

## INTRODUCTION

With thousands of vendors and rental requests processed daily, inefficiencies in manual KYC checks, fragmented data entry, and slow backend workflows can cause delays. **Isikko.com**, a SaaS platform by **WIMD Technologies Private Limited**, unifies vendor onboarding, document verification, and live status tracking into a single platform, offering **real-time updates**, **automated billing**, and **AI-powered** data validation.

As an **SDE Intern (May to July 2025)**, I built modular **Node.js/Express APIs**, designed **MongoDB/Mongoose** schemas, and automated **Python OCR** pipelines using **Tesseract** and **OpenCV** for vendor KYC parsing. I implemented **JWT-based authentication**, **bulk CSV import** workflows, and **GitLab CI/CD** pipelines for automated testing and deployment, reducing API latency by **35%** and accelerating document parsing by **28.5%**.

## ABOUT THE ORGANIZATION

WIMD Technologies Private Limited is a **technology-driven** organization focused on delivering **automation first software solutions** that enhance operational efficiency and enable digital transformation. The company leverages **artificial intelligence**, **cloud infrastructure** and **data analytics** to create secure, scalable and intelligent systems for diverse industry needs.

**Flagship Product:** **Isikko.com**, a **self drive rental** and **vendor management platform** built for **enterprise clients** seeking efficiency, transparency and intelligent automation. **Core Features:**

- Real time vendor and fleet tracking with live location monitoring
- Digital onboarding with automated KYC verification
- AI powered document processing and fraud detection
- Automated billing and customized vendor performance reports
- Integration capabilities with enterprise resource planning and customer management systems

WIMD Technologies is committed to enabling businesses to achieve higher productivity, reduce manual effort and make data informed decisions through technology innovation.

## KEY PROJECT CONTRIBUTIONS

- Backend API Development** – Created modular APIs for vendor onboarding, status updates, and reporting.
- AI-Powered Document Processing** – Developed OCR pipelines with Tesseract and OpenCV for real-time KYC data extraction.
- Automation Workflows** – Built bulk vendor CSV import scripts with field-level validations.
- Authentication & Security** – Implemented JWT-based authentication with token refresh logic and role-based access control.
- CI/CD Integration** – Configured GitLab CI/CD pipelines for automated testing, linting, and staging deployments.
- Performance Optimization** – Reduced API latency by 35
- Progressive Web App (PWA) Implementation** – Developed a PWA frontend enabling offline support, real-time updates, and seamless user experience across all device types and network conditions, including 2G environments.

## TRAINING PHASE

**Authentication Workflow:** During my internship (May – July 2025), I gained solid experience with **secure authentication** using **JWT**, **middleware**, and **encryption techniques**. This helped me implement a reliable system ensuring **data security** and smooth user access.

**Progressive Web Application Development:** I designed and integrated a **Progressive Web Application (PWA)** featuring **offline synchronization** with **service workers** and **caching methods**. This improved the app's performance and usability in poor network conditions.

**Automation for KYC Processing:** I built **Python automation pipelines** to parse **KYC documents** and manage bulk **CSV imports**, reducing manual work and speeding up data processing.

**Image Preprocessing for OCR:** Using **OpenCV**, I applied techniques like **noise removal** and **adaptive thresholding** to enhance **OCR accuracy**, which helped improve text extraction for AI analysis.

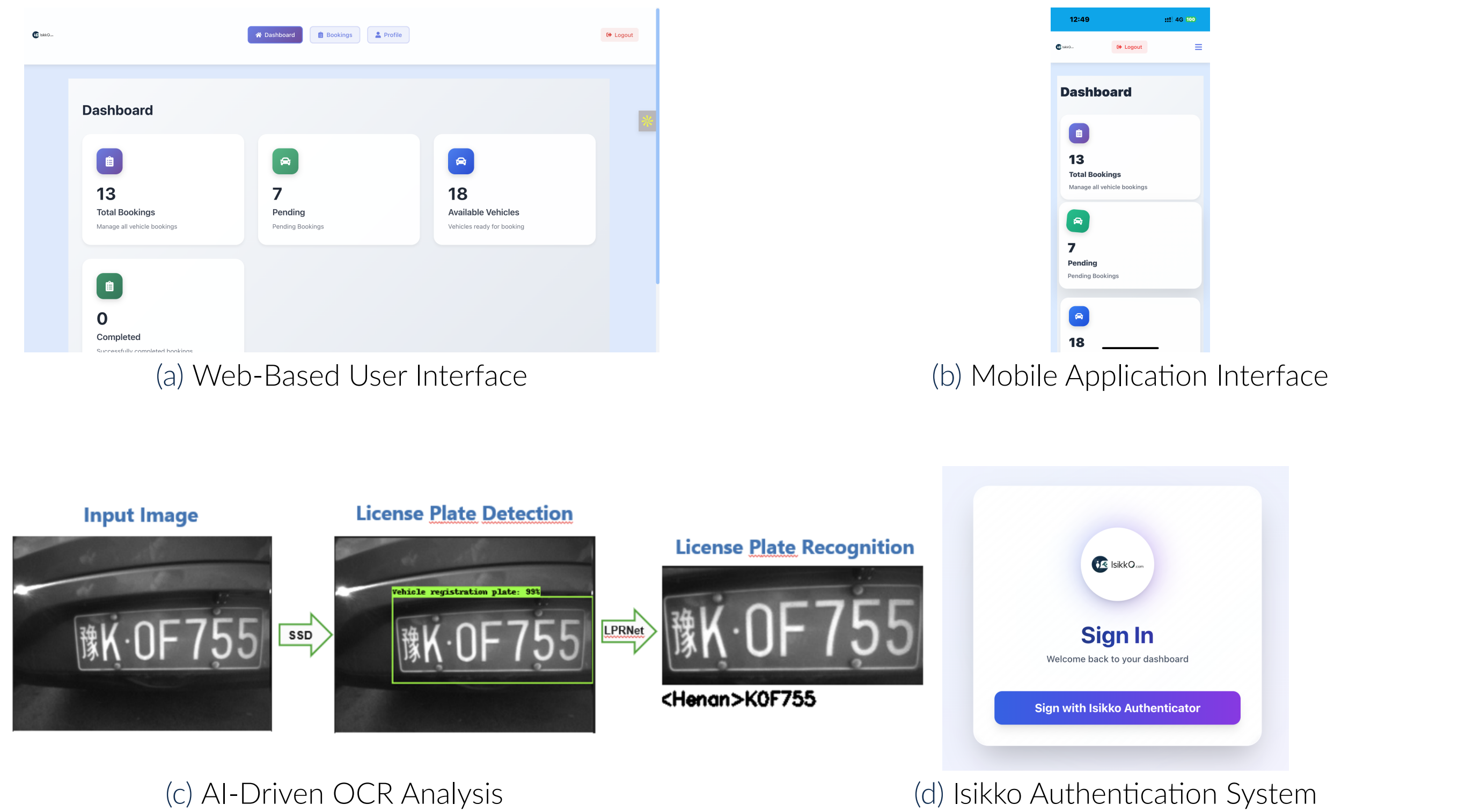


Figure 1. Key interfaces and functionalities developed during the Training Phase.

## Progressive Web Application (PWA) Implementation and Impact

**Introduction of PWA for Offline Sync and Enhanced UX:** Initially, the platform lacked any Progressive Web Application (PWA) capabilities, resulting in a fully network-dependent system that suffered from poor offline usability and data loss during network interruptions.

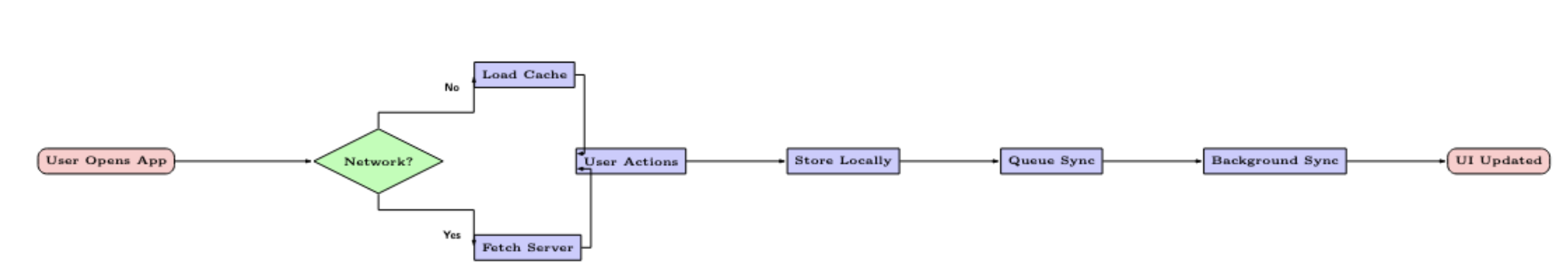


Figure 2. Compact flowchart illustrating PWA system process for offline sync and data handling.

The redesigned system leverages service workers and caching strategies to enable offline functionality and background synchronization, allowing users to continue working uninterrupted during connectivity loss and ensuring data consistency upon reconnection.

## MAJOR ACHIEVEMENTS & METRICS

This section highlights the key contributions and significant milestones achieved during the internship at **WIMD Technologies Pvt. Ltd.**:

- API Latency Optimization:** Refactored and modularized backend Node.js/Express APIs, achieving a **35% reduction** in response times, significantly improving platform responsiveness.
- OCR Pipeline Acceleration:** Enhanced KYC document parsing speed by **28.5%** through efficient image preprocessing and optimized Tesseract OCR integration.
- High Scalability:** Enabled onboarding and management of over **5000 vendors** via robust bulk CSV import workflows with comprehensive field-level validations.
- Enhanced Security:** Implemented JWT authentication with secure refresh token mechanisms and developed a proprietary *Isikko Authenticator*, ensuring secure, third-party-free user sessions.
- Progressive Web App (PWA) Development:** Led the development of a PWA frontend supporting offline use and real-time updates across **all device types and network conditions, including low-bandwidth 2G environments**.
- Career Growth and Leadership:** Received an **increment** and was **promoted to SDE Intern - Leading Core Initiatives for Isikko.com** for the flagship product *Isikko.com*, collaborating closely with the senior leadership to ensure project success.

## TECH STACK

The following technologies were utilized to develop and optimize the backend workflows, AI automation, and frontend integration for the Isikko.com platform:

- Node.js, Express.js
- mongodb MongoDB, Mongoose
- python Python
- Tesseract OCR
- OpenCV
- JWT
- GitLab GitLab CI/CD
- Angular v19
- Postman

## Conclusion

During my internship at WIMD Technologies Pvt. Ltd., I contributed to the development and optimization of backend systems and AI-driven automation workflows. These improvements enhanced platform efficiency, reliability, and scalability, supporting seamless vendor management.

The solutions implemented provide a strong foundation for future enhancements such as fraud detection and advanced analytics. This experience has strengthened my technical skills and collaboration abilities within a professional development environment.