INTERVIEW

Verayo chip has a huge opportunity in India

Datta Nadkarni, CMO, Verayo, explains the features of Verayo chip which can bring about revolutionary changes in the way drugs are protected from counterfeiting, in a discussion with **Sachin Jagdale**

Explain the mechanism of Verayo chip.
The Verayo chip is an NFC/ISO14443-A high-frequency (HF) RFID Integrated Circuit (IC) device that incorporates Physical Unclonable Function (PUF) technology. The PUF technology enables true authentication of articles using the emerging NFC protocol in mobile phones.
Major features of the IC include:
- Passive RFID Tag – no external power required
- Contactless data transfer
- NFC/ISO14443-A RFID standard
- Physically Unclonable Function (PUF)-based True Authentication
- Near Field Communication (NFC) tag-compatible
- 13.56 MHz operational frequency
- 1024 bits of non-volatile memory (NVM) including: 96 bits factory-programmed unique ID & configuration 896 bits user memory (including 32 bits as user-programmable OTP) 32 bits of lock, reserved bits
- Simple reader access mode
- ISO 14443-3, Type A, Cascade Level 2 Anti-Collision• 106kb/s data transfer rate
- CRC and parity data integrity
- 50 pF resonant capacitor

A data sheet is available from Verayo, for the IC, on request.

How is this chip superior to 2D barcode?
2D barcodes are vulnerable to counterfeit and replication attacks because of their static nature. Even the user of additional technology, such as block chain, cannot prevent product substitution attacks as 2D barcodes can be replicated and counterfeit drugs with replicated 2D barcodes can be substituted while the product is in transit. Existing 2D barcode approaches assume a chain of trust in the supply chain. PUF-NFC approach allows one party to audit another through multiple dynamic authentication which is not possible with a static 2D barcode.

Embedded PUF technology makes each IC unique, with a large entropy space. This uniqueness in conjunction with a random challenge/response protocol provides for true authentication of articles. Additionally, the Verayo IC utilises the growing/ubiquitous mobile phone NFC infrastructure. This enables true authentication at the end-user, without proprietary systems/hardware.

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Do you have any case study to share?
We have used this chip in Canon: Anti-counterfeit of cameras, in the US: major tire company for tire tagging/inventory, geo-location tracking and in China: Major liquor company.

In which markets are you selling your chips? Can you name some of your major pharma clients?
Our chip technology is in use in the US with Dept of Defense, and only recently opened up for the consumer space. We have already deployed it in China for a liquor brand, Japan for Canon cameras etc. We saw a huge opportunity in India to save consumer lives by partnering with major drug companies and helping them deploy our chip technology. We have started talking with Indian companies only in the past three to four months. We now have a couple of pilot tests being implemented in the coming weeks.

With pharma companies already under huge pressure over drug pricing related issues, do you think using Verayo chips will further add to the cost of the medicine?
Yes, the incremental cost will be more; however, the benefits are much greater. Frankly speaking, What price can you put on saving human lives?
This chip offers the following key benefits:
- Prevention of supply chain substitution attacks
- Does not presume a chain of trust in supply chain; allows multiple parties to cross audit authenticity through dynamic challenge/response authentication (not possible with static ID that is the same every time)
- Consumer safety, saving lives
- True authentication to the end user
- Ubiquitous NFC deployment
- GPS location tracking of goods
- Direct marketing/sales
- User experience, dosage information
- Medicine reminders
- Back-end server software allows for applications not yet conceived

How do you plan to promote Verayo chip in India? Has it already been launched in the country? If not what is the approximate time frame set for the same?
We have talked to 30+ pharma companies in India along with other industries where product authenticity is important from a safety point of view for consumers, as well as brand protection for the manufacturers. We are in a soft launch mode for the next three months and implement a few case studies in multiple industries. After that we will leverage the media in highly visible public interest platforms in news, PR and product promotions jointly with product manufacturers.

Besides pharma, which are the other industries where Verayo chip will have an application?
It can have applications in:
- Currency with track n trace geo-location capability
- Authentication of consumer identity for "one view of consumer"
- University certificates for authentification
- Aadhar card address change/update
- Marketing/branding for various FMCG products
- The list is endless limited only by ours and our partners' creativity.

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