

SmartFinger™: a Single Module for Fingerprint Recognition and On-Screen Navigation



The silicon sensor used in the SmartFinger™ module is the linear type where a finger is simply swept over the whole fingerprint area. This approach not only significantly reduces the size of the silicon sensor, and hence cost, but also reduces the overall size of the module—critical for the smallest third-generation terminals.

The software functions for authentication and navigation of SmartFinger™ are within the processing power of the ARM7 and ARM9 cores widely used in mobile terminal design. STMicroelectronics has licenses for a broad range of ARM cores, (including ARM9 and ARM7), which can be integrated in system-on-chip designs. A leading producer of Flash memory and secure processors, ST can also supply the chips required to store user identity data in the terminal.

ST is a member of the Mobile Electronic Transaction initiative (MeT) which is sponsored by all leading mobile phone makers. As a participant in the

standardisation process ST will ensure that SmartFinger™ modules are compliant with the specifications defined by MeT for mobile transactions.

In fact SmartFinger™ is the latest addition to ST's range of solid-state fingerprint biometric solutions. The company is already leader in this emerging market with the TouchChip family of biometric subsystems for personal computers and fixed terminals.

Fingerprint Recognition- the Simplest Answer for Authentication

Mobile commerce, the key to the success of third-generation mobile terminals, demands reliable authentication of users so that services such as purchasing, stock trading and transferring funds between accounts can be delivered without risk.

Passwords and personal identification numbers - the most common authentication methods used today -- are awkward for users, who often have so many that they need to write them down, compromising security.

To make matters worse, unauthorised user can watch as the password or PIN is entered on the keyboard. While voice and face biometrics eliminate passwords, and are useful in fixed terminals and closed environments such as

vehicles, they are less convenient on the street, in meetings or where there is a noisy audio or visual backgrounds.

Today, fingerprint authentication has been recognized as a secure method of identification

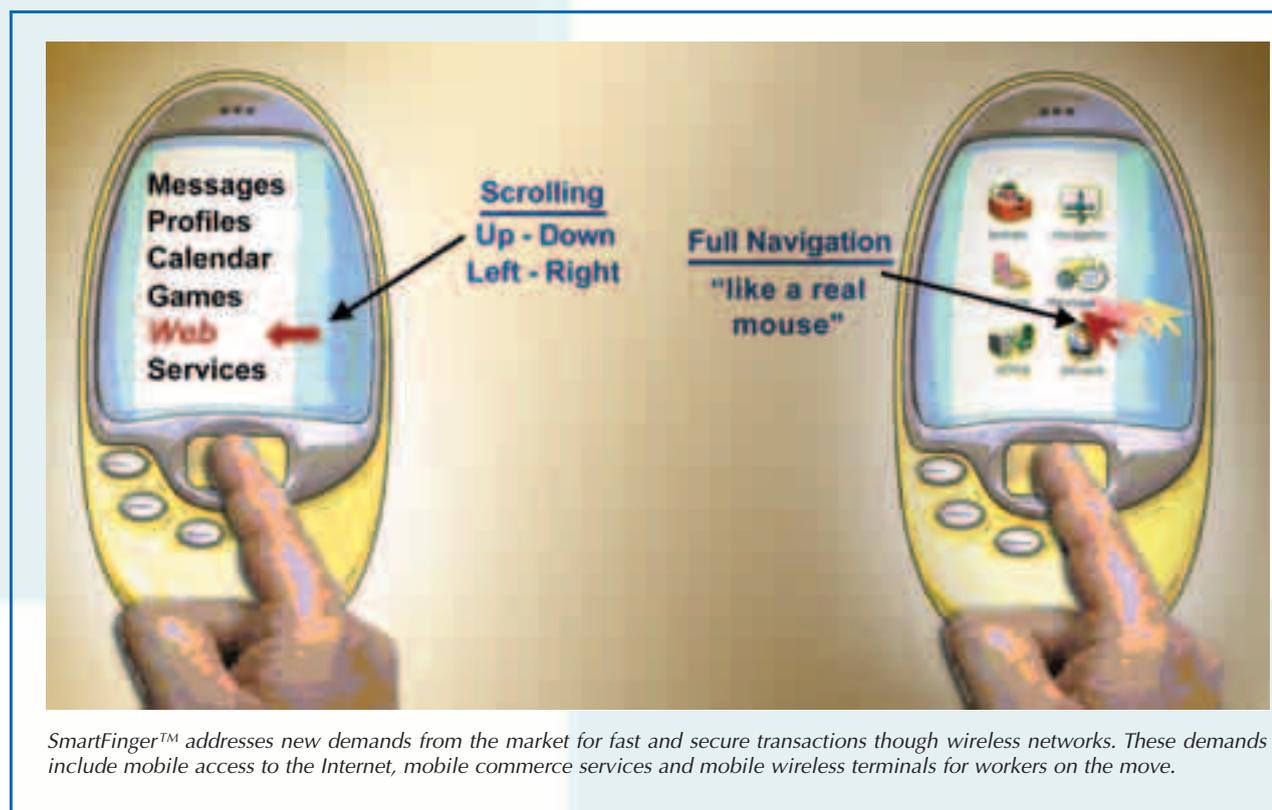
for more than a century, and is a fast silent and highly reliable process which does not inconvenience the user. Since SmartFinger™ combines recognition with navigation, the action of placing a finger on the sensor is automatic and natural.

Scanned fingerprints are analysed by the terminal during enrollment and reduced to a condensed form recording only key data. There are called minutiae, which are recorded in the flash memory of a subscriber identity module.

This approach reduces storage space, accelerates matching and eliminates the possibility of reconstructing a full print from stored information.

Privacy issues are addressed via the strategy of not transmitting the fingerprint data to servers; instead the scan is converted locally during login and stored inside the user's own terminal.

During subsequent operations, the scanned image is captured and matched inside the terminal, generating the authentication signal without releasing the actual fingerprint information to service providers or making the data vulnerable to eavesdroppers.



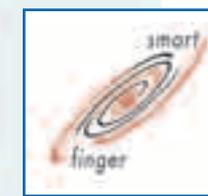
SmartFinger™ addresses new demands from the market for fast and secure transactions through wireless networks. These demands include mobile access to the Internet, mobile commerce services and mobile wireless terminals for workers on the move.



The Mobile Electronic Transactions initiative was founded by leading mobile phone manufacturers to establish a framework for secure mobile transactions. A major goal is to ensure that there is a consistent user experience independent of the device, service and network. By standardising the user experience mobile transactions will be accepted more rapidly by users. Sponsors of the MeT initiative include Nokia, Siemens, Panasonic, Sony and Ericsson. STMicroelectronics and IDEX are both associate members.

Module Data

- Module size: 15x7mm
- Image resolution: 500dpi
- Operating voltage: analog 2.5V, digital 1.5V
- ESD resistance: >15kV
- Operating temperature range: -20°C to 70°C
- Consumption: 40mA peak



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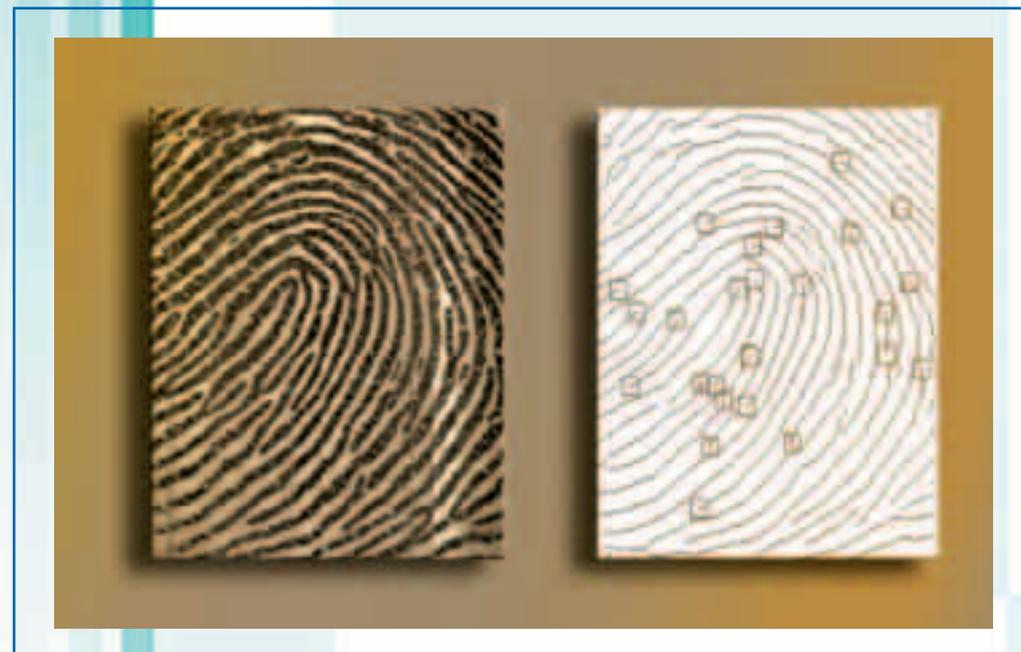
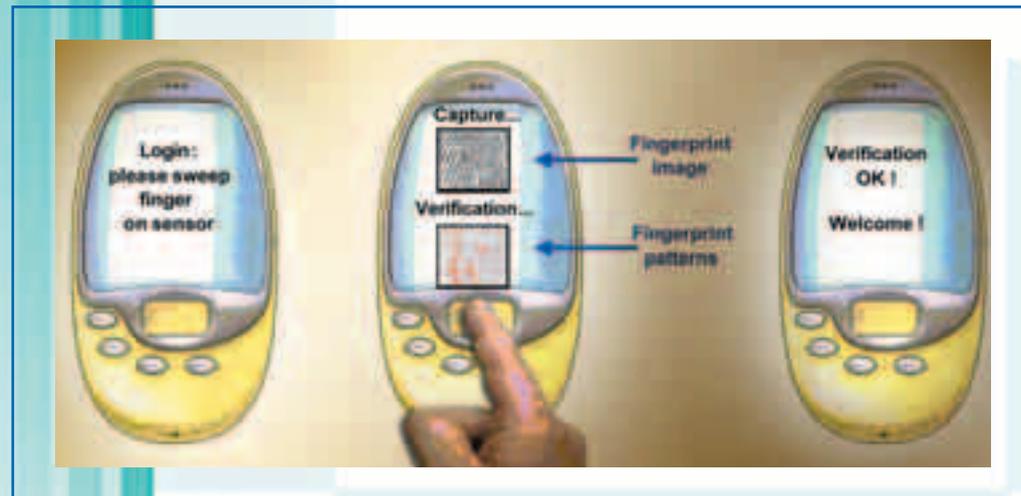
Compact, simple, reliable and cost-effective
solution for enabling mobile commerce in
next-generation mobile terminals

Designed for a wide range of mobile equipment including compact third-generation wireless terminals, personal digital assistants and portable PCs, the STMicroelectronics SmartFinger™ module combines fingerprint recognition and on-screen navigation functions in a single ready-to-use unit that saves space and drastically reduces product development time.

SmartFinger™ combines linear AC-capacitive fingerprint sensor technology, licensed from IDEX ASA, with ST's integrated circuit technology to provide both scan-type fingerprint access control and pointer operation, eliminating the need for a mechanical roller to implement on-

screen point-and-click navigation features. ST has an exclusive license with IDEX for this technology.

Natural and instinctive for users, SmartFinger™ gives terminal designers a proven and reliable solution that will fit in even the smallest form factor.



The SmartFinger™ identifies the user by acquiring a fingerprint image and comparing key points with previously scanned data.



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For selected STMicroelectronics sales offices fax:

France +33 1 55489569; Germany +49 89 4605454; Italy +39 02 8250449; Japan +81 3 57838216; Singapore +65 64820240;
Sweden +46 8 7504950; Switzerland +41 22 9292900; United Kingdom and Eire +44 1628 890391; USA +1 781 861 2678

Full product information at www.st.com/wireless



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