

## Success Story

# Reengineering an SDK with ML-based enhancements for a global biometrics technology company



### Client:

Global Biometrics Technology Company

### Industry:

Technology

### Country:

India

### Our Role:

Product Engineering

## About the Client

The client is a leading provider of biometric, onboarding and document verification solutions. Established in 2011, they process over 750,000 customer images every month from 130 countries. From their base of operations in the US, Mexico and India, the client is

currently making significant strides in the development of a global AI engine that eliminates racial and ethnicity bias from customer biometrics.

## Key Facts

**1000+**

clients across 130 countries

**30%**

customer documents processed every month




**10%**

reduction in customer on-boarding documentation errors

## Services Used

 **Product Engineering**

## Technology Stack

-  **Kotlin**
-  **ML Kit**  
for Firebase
-  **TensorFlow**
- Camera X**



# The Situation

Identity proofing is an integral element of compliance-based authentication and prevention of fraud across industries. Aimed at gaining a competitive edge in this sector, the global biometrics solutions provider was developing an SDK for consistent identity proofing to serve as a plug-and-play toolkit for potential clients like banks, Non-Banking Financial Companies (NBFC), public sector undertakings, hospitality conglomerates and more.

The SDK was envisioned as an enhancement that would integrate seamlessly into the client's system to enable customer onboarding, user authentication, KYC and related biometric technologies. However, the solution was in its infancy in terms of technological competence.

On the lookout for a seasoned expert in the development of platform-independent digital biometrics and authentication tools, Daffodil Software was chosen due to its prowess in this domain. The

existing SDK had limitations in categorically identifying official documents, recognizing obstructions during live image capture and had other missing features.

Daffodil was required to implement the following in the resultant SDK:

- Enable highly intuitive and easy implementation of the SDK for onboarded clients
- Ensure precise verification to eliminate fraudulent document upload
- Optimize document images and live customer images through calibrations for capture resolution
- Implement auto-detection of document type
- Create multiple versions of the SDK with different levels of feature integrations

# The Solution

Daffodil was quick to innovate on ideas to implement the SDK's enhancements in a cost-effective manner, while providing short turnarounds and an uninterrupted development lifecycle. The utilization of cutting edge Machine Learning platforms and dependencies such as ML Kit and TensorFlow ensured that the final solution was state-of-the-art. The enhancements carried out as per the requirements were as follows:

## Precise Versioning

The Daffodil, at the outset, demarcated their efforts into the development of a trial version of the SDK for online stores, a basic showcase version and a subscription-based definitive version. The showcase version would be used to demonstrate the SDK's features to potential clients who would go on to cement the deal to use the

full version. The trial version is available on the Play Store and Apple Store for anyone to check and goes by IDentity 2.0.

## Image Calibrations

Due to the use of Camera X, a Jetpack library, in the development of the SDK, the biometric's provider's clients would not have to worry about device-specific nuances that their end-users may have to deal with. A buffer seamlessly passes the images captured over to ML Kit. The SDK also leverages Camera X to prompt the user to use a better camera resolution in case the existing one doesn't do a good enough job.

Additionally, the aspect ratio, orientation, and rotation are kept consistent with its help. While capturing a

customer's photo, if the camera detects obstructions such as hats or glasses, the customer is prompted to remove the same.

### **ML-based Document Type Detection**

If the document to be uploaded is not framed properly, there are prompts that tell the user to move the document captured a certain way only to include the necessary information for processing. Using ML Kit, the SDK has been trained with several images of different types of official documents used for KYC so that it recognizes which type of document is being uploaded, e.g., passport or social security card. Image-to-text capabilities can then pick up the relevant textual biometric data.

### **Frictionless SDK Integration**

Clients signing up with the biometrics technologies provider to use the SDK can implement it into their application with just a single line of code instead of having to take care of third party dependencies and other operating system-based or environment configurations. Moreover, the associated documentation for SDK implementation is extremely comprehensive and easy to understand.

## **The Impact**










Daffodil has been lauded by them for the intricate application of well-researched machine learning-based capabilities while adhering to a rigid timeline. With the introduction of machine learning technology, the client has been able to achieve 2X smoother verification of official documents and images and has established significant partnerships with global Fortune 2000 companies across the finance, public sector, healthcare, and hospitality industries. Moreover, top banks in the US and Mexico have been able to reduce fraud by over 90% and gain three-fold customer enrollment since entrusting them with their biometrics solutions.

# About Daffodil

For more than 20 years, Daffodil Software has been a trusted software technology partner to organizations across the globe. We take pride in our ability to look beyond technologies & deliver innovative solutions.

Daffodil is a CMMI level 3 accredited organization with innovation, tech agility & process orientation rooted deep within the core. Our team of 1000+ technologists strive to shape the tech industry and help businesses elevate their value proposition through technology.

## Technology Partnerships & Certifications

## Awards & Accolades

### GRANDVILLE, USA

2885, Sanford Ave SW  
#28585, Grandville,  
MI 49418 USA

### GURGAON, INDIA

9th Floor, Tower B1,  
DLF SEZ Silokhera,  
Sector 30, Gurgaon  
122001

### DUBAI, UAE

Suite No.: 407- 412,  
Clover Bay Tower,  
Business Bay, Dubai  
United Arab Emirates

### HISAR, INDIA

6th Floor, Metropolis Mall,  
Industrial Area, Hisar,  
Haryana - 125005