WEBX CA REPORT

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TITLE : Accident Detection System

PROJECT DESCRIPTION

Tech Stack: Next.js, Flask, Keras, TensorFlow, REST APIs, Python

Description:
The Accident Detection System is an AI-powered web application designed to detect vehicular accidents in real-time using deep learning and deliver instant alerts. The frontend, built with **Next.js**, provides a responsive and intuitive interface for users and administrators to monitor incidents. The backend leverages **Flask** to serve a trained **Keras model** that processes video frames or sensor data to classify potential accidents with high accuracy.

Key Features:

- **Deep Learning-based Detection:** Utilizes a CNN/LSTM model (trained on accident/non-accident datasets) to predict accidents from visual or time-series input.

- **Real-time Processing:** Video or image input streamed from client-side to Flask backend for instant inference.

- **REST API Integration:** Secure communication between Next.js frontend and Flask backend using custom APIs.

- **Dashboard & Analytics:** Visual display of detection results, alert history, and performance metrics.

- **Future Scope:** Integration with GPS and emergency services for automated responses.

Use Cases: Smart traffic systems, public transportation safety, autonomous vehicles, real-time highway surveillance.

TECHNOLOGIES USED
- Frontend: Nextjs, TypeScript, Tailwind CSS
- Backend: Flask (Python)
- Development Tools: VS Code, Postman, Git

OUTPUT:
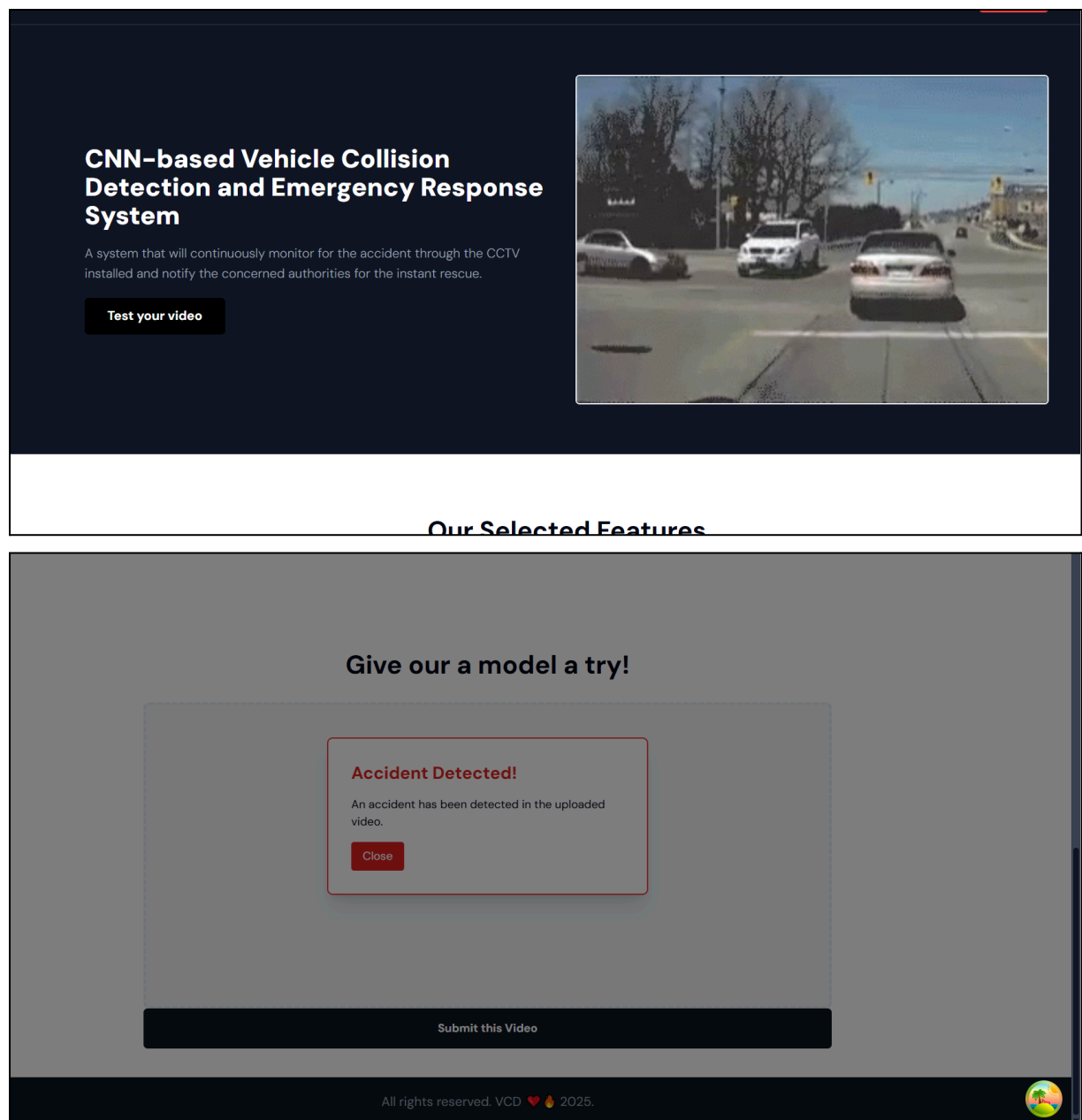
CONCLUSION:

The project showcases the integration of Nextjs, TypeScript, Flask, to build a feature-rich platform. It effectively implements core functionalities like accident detection.