

# **SUPREMA** NEWSLETTER 2016 Q2



INTRODUCING THE NEW

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## Techincal Column

## Suprema to provide BioMini Slim fingerprint scanners with Live Finger Detection to Jordan for biometric verification for issuance of national ID.



Suprema has secured national ID issuance project in Jordan with our BioMini Slim™ fingerprint scanning solution. The project, steered by Ministry of Information and Communications Technology (MoICT) through OFFTEC, is aimed to develop ID verification system during national ID issuance by performing fingerprint verification of recipient. Suprema has completed the delivery of BioMini Slim scanners that will be deployed across the country. The deployment of scanners will ensure protection of personal information by preventing false issuance of identification.

BioMini Slim is a FBI PIV and Mobile ID FAP20 certified USB fingerprint scanner featuring Suprema's leading-edge live fingerprint detection technology. The scanner is designed to provide a high

level security solution for identity access management solutions for authentication. With its IP65-grade dust and waterproof structure, BioMini Slim features sleek ergonomic design with the latest 500dpi slim optical sensor.



## BioMini Slim™

FBI PIV/FAP20-certified USB Fingerprint Scanner  
with Live Fingerprint Detection



## Live Fingerprint Detection Technology



Suprema live fingerprint detection technology provides industry's most secure anti-spoofing biometric solution. Suprema's patented live fingerprint detection technology well blends its advancements of image analysis techniques and optical engineering to effectively eliminate possible fraud using various fake fingerprint materials including clay, rubber, silicon, paper and film.

"We are very pleased to offer biometric solution to the population of Jordan." Said Bogun Park, Director of ID Sector. "As a leading

innovator of biometrics-driven security solutions, Suprema aimed to deliver best-of-breed, and the most versatile solution to the market. BioMini Slim's live finger detection technology and long list of features will provide the security and versatility that is needed to make it an effective solution for its needs," Park added.

The scanners will be integrated with MoICT's internal systems by Gemalto using BioMini SDK that is available in Windows, Linux and Android format.

## New Product Introduction

Now supports contact & contactless smartcards

# BioMini Combo

Suprema BioMini Combo has been designed to provide two factor authentication security solutions for authentication purposes. The scanner features Suprema's latest slim optical sensor with large platen size for easier capturing. Smart card reader functionality and advanced Live Fingerprint Detection technology enhances security makes BioMini Combo a secure platform for developers.



### Contact/ Contactless Smart Card Reader for Stronger Authentication

BioMini Combo supports contact and contactless smartcards with optional SAM slot. Combined with fingerprint sensor, the scanner provides capability for two factor authentication for versatile security solution applications.



### Advanced Live Fingerprint Detection Technology

BioMini Combo provides advanced Live Finger Detection technology by applying a machine learning method that analyzes and categorizes image patterns according to optical characteristics.



### Multi-Dynamic Range Technology

BioMini Slim can acquire fingerprint regardless of external light or fingerprint conditions, applying Suprema's proprietary MDR technology, an improvement on existing HDR technology. It can get normal fingerprints even under 100,000 LUX direct light, which is equivalent to direct sunlight.



### FBI PIV and Mobile ID FAP20 Certified Image Quality

The Scanner features Large Platen that spans 0.71" x 1.0" (18mm x 25.4mm) wide, which is well above the FAP20 Standard that spans 0.6" x 0.8"

## The scanner is available in three variants.



Contact



Contactless



Dual

The extensive card support offers unrivalled versatility and the advanced live detection technology offers superior biometric security that gives scanner the competitive edge. The compatible card options are as follows

### Contact Card Support

- ISO 7816 Class A/B/C (5V, 3.0V, 1.8V) T=0, T=1
- EMV2000 contact smart card with SAM Slot (optional, max 2x SAM)

### Applications

- PC/Network Security
- Smartcard Application
- Time and Attendance System
- Public Application
- Healthcare
- Telecommunication
- Banking/Finance
- POS/mPOSATM/Kiosk
- Enterprise

### Contactless Card Support

- ISO/IEC 14443 A&B, Mifare, Felica
- NFC Forum tag types (Jewel, Mifare Ultralight, Felica, Felica lite, Mifare, DesFire)
- EMV2000 Contactless Smart Card
- Frequency 13.56MHz +/- 7KHz
- Distance transaction: Up to 10cm
- Baud: 106/212/424/848 kbit/s

### Specification

Main	Sensor Type	Optical
	Resolution	500dpi / 256 gray
	Platen Size	18.0 x 25.4 mm (0.71" X 1.0")
	Sensing Area	17.0 x 25.0 mm (0.67" X 0.99")
	Image Size	320 x 480 pixels
	Compression Standards	WSQ
	Template Format	Suprema, ISO19794-2, ANSI-378
	Image Format	ISO19794-4
Contact Card Support	Contact Smart Card Reader	ISO 7816 Class A/B/C (5V, 3.0V, 1.8V) T=0, T=1 EMV2000 contact smart card with SAM Slot(optional, max 2x SAM)
Contactless Card Support	Contactless Smart Card Reader	ISO/IEC 14443 A&B, MIFARE, FeliCa
		NFC Forum tag types (Jewel, MIFARE Ultralight, FeliCa, FeliCa lite, MIFARE, DESFire)
		EMV2000 Contactless Smart Card
		Frequency 13.56MHz +/- 7KHz
		Distance transaction: Up to 10cm
Interface	USB	Baud: 106/212/424/848 kbit/s
		2.0 CCID, PC/SC driver
Hardware	Operating Temperature	-10°C ~ 50°C
	Certification	CE, FCC, KC, UL, WHQL, USB-IF, WEEE
	Dimensions	82.0 x 57.7 x 27.0 mm (W x L x H)
Compatibility	Operating System	Windows Linux

## Case Study

# True Identity Ensures Fairness & Integrity for Tanzania Immigration



## PROJECT BACKGROUND

In 2009, the African Capacity Building Centre (ACBC) was established, in Moshi, United Republic of Tanzania to improve the migration management capacity of African States, promote comprehensive migration governance and facilitate a diverse range of immigration and border management projects and training courses. The Centre is hosted by the Tanzania Regional Immigration Training Academy (TRITA) and this unique partnership has benefited both in terms of joint training programs and workshops as well as regional support.

## THE CHALLENGES

Tanzania's geographic location, bordering eight other countries within Eastern and Southern Africa, makes it exposed to various migration movements throughout its territory. Due to countries political stability compared to neighboring countries, been hosting a large refugee population for many years. However, given the recent positive political developments within the region, and the ongoing resettlement programs, the overall refugee population in Tanzania is decreasing.



## RealScan-G10

### Ten-Print Enrollment Scanner



Irregular movements of migrants from the Horn of Africa, through Tanzania, to South Africa and beyond have increased during the last years. The growing phenomenon of smuggled migrants and irregular migration is an issue of concern for the Tanzanian Government. Due to the recent political instability in the horn of Africa, these irregular movements are expected to continue, creating a humanitarian situation for many of these vulnerable migrants.

Moreover, Tanzania has been identified as a country of origin, transit, and destination for trafficked persons. The sectors concerned include the agricultural and mining sector, mining, fishing and domestic services, as well as the sex industry, and victims are adults as well as children. While data is scarce, victims have been found to have originated from neighboring countries as well as the Middle East and Asia. Tanzanian victims are frequently trafficked to South Africa as well as to several European Union member states.

## OUR SOLUTION

Suprema has supplied world best Enrollment and Authentication scanners to Tanzania to aid the refugee control efforts. Considering the harsh environmental conditions it has selected RealScan-G10 and BioMini Slim that are both rugged and weather resistance with its IP54 and 65 rating respectively.

The devices will be received through the IOM African Capacity Building Centre (ACBC) and be integrated into the Migration Information and Data Analysis System (MIDAS) for its immediate deployment in the field.

## Technical Column

# Suprema's Live Finger Detection 2.0

Technology related to physical security systems has made great leap forward, however traditional authentication methods such as locks and keys, PIN, cards are still widely used. This leads to potential risks of credential breach where credentials are passed to others, lost or stolen that ultimately leads to compromise in security. Biometric authentication can easily resolve such problems, drastically enhancing security and credibility of personal authentication by forcing the use of true identity and prevent people from authenticating oneself using someone else's credentials.

The advantages provided by biometric technology allowed quick adoption by the security markets. Among the biometric technologies, fingerprint technology offered most flexibility with cost benefits that allowed its adoption to various applications. Today, fingerprint is the most flexible and reliable method with higher recognition rate than any biometric technologies such as iris, facial, and vein recognitions. However, there's also a growing concern with regards to the usage of fake fingerprints. Since fingerprint residue can be easily captured from things that we touch in our daily lives, if we do not pay enough attention, somebody can capture and replicate your fingerprints and use them for malicious purposes.

## *Big Enemy; Fake Fingerprint and Spoofing*

The replicated fingerprint made from materials like clay, gelatin, silicone and rubber is called 'fake fingerprint' and authenticating with these fake fingerprints is called 'spoofing'. After the release of the iPhone 5S and introduction of a built-in fingerprint sensor, contests were held to crack the device's fingerprint scanner have been held with lots of hackers joining the competitions and numerous IT magazines reported about the vulnerability of the fingerprint sensor against fake fingerprints. Numerous videos have been recently uploaded on YouTube where hackers breached the security by making fake fingerprints from Play-Doh, gelatin, silicone, rubber and the like and explained how to make the fake fingerprints.

## *What is the solution?*

## Suprema's Live Finger Detection technology

Suprema's Live Finger Detection (LFD) technology is based on analysis of dynamic and static image characteristics of the fake fingers, and how they can be distinguished from those of live fingers. With the advanced analysis algorithm to detect abnormalities in dynamic changing pattern of fingerprints images, and several static features of liveness or unnaturalness of fingers, fake fingers are clearly distinguished from live fingers.



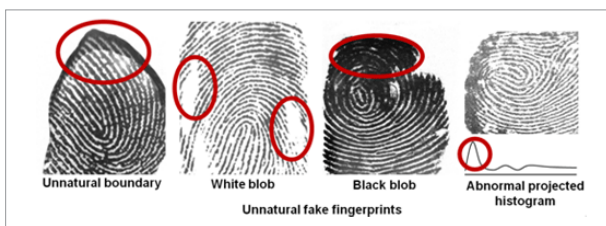
#### Dynamic changing pattern analysis

As fingers gradually make contact with the sensor surface, live fingers naturally demonstrate changes in patterns of area, intensity, and movement, but fake fingers produce unnatural changing patterns of separated areas, partially dark area, distorted boundary shape, and large movement of core part. By detecting these abnormalities in dynamic changing patterns from continuous analysis of fingerprint images, fake fingers are distinguished from live fingers. Specifically, this method is very effective in rejecting fake fingers made from hard materials such as paper, film, clay, and hard rubber.



#### Liveness feature analysis

In fingerprint images, there are several localized features which reveal the liveness of fingers: pore distribution, ridge sharpness, regularity of ridge-valley boundary among others. These localized liveness features are normally too small and elaborate to be copied by simple and soft faking materials such as silicon, rubber, and gelatin. Since Suprema's high performance imaging sensor can capture high quality fingerprint images, and various local liveness features are can easily be distinguished by our advanced analysis algorithm.



#### Unnaturalness feature analysis

Usually, it is very hard to make a perfect fake finger and almost every fake fingers cannot avoid revealing their unnaturalness - unnatural sharp boundaries, too many white blobs or too large black blobs within fingerprint area, abnormal peaks in histogram distribution, and so on. By observing the mixture of numerous unnaturalness features, numerous fake fingers are effectively rejected.

## New LFD Technology & Liveness Decision Engine

Suprema's newly developed Liveness Decision Engine (LDE) can effectively prevent spoofing. It detects fake fingerprints with a technology called Dual Light Source Imaging which utilizes infra-red rays and a white light. The LDE can block fake fingerprints made from paper, film, glue, rubber, clay and silicon all together by comparing images obtained with white lights and infrared rays.

The new OP5 sensor applied to Suprema's recently released fingerprint readers has reduced distortion and improved contrast uniformity, and features Adaptive Gain Control algorithm and a proximity sensor, which enables the sensor to detect fake fingerprints made from paper, film, glue, rubber, clay and silicon all together.

## TECHNICAL UPDATES

## What's New in the BioMini SDK for Android 1.2

### *Improved Compatibility with BioMini SDK for Android*

The newly updated BioMini SDK for Android 1.2 enhances compatibility with 2 new key updates. It now supports best selling BioMini authentication scanner, and supports BMP image format that enables the SDK to store clear fingerprint image directly to android device.

BioMini SDK for Android gives developers the integration tools needed to use standards-based, optical fingerprint readers with their Android applications. BioMini SDK provides developers with the choice of platform that best fits their needs and budget.

The SDK embraces image and template standards and has a MINEX-certified extractor to help match algorithms and to comply with what it says is a growing customer requirement for standards support.

#### 1. Additional Device Support

BioMini SDK for Android 1.2 extends its support to price competitive, yet highly capable BioMini Authentication Scanner.

The SDK now will allow customers to select the correct scanner for their need.

#### 2. More Image Format Support

The new version provides capability to store fingerprint image data in BMP file format that is much more clear and compatible with Android devices.



## TECHNICAL UPDATES

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