PROJECT PROPOSAL

1. Project Title

Local Driver Marketplace Platform

2. Introduction

Transportation plays an important role in daily life. In many localities, people own vehicles but face difficulty finding reliable drivers when required. At the same time, many skilled drivers remain unemployed or underutilized due to the lack of a proper platform to connect them with customers. This project aims to bridge this gap by providing a centralized web-based solution.

3. Problem Definition

Currently, there is no organized, locality-based platform that allows users to easily find verified drivers. People often depend on personal contacts or informal methods, which are time-consuming and unreliable. Additionally, trust and safety issues arise due to the absence of document verification and structured booking systems.

4. Proposed System

The proposed system is a web application that connects users with verified local drivers. The platform supports two service options:

- Driver Only – for users who already own a vehicle

- Driver with Vehicle – for users who require both a driver and a vehicle

The system ensures trust and convenience through document verification, role-based access, and a structured booking workflow.

5. Objectives of the Project

- Provide an easy way for users to find local drivers
- Create employment opportunities for drivers
- Ensure safety through document verification
- Offer flexible service options
- Develop a scalable and secure web application

6. Scope of the Project

- User and driver registration
- Driver document upload and verification
- Location-based driver search
- Booking and trip management
- Admin monitoring and control

7. User Roles

Customer:

- Register and login
- Search and book drivers
- Provide ratings

Driver:

- Manage profile
- Upload documents
- Accept bookings

Admin:

- Verify documents

- Manage users and bookings

8. System Methodology

User selects service type, system shows nearby drivers, booking is placed, driver accepts, trip is completed, and feedback is collected.

9. Document Verification Process

Drivers upload documents such as Driving License, RC, Insurance, and Pollution Certificate. Admin manually verifies documents and updates status.

10. AI Integration and Microservice Architecture

10.1 Smart Driver Recommendation System (AI Microservice)

A separate AI-based microservice is introduced to recommend the most suitable drivers for users. The recommendation is based on:

- Distance between user and driver

- Driver ratings and reviews

- Driver availability

- Service type (Driver Only / Driver with Vehicle)

- Past booking success rate

This microservice is built using Python (FastAPI) and communicates with the Django backend via REST APIs.

10.2 Architecture Flow

- User sends booking request from React frontend
- Django backend forwards request to AI microservice
- AI service calculates driver score and ranking
- Recommended drivers are returned to backend
- Backend sends sorted drivers list to frontend

10.3 Technologies Used in AI Microservice

- FastAPI
- Python
- Scikit-learn (basic scoring / ranking logic)
- Redis (for caching recommendations)
- Docker (containerized microservice)

11. Tools and Technologies Used

Frontend: React.js

Backend: Django, Django REST Framework

AI Microservice: FastAPI, Python

Database: PostgreSQL

Payment: Razorpay

Other: Redis, Django Channels, Cloud Storage, JWT Authentication, Docker

12. Security Measures

JWT authentication, role-based access, secure document storage, HTTPS communication, isolated AI microservice.

13. Future Enhancements

- Advanced ML-based prediction models

- Government KYC API integration

- Mobile application

- Real-time GPS tracking

- Subscription-based services

14. Conclusion

This system provides a real-world solution connecting users with verified local drivers through a scalable, secure, and AI-assisted platform. The inclusion of microservices and AI-based recommendations improves efficiency, performance, and real-world applicability, making it suitable for academic evaluation and job-oriented projects.