Identity of Things on the Blockchain

Unforgeable Identity for the Internet of Things

Identity of Things

Anti-Counterfeiting	Track and Trace	Provenance
Temperature Logging	Cold Chain Monitoring	Supply Chain Management
Tamperproofing	E-Commerce	Document Security
Proximity-Based Interactions	Secure Digital IDs	

Identity of Things

Smart phones with communication protocols like NFC and BLE and low cost chips put into consumer products, luxury items and packaging allow to equip the physical world to be "interacted" with, and create user experiences through an App. The App is the tool to discover and browse the things around you.

Discover

See Things that have an identity inlay

Buy

Shopping made simpler. Tap to buy anything nearby.

Insure & More

Add insurance, register your warranty and more.

Verify

Cryptographic identity inlays allow you to verify the authenticity of Things.

How it Works

Securely link any physical product to its digital identity on a blockchain creating an authenticity platform that utilizes encrypted microchips embedded in products to create a unique and unforgeable digital identity

Encrypted Microchips

Microchips embedded in products, devices, and machines broadcast tiny radio signals over the air containing unique data.

The microchips cannot be copied, cloned or corrupted.

Simple Verification

iPhone and Android phones constantly scan for these signals. If they enter within range an associated app responds.

Consumers can easily verify the authenticity of a product by scanning the microchip with their smartphone.

Interactivity

Microchips allow brands to build new ways for consumers to interact with their products

For example, an app could offer the option to Buy It Now, and verify the authenticity, or send a push notification that an item is on sale.

Engagement Control

An administration platform allows vendors to customize what gets displayed when someone walks within range of a tagged product.

Interactive Showroom

By affixing a microchip-enabled smart tag to furniture, customers can interact with products in the showroom environment with their smartphone.

Advantages

Reduced Costs: Dramatically reduces the need for in-store sales reps, eliminates the need for in-store POS, and eliminates the need for in-store inventory.

Loss Prevention: The chip verifies that a product is authentic, making it impossible for a fraudster to return non-authentic items, which has become a problem for some brands in the era of counterfeits.

Customer Engagement: Customers spend less time researching products before hand and more time engaging with items in the store.

Seamless Purchase Experience: Allows shoppers to buy the item in-store or save to a wishlist at the touch of a button. Half of brick & mortar retail "customers" in showrooms look around the store and then buy online instead. This process would be expedited and made far less tedious by seamlessly making the purchase on a smartphone in the store.

Better Product Information: Provenance, materials, and design inspiration are things that can added to this experience. With this information, consumers can make more deliberative choices and do so with more confidence

Distributed Workforce: Customers can freely learn about items without the having to wait for a sales associate. A digital chat experience can be fulfilled instantly from a call center.

Product Profiles

Each product has a profile with digital content, video, and a link to chat with an expert sales person.

Buy It Now

Consumers can easily purchase the item directly from their smartphone.

Fulfillment

Payment, fulfillment, and delivery is powered by existing ecommerce backends.

Building Experiences

Developers can build apps that connect with microchips to create new engaging experiences for consumers.

Community

Build brand loyalty by creating a community of product owners.

Direct Marketing

Interact with product owners directly through notifications

Word of Mouth

Encourage consumers to share their purchases on social media.

Unlock Experiences

Build unique experiences like exclusive photo filters, stickers, promotions,deals, events.

NFC Inlay

The NFC Inlay is a cryptographic, blockchain compatible, NFC-enabled inlay that allows customers to **integrate a cryptographic identity to any product** and build their applications for the Internet of Everything (IoE), including **authenticity, e-commerce, provenance, supply chain, and financial applications**.
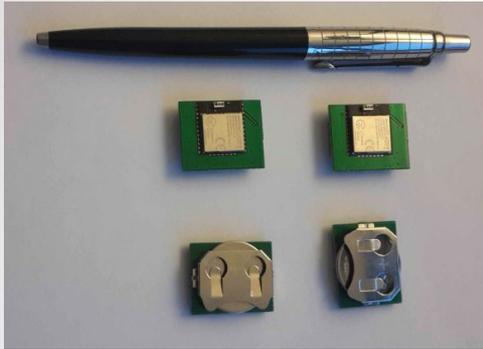
The NFC Inlay is cloud-connected and compatible with the administration platform which enables clients to deliver consumer and enterprise solutions that provide strong cryptographic identity and transaction capabilities to physical goods and devices.

Fashion · Sneakers · Apparel · Trade Finance · Insurance · Furniture · Supply Chain · Showrooms
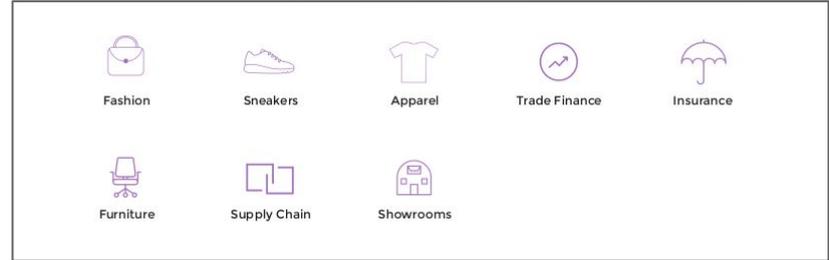
Specifications

- Dimensions: Ø 28mm x ~400μm
- Core: NXP SmartMX J3D081GUF/T1DGAG5D
- Radio protocol: ISO/IEC 14443 A
- Verification protocol: NIST PIV technical specifications (SP 800-73-4)
- Browser support: NDEF URI
- Material: PET Clear
- Antenna size: Ø 26mm
- Antenna material: Alu etched on PET substrate
- Liner: Release paper
- Fixing method: Inlay
- Operating temperature: -20°C ~70°C at <60%RH
- Storage Life: 1 year under desiccated condition; 10°C ~ 25°C, ≤ 60% RH
- Delivery format: Reel, Flange size: OD 400mm; ID 76mm (core size: Dia 230mm)
- Quantity per reel: ca. 2,000 functional units (bad units marked with black square)
- Security: Certified Common Criteria EAL 5+

BLE Inlay

The BLE Inlay is a cryptographic, blockchain compatible, Bluetooth Smart inlay that enables customers to integrate a cryptographic identity to any product and build their applications for the Internet of Everything (IoE), including authenticity, e-commerce, provenance, supply chain, and financial applications.

The BLE Inlay is cloud-connected and compatible with the administration platform which enables clients to deliver consumer and enterprise solutions that provide strong cryptographic identity and transaction capabilities to physical goods, devices and machines.

Fashion · Sneakers · Apparel · Automotive · Drones · Trade Finance · Insurance · Furniture · Supply Chain · Showrooms

Specifications

- ✦ Dimensions: 30mm x 40mm x 2.5mm
- ✦ Beacon Protocols: iBeacon, Eddystone
- ✦ Core: EFR32BG1 Blue Gecko Bluetooth® Smart
- ✦ Radio Protocol: Bluetooth® Low Energy
- ✦ Distance range: Up to 200 meters
- ✦ Battery: Embedded
- ✦ Optional sensors: Hall Accelerometer
- ✦ Case material: Epoxy resin
- ✦ Case finish: Matte
- ✦ Fixing method: Inlay
- ✦ Operating temperature: -20°C ~ +60°C
- ✦ Storage Temperature: -20°C ~ +40°C

Crypto Seal

The CryptoSeal is a cryptographic, blockchain compatible, NFC-enabled, **tamper-proof seal that allows customers to secure the content of packages and containers, ensure that equipment is not opened, modified and tampered with.** Tampering results in permanent damage of the circuitry which prevents NFC verification of the seal.

The platform allows to register the **unique identity** of the CryptoSeal on the blockchain and **record any transaction generated by whoever scans and verifies** it on an immutable ledger.

The CryptoSeal is an innovative solution to ensure that **content is genuine** and to **verify its provenance**. Using the CryptoSeal, customers can quickly deploy solutions for authenticity, provenance, and supply chain.

Supply Chain	Trade Finance	Insurance	Equipment Integrity	Warranty

Seal packages, containers or equipment

Once you seal some content or equipment, you can use the App to register each item individually or the backend administration platform to batch register a large shipment.

Each seals provides the item with an unforgeable identifier that links it to the blockchain.

Provenance Tracking / Transfer of Custody

Using the App, anybody can verify the integrity of the the seal and sign a verification record in the unforgeable ledger based on the blockchain.

Access rights to the ledger is configured to allow only specific participants to write provenance/transfer of custody transactions to the ledger, and to authorize participants to read specific transactions.

The architecture is an ideal open system for supply chain tracking while maintaining privacy and protection against competitive analysis.
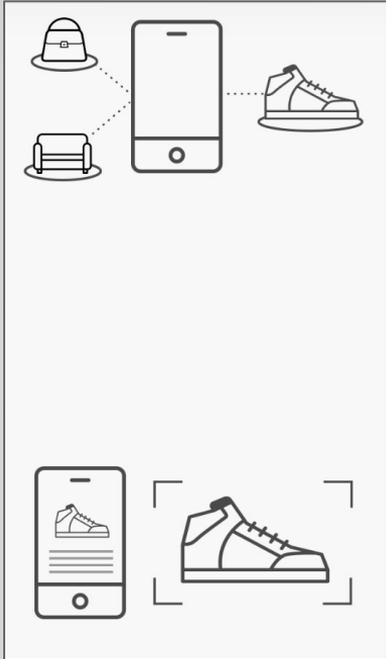
Integrate existing systems and equipment

An API is available to automate and streamline packaging or tracking on the supply chain. Existing scanning

equipment and supply chain software can easily commit the acquired information to the ledger

Administration Options

*Fully customize the user experience of any**Thing** that you deploy by activating and configuring the customizable widgets via the administration dashboard. Add rich descriptions to each **Thing** (specifications, photos, videos, brand details), as well as features, including the ability to verify authenticity, buy and insure.*

- Brand Logo / Header
- Specs
- Gallery
- Buy
- Timeline
- Provenance
- Search
- Support

- Brand page
- Links
- Video
- Related products
- List on secondary market
- Reorder
- Documentation
- Assembly Instructions

- Product details
- Authenticity
- Warantee
- Rent
- Pricing
- Real time value
- Transfer / Gift
- Share on social media

- Text
- Image
- Insure
- Notifications and messages
- Collections
- Marke item for sale
- Receipt (proof of purchase)

Sensorization

Attach sensors to palette or lots, tracking through the supply chain

- ✦ **Temperature sensor**- prove wine, fish or vaccine was too hot.
- ✦ **Humidity sensor** - prove vitamin, tobacco or cotton was compromised.
- ✦ **Light sensor** - prove palette or truck was opened and security was breached.
- ✦ **Acceleration sensor** - prove fragile item was dropped.
- ✦ **Vibration sensor** - prove protein or biologic molecule was damaged.
- ✦ **Gyroscope sensor** - prove appliance was tipped over.
- ✦ **Pressure sensor** - prove shipping container or bottle was opened.
- ✦ **UHF Tag** - prove package was delivered to warehouse.

Once the supply chain is instrumente, we can automate financial payments (i.e. trade finance, insurance, etc.)

The development of LoRA networks and IoT Narrow Band will make real-time monitoring in the "Last Mile" of the supply chain possible.

Pilots and Use Cases

BRAND PROTECTION

Reebok

BEAST MODE

MEXICO
LICENSE PLATE

111 MINNA GALLERY

RoC

IoT MICRO LOGGER

KAISER PERMANENTE

GlaxoSmithKline

AeroSafe GLOBAL

DIGITAL CHAIN OF CUSTODY - WITH PHYSICAL ACKNOWLEDGEMENT

accenture

valcambi suisse

DIGITAL CHAIN OF CUSTODY

Genentech

AmerisourceBergen

McKESSON

Pfizer

abbvie

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