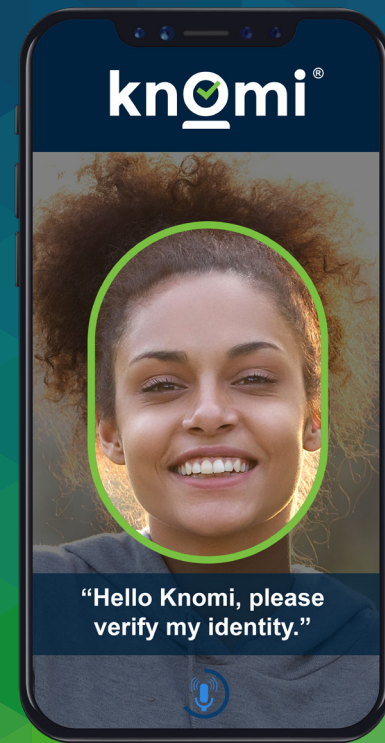




Liveness Detection

Face and voice liveness detection for biometrics-enabled mobile onboarding and authentication

Biometrics make mobile onboarding and authentication more convenient and secure, but liveness detection is essential for biometric applications where security is paramount and fraud is a risk. Liveness detection assures the integrity of a variety of biometric security checks, including mobile authentication, document verification, and watch list search. Knomi provides the best-performing device-independent liveness solution available that is truly passive, with an opaque user experience that does not instruct a fraudster how it might be defeated.



The Knomi mobile biometric authentication framework offers high-performance, field-proven face and voice liveness detection, with a family of machine learning-based algorithms that detect and prevent virtually all types of biometric presentation attacks. Knomi detects attacks attempting victim impersonation as well as those attempting identity concealment, which is especially important for onboarding. Knomi's face liveness algorithms detect obstructions and distortions, and work in low-light and bright-light conditions on all types of faces.

Voice authentication and liveness can be optionally be added and fused with face to make spoofing exponentially more difficult for fraudsters. Knomi detects a variety of voice spoof types, including recorded, filtered, and synthetic voice spoofs.

Knomi SDKs and APIs can be incorporated into either a mobile-, browser-, or kiosk-based application. It can be implemented with a server-, or device-based architecture (with, **Knomi S**, or **Knomi D**, respectively). Server-based Knomi Web enables face capture and liveness detection from a browser on a mobile device or desktop.

FEATURES

- **Liveness detection algorithms and workflows optimized for onboarding, mobile authentication, document verification, and kiosk-based solutions**
- **Purely passive, machine learning-based approach, with no user friction**
- **Opaque user experience that avoids training fraudsters how to defeat it**
- **Device- or server-based implementation alternatives**
- **Configurable workflows and performance thresholds**
- **Easy integration using on-device SDKs, server-based APIs, and reference UI code**
- **Browser-based capture mode works on mobiles and desktops**
- **A la carte purchase options, with liveness, matching, face, and voice offered independently**
- **Server-based option that works across devices without multiple enrollments**
- **iOS and Android mobile versions; Windows and Linux server versions**
- **Comprehensive technical support**

USE CASES AND OPTIONS

	Mobile app	Mobile browser	Desktop browser	Kiosk
Onboarding	✓	✓	✓	✓
with document verification	✓	✓		
with biometric search	✓	✓	✓	✓
Biometric authentication	✓	✓*		✓

* In support of mobile out-of-band authentication

ATTACK TYPES DETECTED

Victim impersonation

- Fraudster attempts to defeat a security mechanism by impersonating a victim with a biometrically matching spoof

Identity concealment

- Fraudster attempts to conceal their identity to avoid detection in biometric searches and eliminate evidence of their activity

ATTACK DETECTION FEATURES

Face

- Detection of
 - Digital photos and videos
 - Paper photos and masks
 - High-quality 3D masks
 - Partial obstructions and distortions
- Low-light and bright-light conditions
- Wide range of face types
- Optional fusion with voice

Voice

- Detection of
 - Recorded voice
 - Modulated voice
 - Filtered voice
 - Synthetic voice
- Optional fusion with face



A W A R E

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Aware is a leading global provider of software products and solutions for biometric identification and authentication. They are used for variety of applications including financial services, enterprise security, border management, and law enforcement. Aware is a publicly held company (NASDAQ: AWRE) based in Bedford, Massachusetts.

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