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FaceStation 2 | Your face is the key

Face is one of the easiest way to distinguish a person from another. Even a toddler can recognize the mother's face several days after the birth. It's more intuitive to recognize a person by face than by other factors such as how a person walks, their voice, and height.

Biometric authentication systems use physical traits such as fingerprint, face, iris and vein as a credential. Among others, face recognition terminals use face as a credential, which is the most similar way for a human to recognize a person. Due to this nature of the face recognition technology, people feel comfortable to perform the face authentication.

Fingerprint recognition devices, which are the most commonly used for biometric authentication, are equipped with an optical sensor. As the face recognition utilizes cameras to identify a person, it does not require an optical sensor. Thus, it allows a user to perform authentication without physical contact. Since face recognition terminals use IR (Infrared) technology, one of the major drawbacks of face recognition is the limitation of installable location: a face recognition terminal will perform poorly when it's installed outside or near windows because of the strong ambient light.

FaceStation 2, Suprema's newest face recognition terminal, goes beyond this limitation. It is an access control and time and attendance terminal, featuring better user experience with Android 5.0 Lollipop and Suprema's latest algorithm, hardware and software. A wide range of functions and enhanced performance will provide users with a whole new different non-contact biometric authentication experience.

## Enhanced face recognition technology and near infrared LED

Processing ambient light is critical to the face recognition performance. Most of face recognition terminals out in the market have limited installable locations because the recognition performance varies depending on the strength of ambient light.

FaceStation 2 has 80 wide angle near infrared LEDs and 60 narrow angle near infrared LEDs, so it can recognize a face even in an environment with 25,000 lux, which is equivalent to an environment with full daylight (not direct sun). This allows users to install the terminals at indoor locations near windows, lobbies and building entries.
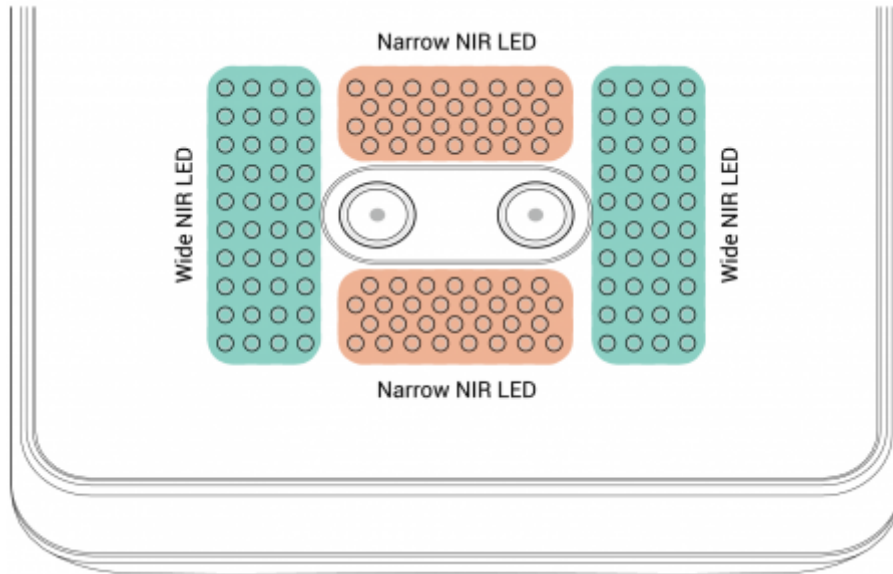
Another technology adopted by FaceStation 2 to enhance the performance is pixel intensity distribution analysis. One of the difficulties in using near infrared LED technology is the effects of ambient lighting. Ambient lighting can make near infrared LED lighting useless since it contains ultraviolet rays. Plus, the shadow on a face cast by ambient light can make it difficult for the face feature extraction algorithm to extract facial features.

The three-dimensional pixel intensity distribution analysis minimizes the effects of ambient light when acquiring face images. As a result, the terminal acquires near infrared images with the minimal variation of contrast. It is easier for the algorithm to recognize the shape of the face with these uniform contrast images than with too bright or dark images, so it can extract more varied features, thus can create high quality face templates. High quality face templates are crucial for the performance of face recognition.
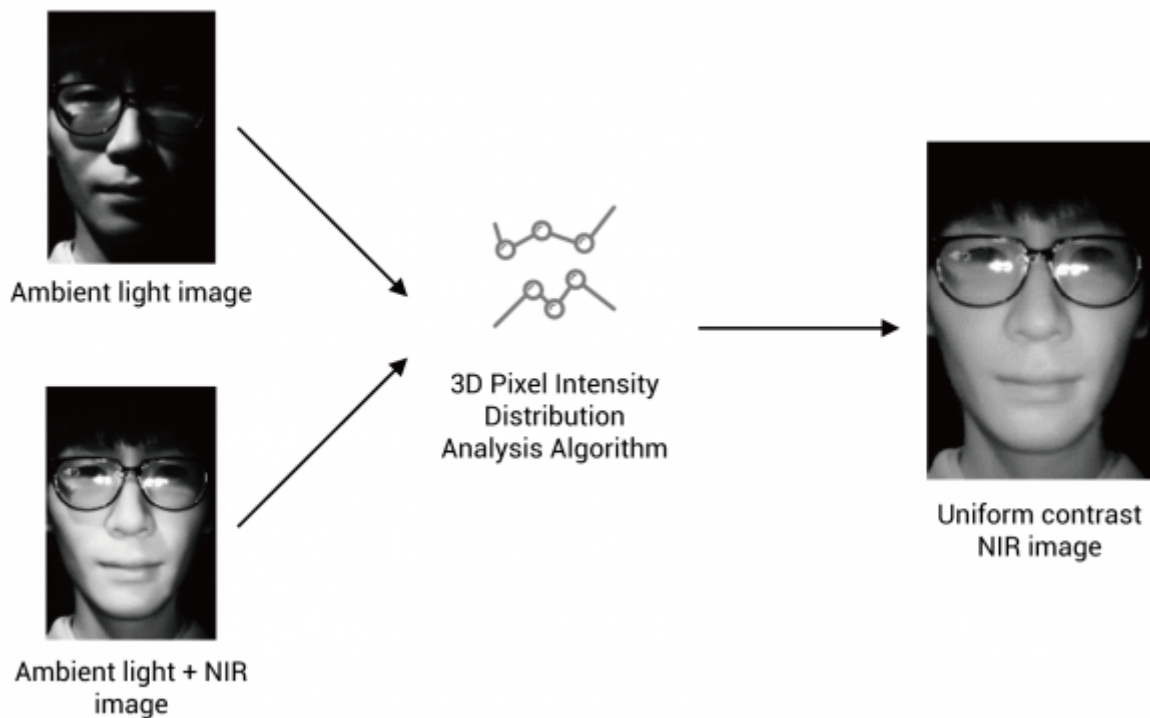
Ergonomic design

The angle and position of the cameras on FaceStation 2 are determined so that tall users do not need to bend their back too much. Plus, the different angles of view between the built-in visual and infrared cameras allow users to stand at a position that is most suitable for facial recognition (users can easily locate oneself by trying to locate one's face at a right position on the screen).
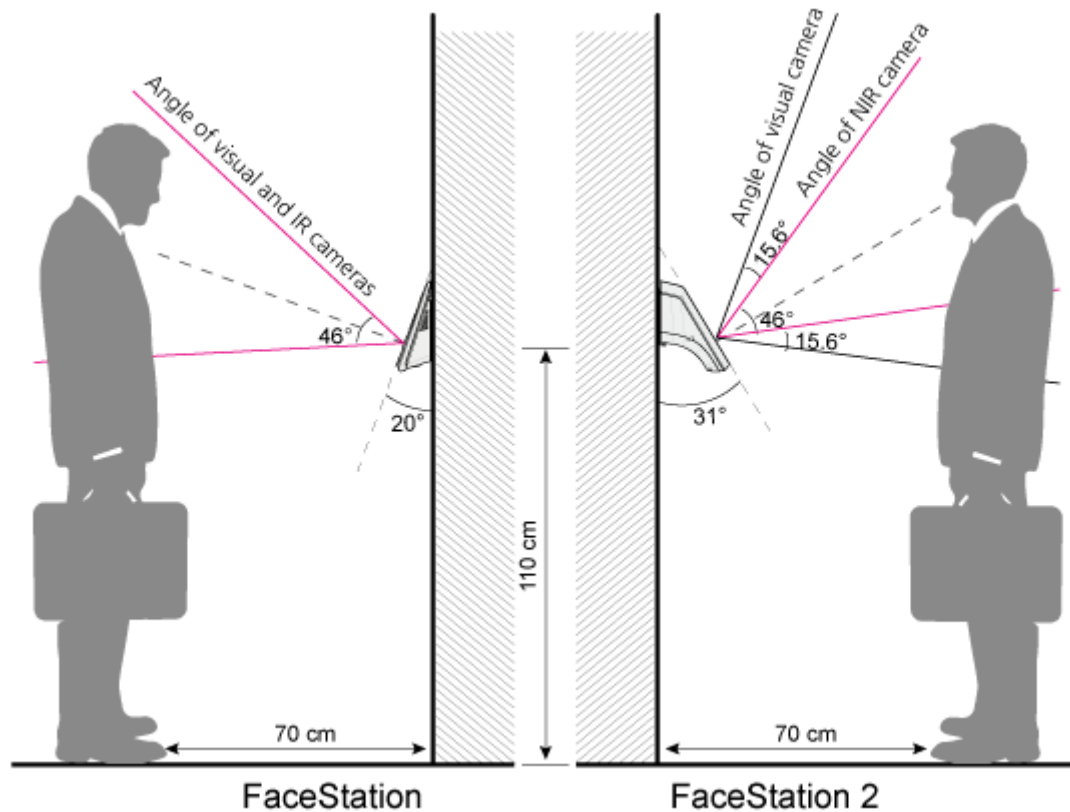
[Comparison of recognition coverage between FaceStation and FaceStation 2]

Incredible authentication performance with 1.4 GHz quad-core processor
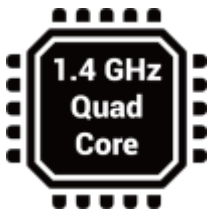
FaceStation 2 demonstrates exceptional performance, using its enhanced face template extraction technology and 1.4 GHz quad-core processor. It can perform up to 3,000 matchings (1:N) within one second. With the Group Matching feature, it can perform up to 30,000 matchings within one second.

Accommodating a broad array of RFID cards with Multi-RFID technology

FaceStation 2 features Multi-RFID technology, supporting 125 kHz and 13.56 MHz cards all together. If a customer is using 125 kHz cards such as EM and HID Prox and wants to change the access cards to a more advanced and secure 13.56 MHz cards (Mifare, Mifare DESFire, Felica, iClass), then employees at the customer's site can use both 125 kHz and 13.56 MHz during the transition period. FaceStation 2 also supports NFC and BLE communication technologies.
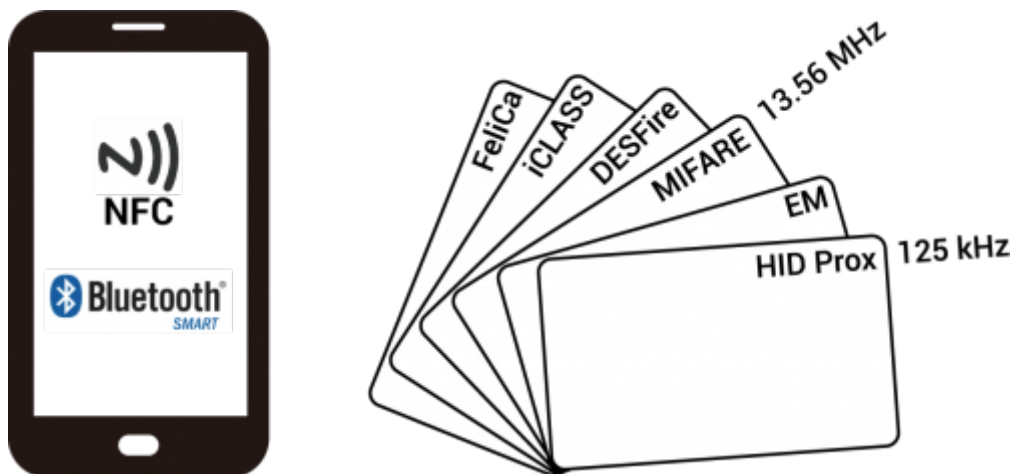
SIP-based VoIP videophone

FaceStation 2 works as a SIP (session initiation protocol) videophone as well, eliminating the need to install a separate videophone. If a SIP server is already installed at the site, you can utilize the existing SIP infrastructure. Otherwise, customers can install a well-known open source SIP server recommended and tested by Suprema to utilize FaceStation 2 as a videophone.
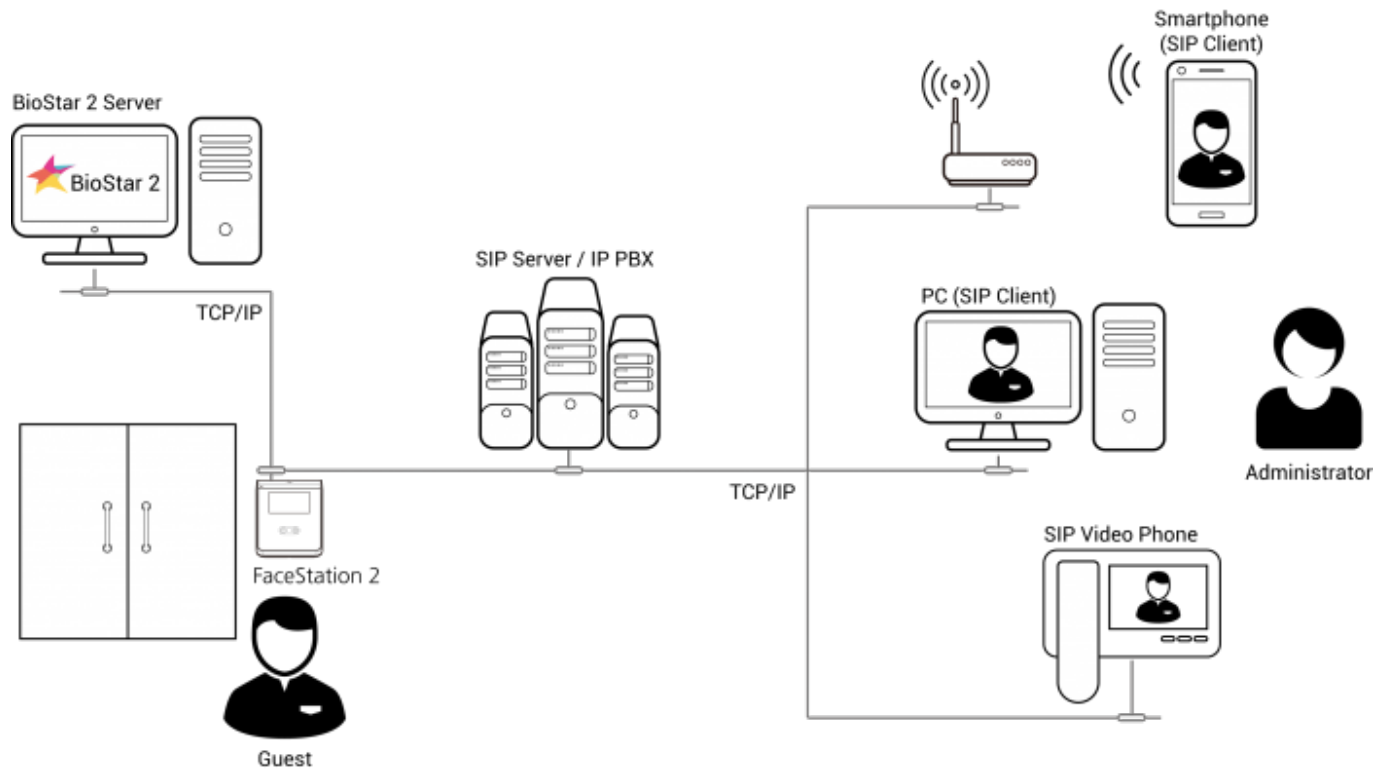
Live Face Detection

FaceStation 2 analyzes the actual photo and the IR image based on its dual camera system and intelligent machine learning algorithm. Hardware-dependent live face detection systems (e.g. facial thermogram recognition, facial vein recognition) require expensive hardware components and provide less accurate matches and slower performance in authentication. Suprema's live face detection technology provides users with ideal accuracy and speed for access control and time and attendance management.

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