Smart container

IoT integrated in transport units

Ambrosus
TRACE & EDGE GATEWAY

Transforming containers into smart objects to monitor, track and trace goods all along the value chain. Ambrosus smart containers consist of a combination of integrated secured IoT and gateways providing analytical tools and data security stored on AMB-NET, Ambrosus blockchain. It is designed to provide certified and signed records of position, environmental monitoring and integrity of the goods, for an added value in logistics.

FEATURES

COMPUTING CAPABILITIES

Edge computing for more intelligence and efficiency

SECURE BY DESIGN

Communication with the highest encryption

SIMPLE DATA RECOVERY

Simple and automated transfer of data to Ambrosus gateway or to BLE gateway (computer)

DATA RECORDING

Designed to process high volumes of data

SIMPLE SETUP

Easy provisioning available through mobile apps

COMMUNICATION MODE

Various encrypted protocols and mesh-network available

ARCHITECTURE SOLUTION

The granularity of the ecosystem can be defined for each use case, according to its specific needs. The gateways can be implemented at the pallet, container, or truck level.

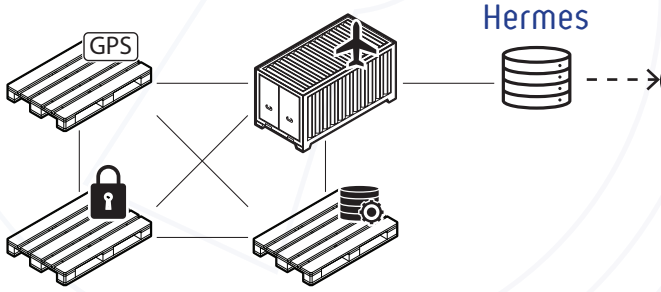
Fundamentally, the smart device records environmental data. When prompted, it is able to share its data using a dedicated low energy protocol.

The gateway automatically prompts and collects the data of the smart device. It can process them for smart data analysis and can interact with several smart devices at a time.

The collected data is then transmitted to AMB-GATE API, which collects, stores and saves them to AMB-CHAIN, the core blockchain. The information can enter and exit AMB-GATE for customer purposes.

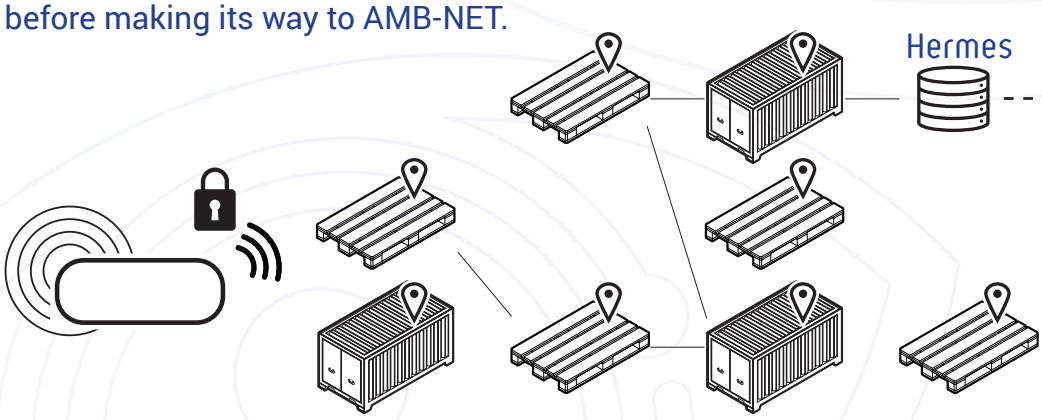
NETWORK FEATURE

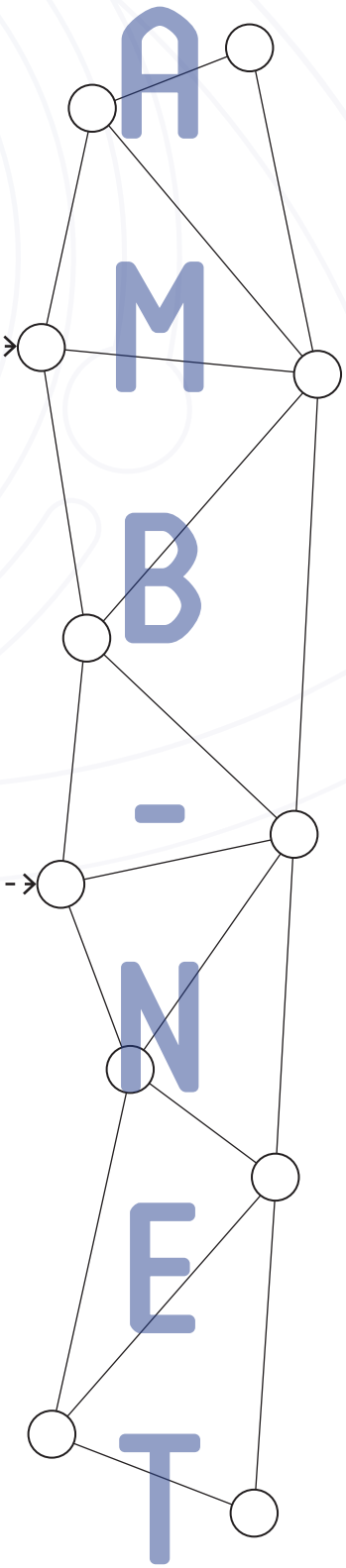
Gateways have network capacities, allowing them to share information amongst them (positioning, airplane mode, security, computing).



NETWORK MESHING

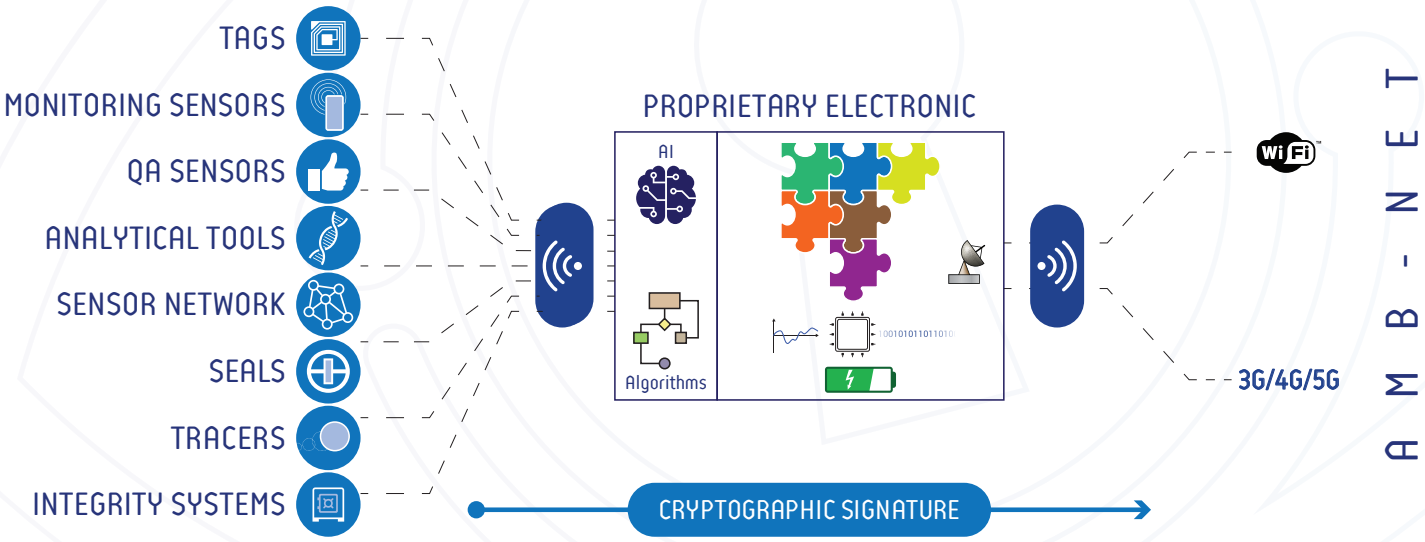
Gateways can form a mesh network, where the information gathered from the sensor transits through several gateways, before making its way to AMB-NET.





MODULAR GATEWAY / CUSTOMIZABLE

The gateway is customizable depending of the type of sensor/device plugged at its entry. Some data analytics can be added to bring more value to the recorded data.



PROVISIONING APP SPECIFICATIONS

SET-UP, INITIALIZATION OF THE GATEWAY

- Connect smart devices to the gateway
- Organize and set-up Mesh-network/Side-chain of the gateway
- Set-up data collection
- Set-up connectivity for data collection and data push
- Set-up WiFi password
- Set-up private key
- Set-up computing parameters

VISUALIZATION OF DATA

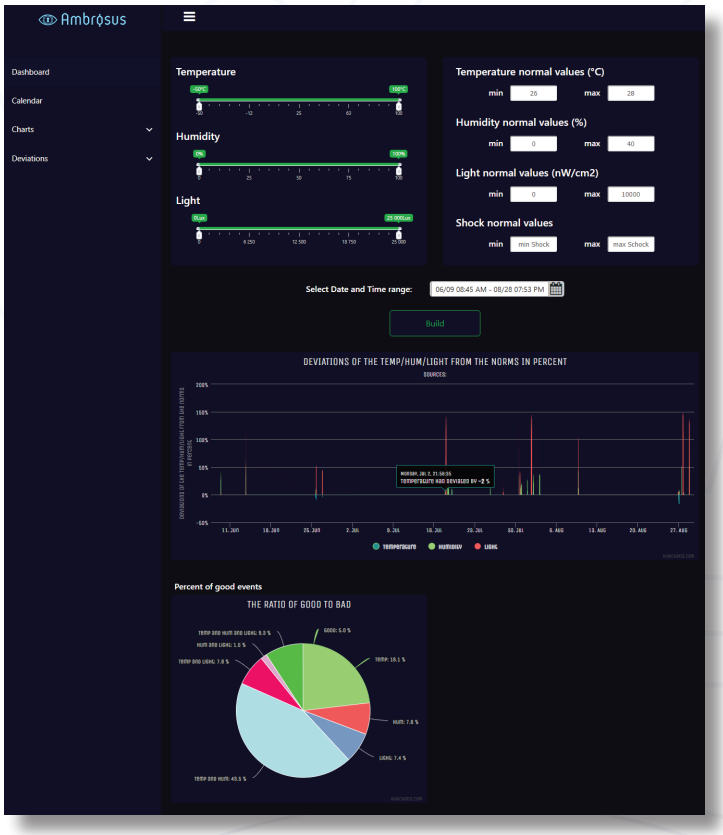
- Visualize real-time monitoring
- Visualize data traffic
- Visualize the state of the gateway

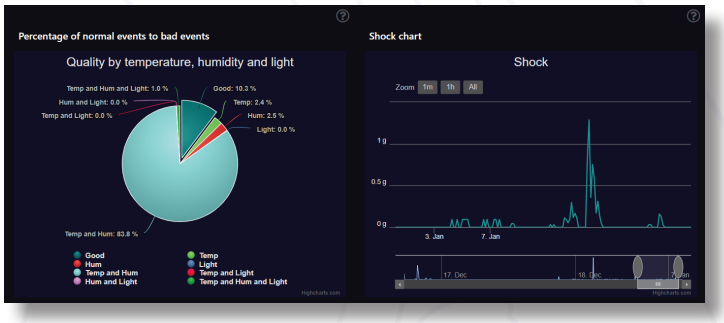
USER GUIDE / DEMO

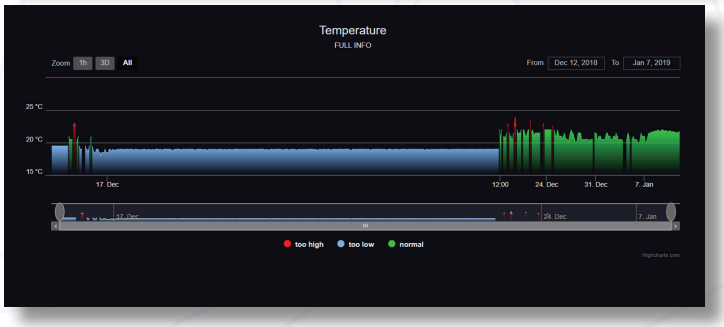
- iOS / Android App to se tup the data monitoring (conditions, frequencies, etc...)

APP FOR DATA VISUALIZATION

Data recorded by the device can be easily accessed using the following application. All the monitored parameters can be analyzed, filtered to help users get the juice of the data. Click on the link below for a live preview.







https://multisensor-analyser.herokuapp.com/

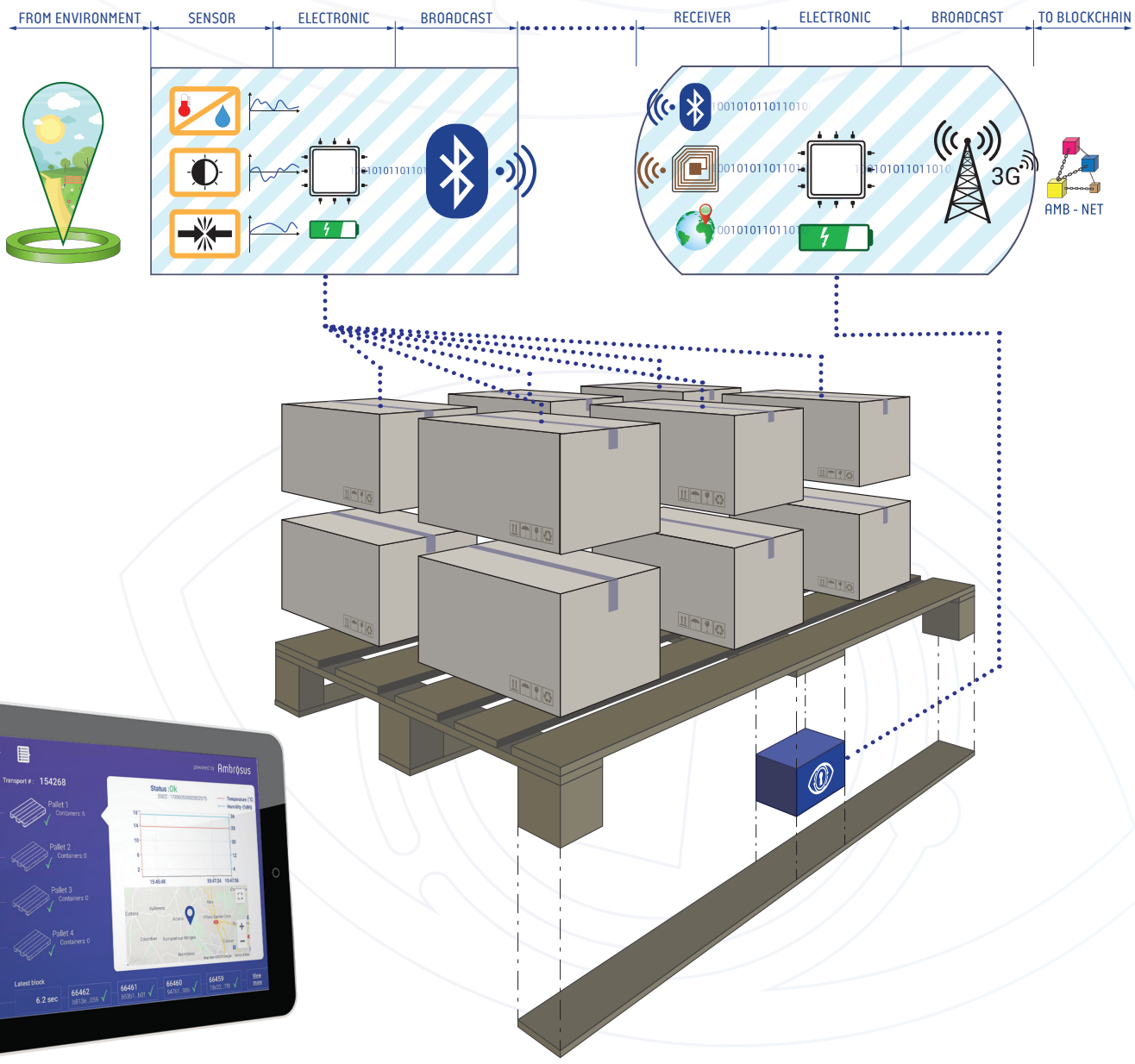
Scan me!

EXAMPLES

INTEGRATION IN A SMART PALLET

The Smart-Pallet is an intelligent pallet prototype that has the ability to detect and automatically provide information about its content and the environment in which it is located. It is able to geolocate, to verify that its contents have not been manipulated (or to know when it has been manipulated), to measure the temperature and humidity inside the packages, to communicate with other Smart-Pallets and automatically send alerts. The data sent is stored on a blockchain platform, which will make it possible to secure the storage of information and thus make the falsification of the latter totally impossible.

This intelligent pallet thus makes it possible to combat fraud and will find applications in domains with high added values or requiring serialization and close monitoring.



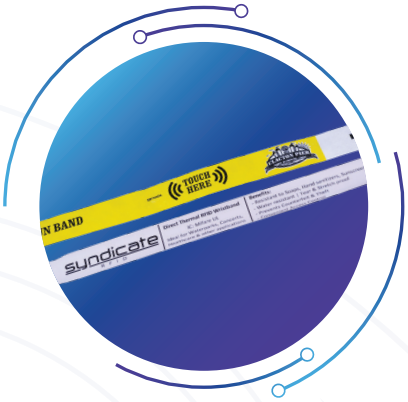
OTHER INTEGRATION EXAMPLES

COLD CHAIN

Multisensing platform integrated into an isotherm box

TRANSPLANTS

Multisensing platform integrated into a transplant box

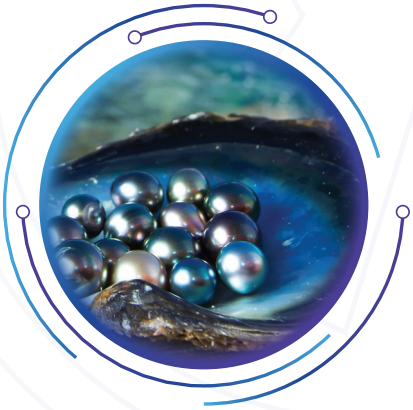


TRAY

RFID tag integrated into a film

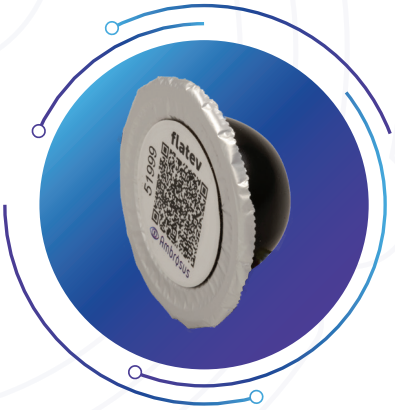
WINE BOTTLES

RFID tag integrated over the cork, beneath the foil



PEARLS

DNA tracer applied onto the pearls, and analyzed upon arrival



CAPSULES

RFID tag onto a capsule, QR-code for the consumer App

FUTURE PROJECTS

SMART CORK

Devices that are small enough to be fully integrated into wine bottle corks and can monitor the integrity of the product (temperature, theft); Actually the existing systems are rather of low performance, only recording Temperature. InnoLab has an innovation project to develop a fully integrated Smart Cork with anti-counterfeiting features.

Innovation Lab Ambrosus • Rue des Remparts 5 • 1400 Yverdon-les-Bains • Switzerland
innolab@ambrosus.com • www.ambrosus.com • Tel. +41 24 555 39 54