CHRONICLED

NFC TempTracker (NTL100)

Solution for Cold Chain and Pharmaceuticals with End-to-End Data Security

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NFC TempTracker

The NFC Temperature Tracker is a low-cost, portable, smart sensor that tracks and stores temperature readings. In addition to its low cost and ultra-thin form factor, it can be read by common Android phones, as well as any other device with NFC reading capability. The NFC Temperature Tracker delivers cryptographically proven temperature logs and empowers businesses in a broad range of markets - including cold chain and healthcare - to effortlessly comply with regulations and show adherence to Service Level Agreements underwritten with their clients or partners. When used together with the Chronicled platform and blockchain back-end, the NFC Temperature Tracker delivers end-to-end data security.

IoT & BLOCKCHAIN PROTOCOL

The Chronicled platform is underpinned by a decentralized protocol for registering and verifying cryptographic IoT microchips to blockchain. The Trusted IoT Alliance was launched in December 2016 in Berkeley, CA and has support from more than two dozen blockchain technology companies and Fortune 500 enterprises. The members of the group agree that because IoT & Blockchain are both decentralized technologies, they represent a perfect "match", and it is likely that very large volumes of IoT devices will be secured by blockchain systems in the future. Chronicled has been an early leader in creating Blockchain & IoT Protocol primitives for "registration", "verification", and "data ledgering".

FEATURES

Product features include:
- Near Field Communication
- Temperature range: -20 to 50°C (-22 to 122°F)
- Log capacity for more than 10,000 temperature records
- Configurable parameters, including sampling frequency, min and max temperature
- Thin flexible battery with more than 120 days of life after activation
- Credit card size
- Adhesive backing
- Integrated with Chronicled platform for easy deployment
- Optional customized artwork
- Temperature calibration according to ISO/IEC 17025
- Blockchain support via open sourced SDK and Chronicled API
- Administration Dashboard available for easy management

END-TO-END DATA SECURITY

The data security model includes:
- CFR 21 part 11 compliance (in progress)
- Cryptographically signed data logs and time-stamping to immutable blockchain ledger creates 100% guarantee of data provenance,

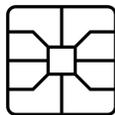## APPLICATIONS

Potential applications include:
- Supply chain
- Cold chain
- Trade finance
- Pharma
- Insurance
- Industrial IoT
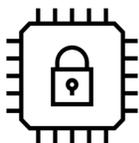- Automotive

Platform Overview

CHRONICLED CLOUD & DASHBOARD

The *Chronicled Cloud* is used to synchronize product/chip registrations and sensor data with blockchain systems and to manage digital content. The Cloud also allows sensors deployed on products to become blockchain-notaries and writes events and data signed by cryptographic keys to an immutable blockchain ledger. The Cloud is blockchain agnostic, allowing for collaboration among partners working with different blockchains. The *Chronicled Dashboard* is the interface used by clients to provision chips read and write data to the Blockchain.

CRYPTOGRAPHIC FIRMWARE

Chronicled installs *Cryptographic Firmware* onto sensor boards, product inlays, and crypto seals in order to encode them with a blockchain-compatible, unforgeable digital identity. The firmware also allows sensor boards to cryptographically sign data measured by the sensors, ensuring the attestation of any measurement, including temperature, humidity, vibration, and tilt. This level of immutable data attestation gives peace of mind when dealing with service level agreements, traceability, auditing, trust, and compliance. Chronicled can work with customers to integrate the firmware into existing devices.

BLOCKCHAIN BACKEND

The Chronicled platform secures sensor data to a *Blockchain Backend*. This guarantees against data tampering, alteration, or deletion and gives insurers and third-parties 100% confidence in data integrity. Chronicled supports dominant public and permissioned ledger blockchains, including Hyperledger, Ethereum, Ethereum Enterprise, etc.

SENSOR BOARDS

Sensor Boards monitor the environmental conditions of items and shipments, including temperature, humidity, and movement (e.g., vibration, tilt). Sensor Boards run Chronicled's Cryptographic Firmware, which ensures end-to-end attestation of measurements from the board to the blockchain.

About Chronicled

Based in San Francisco, Chronicled, Inc. delivers trusted IoT and supply chain solutions to enterprise clients. Chronicled secures IoT device identities, data, and event logs and automates IoT-dependent business logic through smart contracts. Chronicled is also a founding member of the Trusted IoT Alliance, with the mission of creating tools and standards to connect IoT and blockchain ecosystems to deliver business value.

For additional info, contact sales@chronicled.com