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.

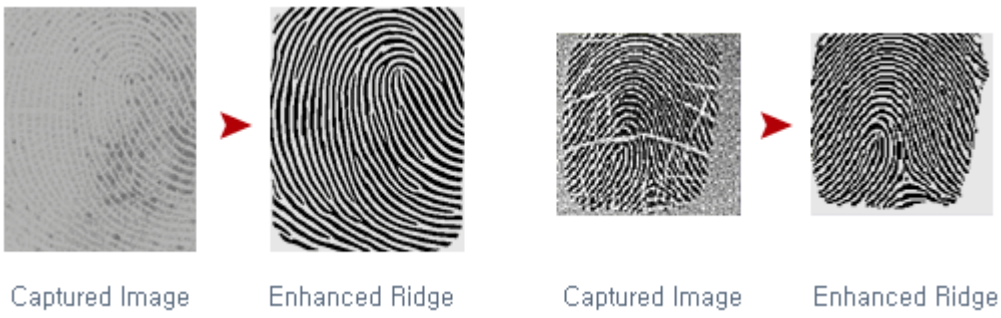
Advanced Minutiae Based Algorithm

Suprema's algorithm is based on the minutiae, such as ending, bifurcation, and singular points in the fingerprint images, which have been known to be effective clues for fingerprint verification. Moreover, global ridge information is also utilized to overcome the shortcomings of local minutiae features, resulting in the outstanding verification performance. The algorithm is divided into two major processing components, feature extractor and matcher.

Feature Extractor

Input fingerprint images captured from the sensors are noisy, in poor contrast, containing much flaw and smudge. Based on intensive analysis of the image characteristics, powerful image enhancement technique is developed, yielding high quality ridge image. Moreover, a lot of erroneous features are efficiently removed by noisy area reduction technique.

[Example of Image Enhancement 1]



[Example of Image Enhancement 2]

Matcher

Generally, there are trade-offs between matching speed and discriminating performance in conventional technologies. Our matching engine provides both fast matching speed and outstanding matching performance on noisy features, so that our algorithm is easily applied to the embedded systems, controlled by low-cost slow processors. And it also has the merit in searching large database.

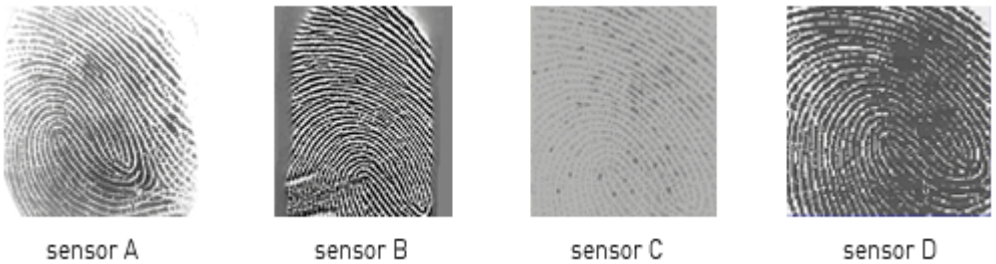
Platform interoperability

Suprema's algorithm is platform independent, enabled by low memory constraint, fast verification speed, and simple standard operations. This functionality enables the customers to integrate various platforms, such as PC and various controllers or DSP based embedded modules.

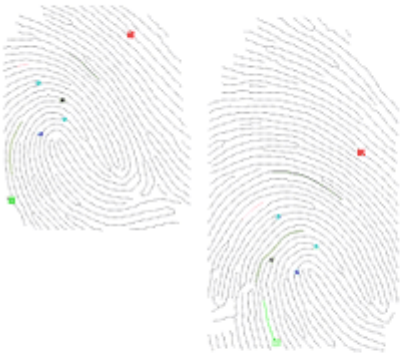
Sensor interoperability

Suprema's algorithm is interoperable on different sensor images. For example, the customer can enroll fingerprints on PC using SFR300-S scanner and can download to the standalone modules using different sensors like TC (Upek's TouchChip) or FL (AuthenTec's AF-S2).

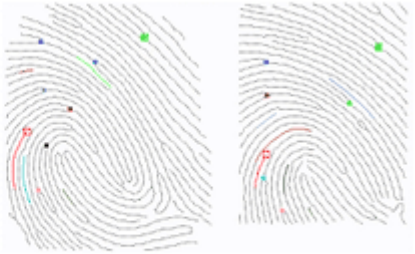
Interoperability Example



[Captured Fingerprint Images from Various Sensor]



Verification of A and B



Verification of A and C

Verification of A and D

[Verification Result]