

# E-Challan Project Report

## 1. Project Overview : Project Introduction

Yeh project aik 'Smart E-Challan System' hai jo traffic violations ko detect karne, challan issue karne, aur users ko manage karne ke liye banaya gaya hai. Ismein FastAPI backend aur HTML/JS frontend use kiya gaya hai.

## 2. Maujooda Features (Current Features) : Backend & Frontend

Backend (FastAPI):

- User Management: User Profile dekhna aur update karna (Name, Phone, CNIC).
- Challan System: Naya Challan issue karna, Challan History dekhna.
- Payment System: Challan pay karne ki sahulat (Mock integration).
- Appeals System: Ghalat challan ke khilaf appeal submit karna.
- Analytics Dashboard: Total Revenue, Violations, aur Camera Health.
- Search & Export: Universal Search, CSV Export.

Frontend (HTML/JS):

- Utility Functions: 40+ functions jo API se baat karte hain.
- Validation: Pakistani formats (CNIC, Phone) ke mutabiq validation.
- UI Components: Toast Notifications, Loading spinners.
- Demo Page: Interactive page jahan saary features test kiye ja sakte hain.

## 3. Jo Abhi Daalny Hain (Future Features) : To-Do List

Project ko mazeed professional aur complete banane ke liye yeh cheezein abhi daalni chahiye:

1. Real Payment Gateway Integration (Stripe/JazzCash).
2. Live Camera Feed (RTSP Stream).
3. Admin Panel UI (Separate Dashboard).
4. SMS/Email Alerts.
5. Android App Integration.
6. AI Model Improvement (ANPR).
7. Deployment (Docker).

## 4. Expected Usage (Istemaal Ka Tareeqa) : How to Run

Step 1: Backend Chalana

Terminal mein: 'cd backend' phir 'python main.py'

Is se server <http://localhost:8000> par start ho jaye ga.

Step 2: Frontend Test Karna

Browser mein 'frontend/demo.html' file kholain.

- Login karein
- Search karein
- Pay Challan karein
- Appeal submit karein