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Armatura PalmMobile SDK

Overview

Armatura PalmMobile SDK (AKA PalmMobile SDK) is a set of Artificial Intelligent Computer Vision palm recognition technologies running on PC, Tablet or Mobile device. Such devices can be Android/iOS smartphones, tablets, Android handheld devices, or PC/Laptop. PalmMobile SDK provides rich interfaces to access the palm recognition functions, including palm detection, liveness detection for anti-spoofing protection, template generation, matching and verification.

PalmMobile SDK is a pure software development toolkit that can be deployed on popular operating systems including Windows, Android, and iOS. It does not rely on special palm capturing device other than a standard digital camera or web camera available on the smartphone, tablet, or PC/laptop.

PalmMobile SDK encapsulates the palm recogniton algorithm details, provides intuitive and easy-to-use interfaces to developers for agile integration development. Comparing to face recognition, especially for the customers who is more concern of the privacy issue, PalmMobile SDK is a perfect alternative touchless biometric solution and fit to a wide range of cloud base mobile authentication applications.

Features

Armatura PalmMobile algorithm comprises multiple palm models trained by cutting-edge deep-learning algorithms, including palm detection model, palm quality model, palm anti-spoofing model, and palm recognition model. Fed with the true-color palm images by the SDK, PalmMobile algorithm is to analyze the palm surface prints such as palmprint lines, minutiae, and wrinkles. These palm texture patterns provide unique, stable, and rich details and make highly accurate biometric recognition possible.

The algorithm employs multi-layer neutral network to detect and extract the palm print features, evaluate live likelihood to ensure it is from a real person, and identify the probe image from the base library. This provides highly efficient, and highly secure palm recognition operation.

- **High-Speed Palm Recognition**

The proprietary deep learning model boosts the PalmMobile algorithm recognition performance. The test shows that on a standard PC it takes less than 0.5 second to complete the full cycle palm recognition process from palm detection, liveness detection, feature extraction to palm identification.

- **Highly Adaptable to Various Palm Postures**

PalmMobile algorithm is highly adaptable to the palm postures, it can identify the palm in different postures, including the palm from natural bended to tensed state, or the palm in wide angle of yaw, pitch or roll postures. The adaptability improves the user experience and makes this new technology widely accepted in various applications.

- **Accurate and Robust Palm Recognition**

The PalmMobile Algorithm achieves high accuracy matching result with the true pass rate over 99%. It also gives the same level of accuracy on people from different races and different skin colors.

- **Highly Accurate Liveness Detection**

Utilizing deep learning-based liveness detection model trained by large-volume palm data, PalmMobile algorithm can identify fake palm from printed palm pictures, digital palm photos or videos, custom-made 3D palm models, this well protects the biometric authentication systems from spoofing hack.

Algorithm and SDK Specifications		
SDK Name	AMT PalmMobile SDK	
SDK Size	Android Jar Lib	< 100MB
	Windows DLL lib	< 200MB
Minimal Image Size	160W * 120H (pixel)	
Pose Range	Yaw≤45°, Pitch≤30°, Roll≤90°, Bend≤30°	
Template Size	544 Bytes	
Performance*	Palm Detection Time	< 15ms
	Template Extraction Time	< 45ms
	1:10,000 Matching Time	< 1 ms
Match Mode	1:1 Verification and 1:N Identification	
1:N Capacity	10,000	
Accuracy**	TAR =98.3% when FAR = 0.02%	
Operation System	Windows	Windows XP, 7, 10 (x86 & x64)
	Android	Android 4.1 and above
	Linux	Provided on request
Program Language	C/C++, C# and Java	

Note:

[*] The algorithm is assessed on Intel® Core™ i5-9400@2.9GHz processor and 16GB DRAM.

[**] The accuracy is assessed on the proprietary palm image data set.

TAR: True Acceptance Rate, FAR: False Acceptance Rate.

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