass plan for the end-user.
  4. AI-Powered dynamic pricing suggestions (based on demand, time, and season).

## User & Role Management

* 1. Customer
     1. Profile view of user & Management
     2. Block/Suspend account
     3. View booking history
     4. Cancellation
        1. View cancellation reports
     5. Refund
        1. Review Request -> approved/refused
     6. Dashboard to view usage analytics, set bandwidth/time limits, configure login options, and manage user sessions (for Wifi used by end users).
  2. Vehicle Owner
     1. Profile view and Management.
     2. Bus listings
     3. Payout history
     4. See KYC & License docs
  3. Agents
     1. Profile View & Management
     2. Performance tracking
  4. Vendor
     1. Track Daily work
     2. Profile View & Management
  5. Vehicle Staff/Employees
     1. Track incidents report added by the staff/employee
     2. Profile View & Management
  6. E.advertisement
     1. Profile View & Management
     2. Track Advertisement performance

## Rating & Review Management

* 1. View customer feedback on the trip, vendor service, and product.

## Listing & Service Management

* 1. Approval of vehicle owners and their vehicles is subject to verification of the submitted documents.
  2. Route management (city-to-city combinations).
  3. Agent and Vendor approvals.

## Commission and Payout Management

* 1. Set the commission slab as per partner type, and track your own commission.
  2. Download invoice/TDS
  3. Verify account details uploaded by partners

## Support Ticket System

* 1. View and manage all the raised tickets by any user type.
  2. Track queries which is solved by AI customer support for future enhancement

## Dashboard Analytics

* 1. AI-Analysis of past bookings, revenue, route, performance, and feedback.
  2. Track vehicle location using GPS

## AI-powered Demand Forecasting

* 1. Predicts peak travel times/routes
  2. Help with dynamic pricing and fleet allocation.

## Legal Documents Storage

* 1. Store and track license, insurance, and KYC docs.
  2. Auto-remainder for expiry documents

## Marketing Management

* 1. Manage advertisement, offer push notifications.
     1. Approved/Reject contents push through e-advertisement
  2. Track campaign results and user engagement.

# Future Scope

## AirLine

# Assumptions

# Tech Stack

| **Department** | **Tools and Technologies** |
| --- | --- |
| **Backend** | NodeJS, TypeScript, Apollo GraphQL |
| **Frontend** | NextJS (for Web), React, AntDesign |
| **Mobile** | ReactNative |
| **Database** | PostgreSQL, ElasticSearch, Redis |
| **Maps** | Google Maps |
| **CloudProvider** | AWS |
| **Web Hosting** | Vercel |
| **Email** | AWS SES or Zoho Zepto |
| **SMS** | Msg91 SMS |
| **Phone Verification** | Msg92 Verify |
| **Social Login** | Firebase |
| **Error Tracking** | Sentry |
| **Crashalytics** | Firebase |
| **Analytics** | Google Analytics |
| **Payment Gateway** | Stripe, PayPal, RazorPay |
| **Push Notification** | OneSignal |
| **Live Tracking (This is yet to be finalized)** | Integration IOT Platform (attached with vehicle) service API or ReactNative Plugin for GeoLocation Live Tracking (using driver) |
| **Realtime Updates** | Pusher or EMQX |

# Project Timeline