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## Technical Column

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### Suprema's fingerprint recognition algorithm against dry fingerprints

In either cold or dry environments, the state-of-the-art fingerprint sensor applied to Suprema's products demonstrates performance that far surpasses other companies' fingerprint sensors. With its state-of-the-art fingerprint sensor and superlative algorithm, Suprema provides performance that is about 31 times higher indoors and about 19 times higher outdoors than other companies' products.

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### Security Threats to Face Recognition and FaceStation 2 Technology

The authentication through face recognition is as prone to spoofing as fingerprint-based methods. Is its security also vulnerable to similar methods?

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### Suprema Multi-dynamic Range (MDR) Technology

Compared to the fingerprint access control devices installed in a fixed position, fingerprint authentication scanners are more likely to be used in a varied positions and locations. Suprema's patented MDR technology is available in selected BioMini models, namely BioMini Plus 2, BioMini Combo and BioMini Slim. MDR technology delivers greater benefits to mobile authentication applications where fingerprint scanners are connected with mobile devices in varied locations and positions.

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### Multiple sub-IDs of FaceStation

Face recognition is gaining much more attention relative to other biometric recognition technologies due to not only the simple convenience it provides but also its ability to avoid various privacy issues. As facial information is publically displayed, there is little concern for a user to show his face to the device.

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### Suprema's Fingerprint Algorithm

Suprema has developed a fingerprint verification algorithm, which has been proven to be one of the most advanced technologies in Fingerprint verification contest (FVC). It is the core technology of our company, which can be applied to the embedded module, PC authentication library, and various application products.

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### Adaptive IR Illumination Technology for Face Recognition

Variations in background illumination have always been one of the main challenges for a practical face recognition system. Active illumination based face recognition techniques are considered to be one of the most promising and practical methods used to solve illumination issues in indoor applications.

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## BioStar 2 and Web Security

This article explains the differences of the two security protocols (HTTP and HTTPS) that are being by used by BioStar 2, which is a web-based security platform, and explains the reason why HTTPS should be used.

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## Smart Enrollment Technology for Face Recognition System

Human face is one of the most common and non-intrusive biometrics used to identify individuals. It is much more universal, acceptable and easier to access than a fingerprint. Recently, the use of face recognition technology in cooperative biometric systems such as access control, time & attendance and PC security is increasing.

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## Hyper Data Transfer for BioStar 2

The available memory bandwidth and increasing CPU performance outpace that of I/O devices. As a result, handling the I/O operations perfectly is the key point for designing a system architecture. For this reason, the BioStar 2 server adapted an asynchronous system architecture for handling network I/O operations. Before taking a deep look into the asynchronous system architecture, let's understand the synchronous system architecture first.

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## How to clean fingerprint sensors

The fingerprint sensors can be soiled by user's fingers, dust, or other sources. This contamination may affect image quality, degrading authentication performance.

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## New Image Compression Technology of SFM5500 Series

The SFM5500 series overcame this problem and have been equipped with the new technology to compress fingerprint images and quickly send high quality images via a low bandwidth network environment. When compressing, the quality degradation is minimized (Figure 2), but the data size is lowered by 90%, reducing the time it takes to be sent by 90%, as well. Moreover, you can set the system to compress images in different levels, enabling you to appropriately adjust the transfer speed and the image quality according to its use.

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## RS-485 Wiring Guide

RS-485 signaling relies upon balanced and differential signaling scheme, and has many advantages over unbalanced signaling such as RS-232, such as strong noise immunity and multi drop configuration capability. These are the most frequently-asked questions on using RS-485 signaling systems, which are worth reading before designing a RS-485 BioStar network system.

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## Proper Use of Relays

This article is intended to introduce a basic application guide for relays in access control devices. Additionally, a means to prevent undesired arcing in relay contacts is proposed, to suppress unintended radiation and maintain relay lifespan.

## Next Generation Verification

## Scanner, BioMini Slim

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BioMini Slim, the world's thinnest PIV certified FAP20 optical scanner, is made using key optical technology, image acquisition and algorithms accumulated over 10 years. It is a new concept scanner overcoming the available environmental limits of existing scanners and is optimized for the mobile environment.

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