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Business Domain
Automotive, Car Detailing

Project Type
Computer Vision Model and
Mobile App integrated with plotters

SPC Conquers the Car Detailing Market with a New Computer Vision-Based SaaS

Client

Scorpion Protective Coatings, Inc. is a US-based car detailing company providing truck bed liners and other protective coatings, film-cutting and film installation services.

Short Description

Mobile Application with a built-in CV model processes visual images and iPhone/iPad measurement system data. The app is directly integrated with film-cutting equipment (plotters) to provide the ability of fast and precise order of protective films for vehicles and architecture buildings.

Objective

The main goals of the project are:

1. To enable a **precise and efficient film-cutting process** by developing a solution to automate automotive and architectural windows measurement integrated with on-site plotters.
2. To **eliminate the dependency on the 3d-party** car parts database provider, avoid risks of failure, and cut operational cost.
3. To **enable a new revenue stream** by introducing a user-friendly and smooth mobile application to dealers' network with a subscription-based monetization model.

Team Reinforcement

The project involved developing the proof of concept (PoC) from scratch and further solution scale-up with an expert team comprising:

- Project Management Team (PM+BA)
- Lead AI/ML Architect
- Senior Mobile Engineer
- Senior Backend Engineer
- UI/UX Designer
- QA Engineer

Challenge

The project challenged the team with **2 main issues**:

- No comprehensive car parts and windows database with API and accurate measurements was existing on the market.
- Integration with on-site plotters required solid knowledge of manufacturer-specific data exchange protocols.

Solution

★ 01

iOS-based mobile platform provides the ability to use built-in high-resolution camera and proprietary system for accurate measuring of 3D objects' (car parts') sizes.

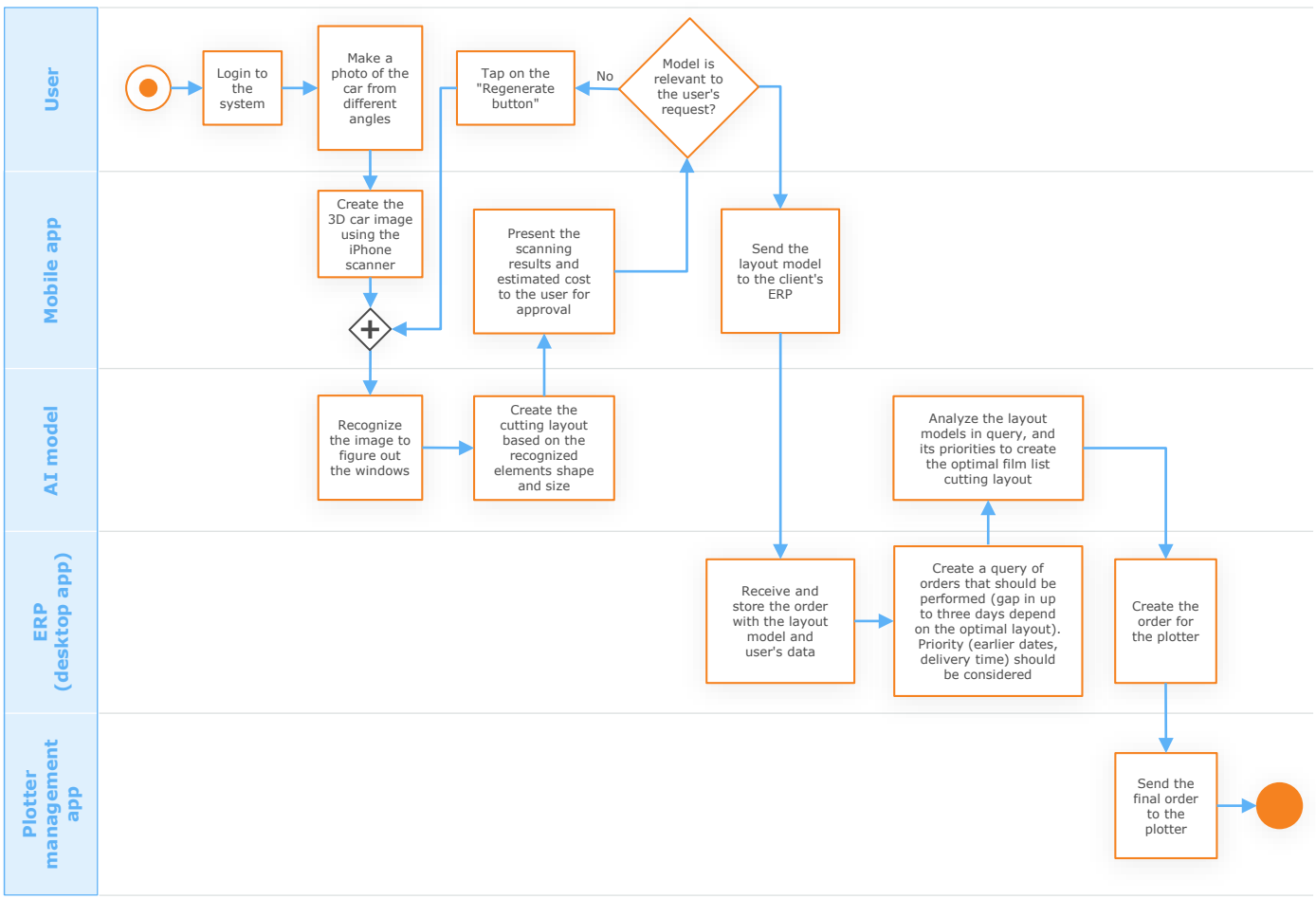
★ 02

Direct integration of the mobile app with on-site plotters for sending CAD files for precise film cutting and waste minimization.

★ 03

Designing and implementing a subscription-based model for enabling a new revenue stream for SPC.

General Architectural Schema



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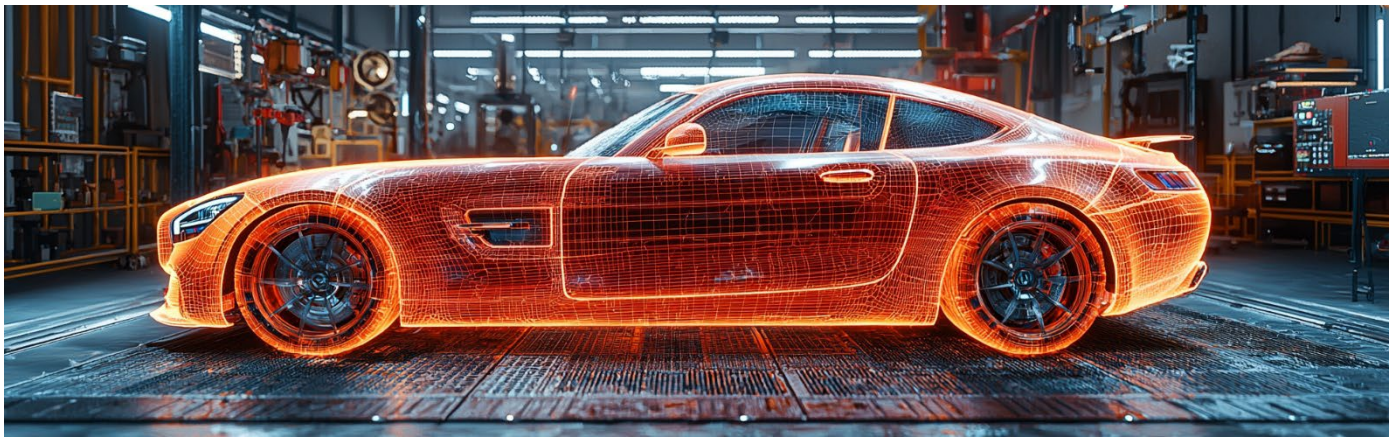

Client Reference

“With the deep knowledge and Intetics team commitment, we managed to release the application on-time and get positive feedback from the dealers' community.

Clayton Tomasino
CEO, Scorpion Protective Coatings, Inc.

Quick Facts

- Up to 1 mm of custom ML model accuracy in measuring
- Unique dataset of car windows created for training
- Direct integration between the App and the plotters

Technologies

Frontend: iOS (iPhone 12 Pro+, iPad 11 v2 Pro+) / swift / swiftUI
Backend: .NET 8 / ASP.NET Core / PostgreSQL
ML Backend: Python 3.11 + PyTorch (AI / ML) + Open3D (3D processing) + OpenCV (image processing)
Dev Ops: Jenkins + Docker Composer
Cloud/ML Ops: Amazon Web Services

Benefits and Results

- Switching from 3d-party car parts database provider to a **proprietary CV-based model enabled accurate measuring and cost cutting**.
- Integrated end-to-end process ensured the **business continuity, robustness and comfortability** of the app for day-to-day use.
- Well-thought subscription-based monetization model remained a core of the app to **generate additional revenue** for the SPC.
- The initial version of the platform **(PoC + MVP) was released in 6 months**.

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Techstack:

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ML Backend: Python 3.11 + PyTorch (AI / ML) + Open3D (3D processing) + OpenCV (image processing)
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