Wi·Us
Wireless via Ultrasound
by STiMSHOP
Mobile interactions and data transfer

Unique Ultrasonic Technology

Secure data transfer in constrained environments

Dominique PALACCI
CEO

STiMSHOP
Mobile interactions and data transfer

How to collect data in extreme conditions without using existing wireless networks and in a secure way?

WE USE
ULTRASOUND
TO SEND AND RECEIVE
DATA OVER
THE AIR

Challenge

- Wireless communication where radio waves are not effective or not allowed
- In constraint environments (explosive, humid, metallic, electrosensitive)

Benefits

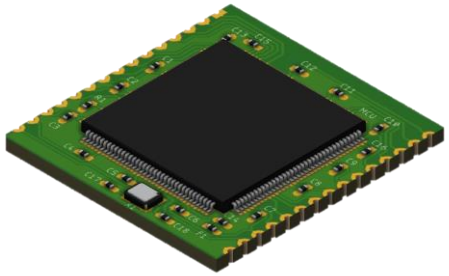
- Safe, Harmless
- Highly Secure
- Through existing infrastructures
- Transparent for users

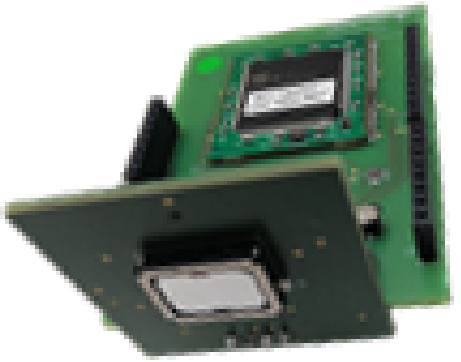
A top-notch technology

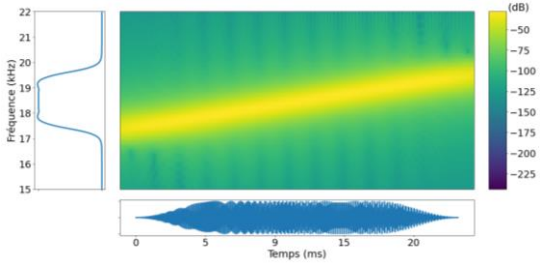
INSTITUT NATIONAL DE LA PROPRIÉTÉ INDUSTRIELLE
BREVET DÉPOSÉ

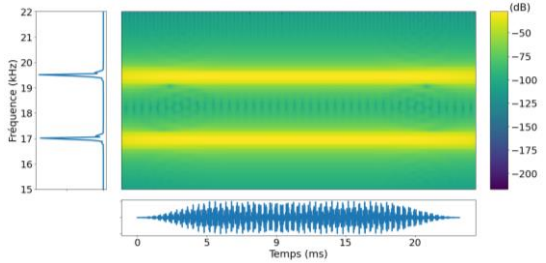
Wi·Us
Wireless via Ultrasound
by STIMSHOP

- **Wi-Us**
  (Wireless Ultrasound)
  - Patented data transfer protocol with exclusive ultrasound modulations
  - SDK and API for mobile apps and embedded systems
  - **The ONLY multiplexing technology in the world**
  - Reliable up to 100m
  - Resistant to jamming, noise, Doppler effect
  - Plug & Play with MULTISONIC card and UDI (Ultrasound Data Interface)

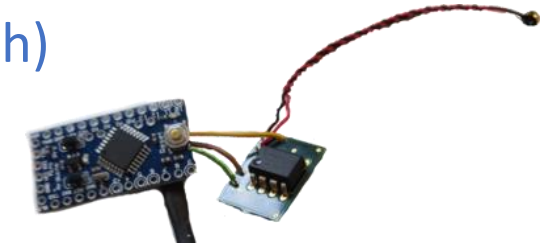








- **WAKEE**
  (Ultra low consumption Ultrasound switch)
  - Reduces up to 300x standby consumption
  - Extends battery life by more than 3x



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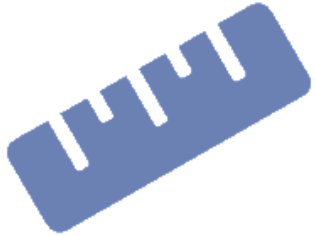
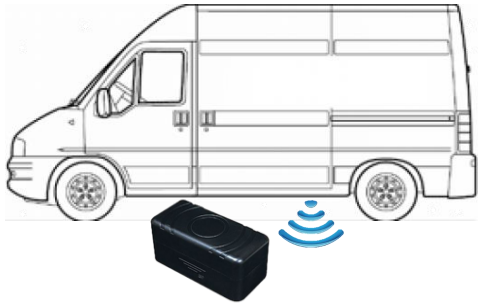
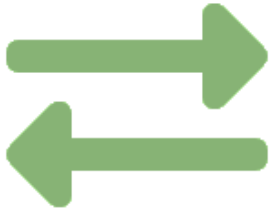
Secure Industry 4.0, IoT and contactless

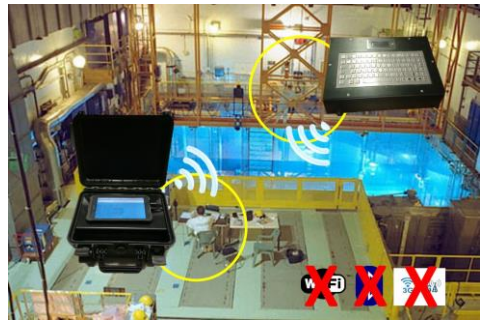
Measure



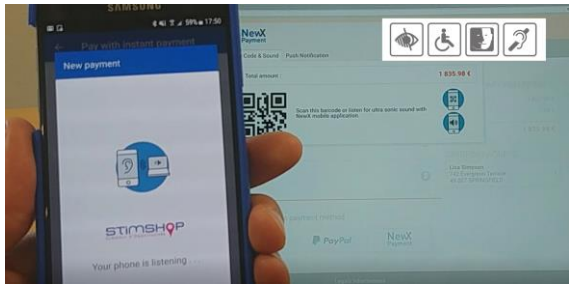


Data Transfer





Authentication



Presence Detection

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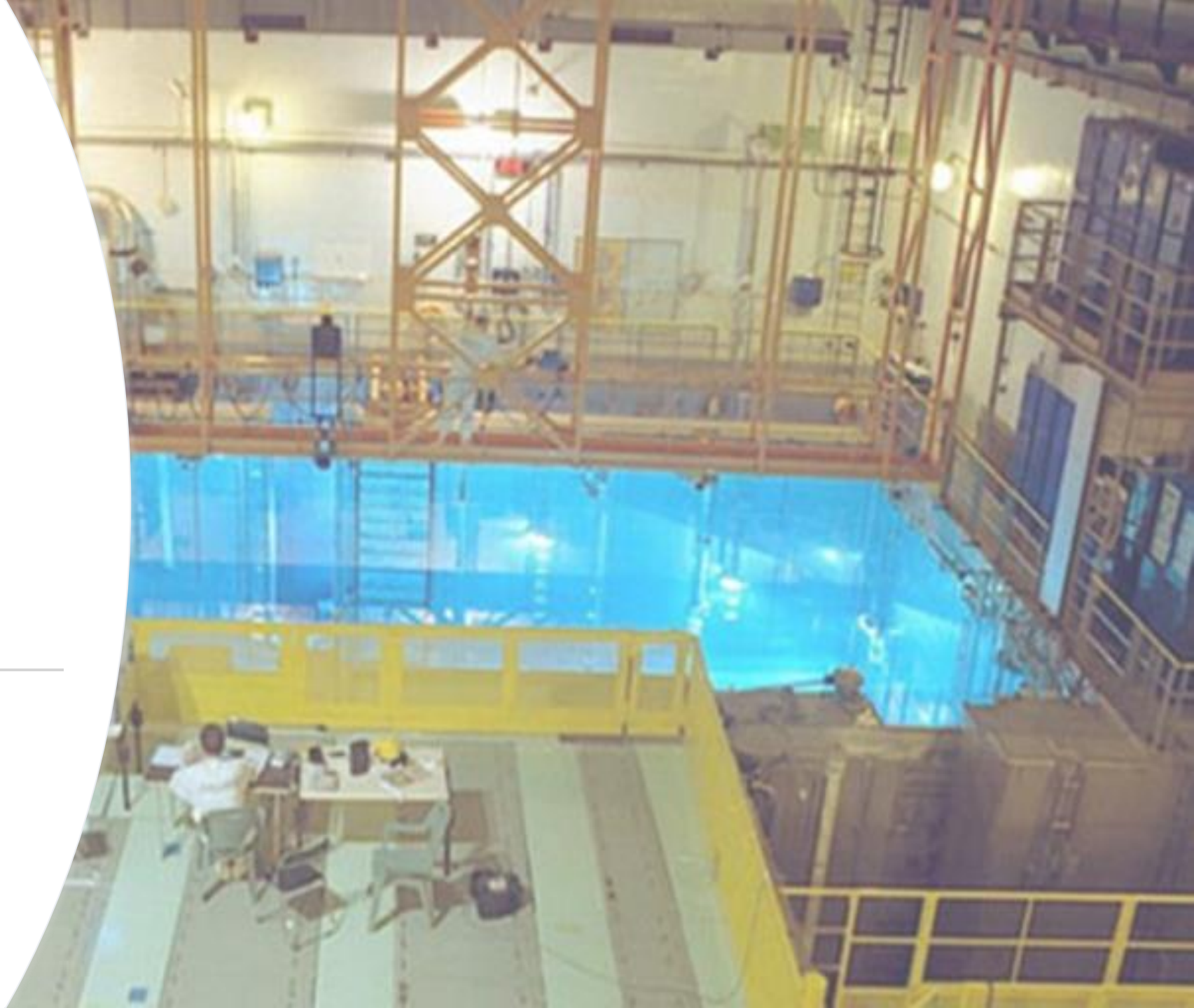
Wi-Us

Secure and digitalize procedures in a nuclear plant



Challenge

- Send and sign procedures wirelessly up to 100m
- In a humid, metallic, electrosensitive environment

Benefits

- Secure procedures
- Quicker for less radiations exposure
- Digitalize signatures
- Less contaminated waste

Solution

- **Wi-Us**
  (Wireless Ultrasound)
  - Patented and secure ultrasonic data transfer without radio waves.
  - Embedded in hardened keyboard and tablet
  - Software for multiplexing calling procedures, check validity and sign digitally.

UMITS
“on demand” corrosion testing

orano

Challenge

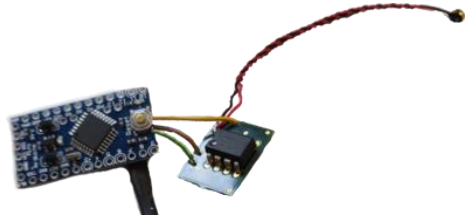
- Monitor corrosion in dangerous places
- Without scaffoldings
- Without expert intervention

Benefits

- Safer, Quicker, Cheaper
- Nonintrusive measure
- Guarantees infrastructure integrity
- “On demand” testing campaigns

Solution

- **UMITS**
  (Ultrasound Measure for Integrity of Tanks)
  - Install the IoT where the measure will be performed.
  - Perform measures with a simple tablet.
  - The measures are synchronized online and are shared with experts for diagnosis.



- **WAKEE**
  (Ultra low consumption Ultrasound switch)
  - Reduces up to 300x standby consumption
  - Extends battery life by more than 3x

Secumeter

Alarm with active ultrasonic barrier

Challenge

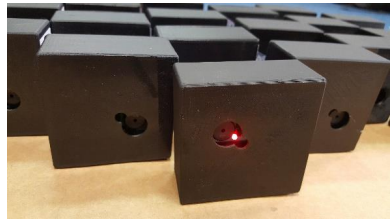
- Secure lifting environment
- With a personal and contextualised alarm

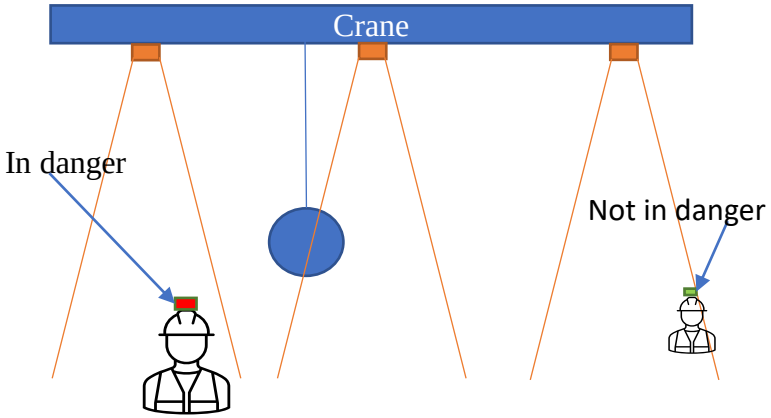
Benefits

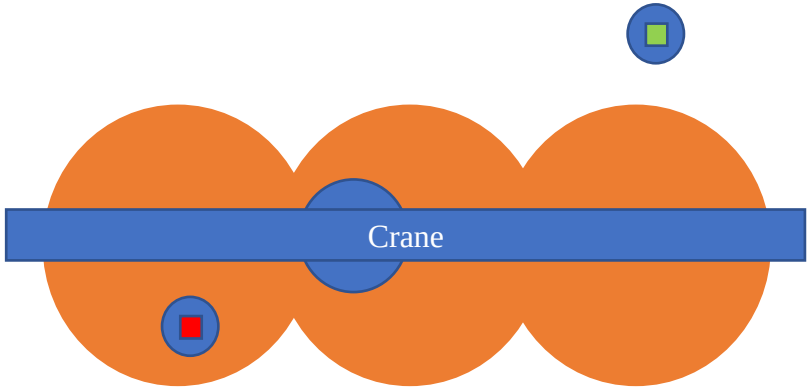
- Contextualized alarm
- Personal alert better taken into account
- Increase workers security

Solution

- **Secumeter**
  - The crane is equipped with ultrasonic emitters slaved to the movement of the machine.
  - They start emitting when there is a movement, creating a virtual barrier around and under the crane.
  - Each worker wears an ultrasonic badge that will emit an alarm if they are in the zone of danger.







UCG

Count staff during emergency alert

PETRONAS

Challenge

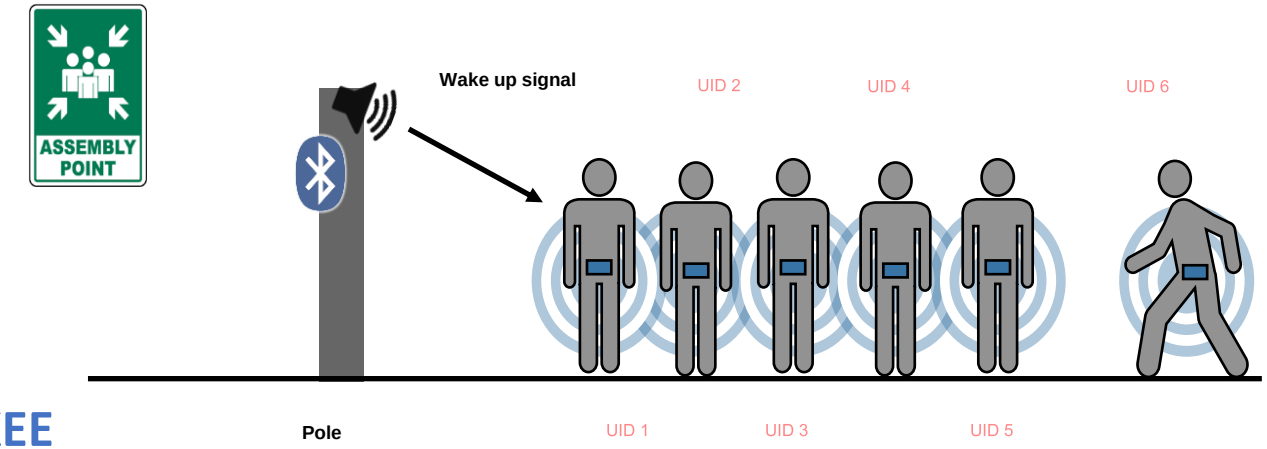
- To count the staff that enters the assembly/mustering points with a fast, reliable, automated, and digital way during an emergency alert

Benefits

- Automatic, transparent
- Quicker, safer and more reliable than the manual roll call
- No connection needed
- Increases the security of the staff

Solution

- **UCG**
  (Ultrasound Counting Gate)
  - Assembly/muster points are equipped with UCG system, powered by solar panels, (independent power supply).
  - Staff is wearing a badge with a Wakee switch to save battery life.
  - During an alert, the warning siren emits the ultrasound signal that triggers and switches on the badges.
  - When the staff arrives at an assembly/muster point, the manager sees immediately on a tablet the list of persons who entered the zone, (their ID is detected by the UCG).



WAKEE
(Ultra low consumption Ultrasound switch)

- Reduces up to 300x standby consumption
- Extends battery life by more than 3x

UDI

Secure data transfer in an aircraft carrier

DGA
Techniques navales

Challenge

- Send wireless instructions WITHOUT using radio waves
- In an explosive, humid and metallic environment

Benefits

- Harmless
- Discreet
- Safe and secure
- No electromagnetic interference

Solution

- **UDI** (Ultrasound Data Interface)
  - Sends procedures, signatures, messages, alerts
  - In the corridors, on the deck, in confined places

- **UMIX**
  - Broadcasts through an existing on-board sound system
  - Covers the whole area

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Mobile interactions and data transfer

HBeacon

Geolocate workers during maintenance in a submarine

NAVAL GROUP

Challenge

- Geolocate workers in a faraday cage
- In an explosive environment
- Easily change location inside the submarine

Benefits

- Operates in any environment
- No need for any wireless network, (WiFi, 4G, Bluetooth)
- Safe and secure
- Easy to install
- Easy to modify

Solution

- **HBeacon badges**
  - Each worker's beacon emits a signal.

- **Magnet UDI** (Ultrasound Data Interface)
  - Each UDI covers a specific zone. The UDI "listens" to the Hbeacon's signature and sends it to the UDI at sight.
  - The location of the worker is received by the supervisor who is standing in the main office outside the submarine.
  - When the place changes, UDI's position also changes. The zone is updated.

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Mobile interactions and data transfer

UDI
Monitor ammunitions remotely

Capgemini

Challenge

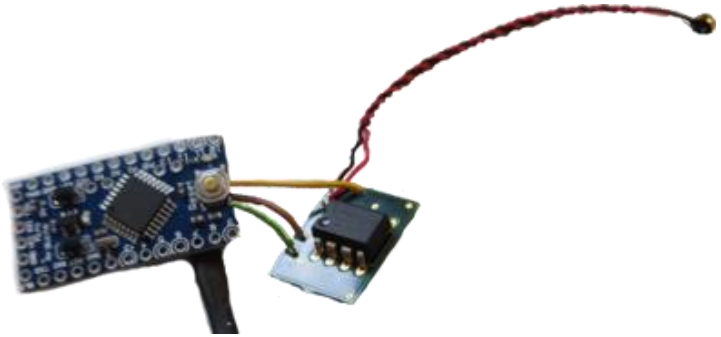
- Monitor ammunitions remotely
- In an explosive and electro sensitive environment
- In a safe and secure way

Benefits

- No wireless connection is necessary
- Safe and secure
- Remote inspection, (no need to take a tour)
- Information on demand

Solution

- **UDI** (Ultrasound Data Interface)
  - Ammunition boxes are plugged to a UDI to transfer their status on demand.
  - UDIs are installed and send requests to each box.
  - The data received are send through a secured cable to the network.
- **WAKEE** ultrasound switch
  - To save energy the UDI boxes are equipped with our unique WAKEE switch, an ultra low consumption system. They remain in a shut down mode and only when used automatically are switched on. With this way the batteries will last for years before their replacement.



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NSWeight

Estimate the load of a truck for overload alarms

TOMTOM TELEMATICS

Challenge

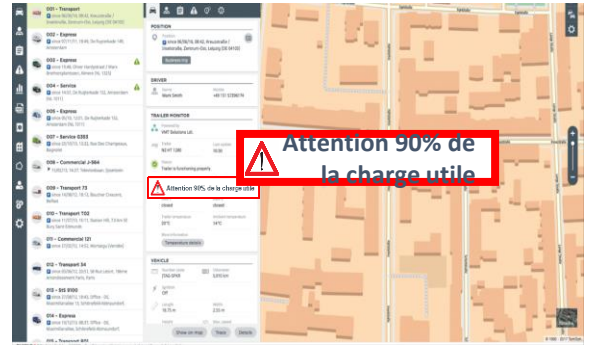
- Alert the driver when there is an overload
- Monitor the use of the truck
- Send load information to the fleet manager

Benefits

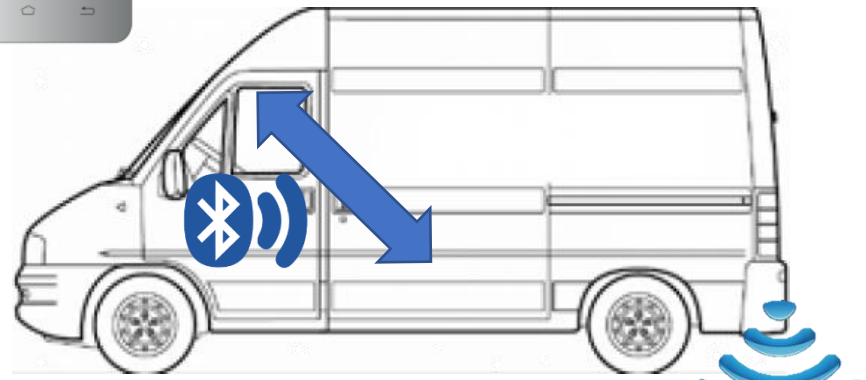
- Secure the driver
- Secure the goods
- Help fleet manager for mainteance and precise carbon declaration

Solution

- **NSWeigth with Nomadic Solutions**
  - Waterlight ultrasonic telemeter to measure distance to the road and derive the load
  - Inboard app to alert the driver and send the data to the fleet manager.
  - Back Office to follow the fleet.



Nomadic Solutions



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Mobile interactions and data transfer

Security

Access control ● Authentication

Wi-Us

Offline access control secured by blockchain

Comfy

SIEMENS

Challenge

- Secure access control with blockchain
- Without connection

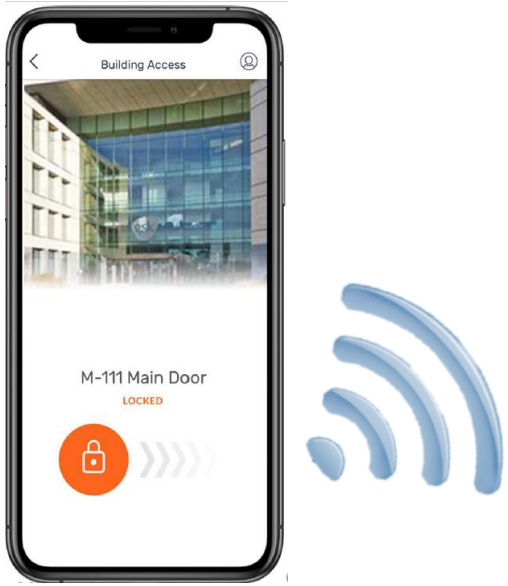
Benefits

- Works without connection
- Highly secured access grant management
- Resistant to hacking
- No need to manage badges

Solution

- **Droon** blockchain
  - Access grant is confirmed in a blockchain.
  - Public and private keys are separated.
  - A local challenge makes each interaction unique.
- **Wi-Us** data transfer
  - Smartphone emits the token.
  - UDI decodes the key to grant access.

DROON
UNLEASH BLOCKCHAIN POWER

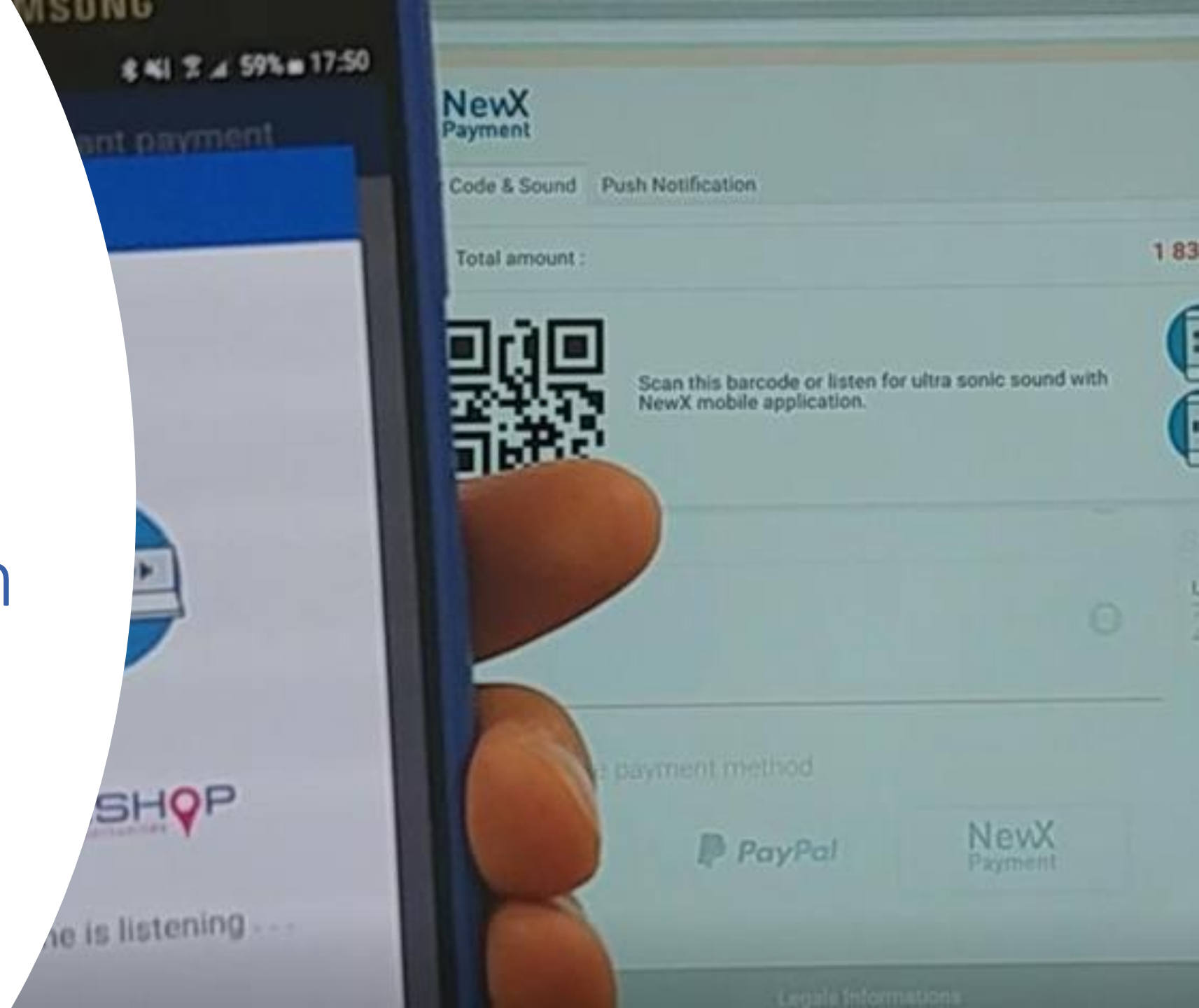


STIMSHOP
Mobile interactions and data transfer

Wi-Us

Highly secure authentication

worldline
e-payment services



Challenge

- Validate payment in no time
- Even without connection
- In a very secure way

Benefits

- Works without connection
- Very quick procedure
- Transparent for the user
- Resistant to hacking
- Highly secured

Solution

- **Wi-Us** data transfer
  - Instead of receiving a text message with a code to type to validate a payment, the banks and the website (or the cashier) are exchanging a validation code locally, with ultrasonic signals, without connection.

Wi-Us

Ultrasonic key to unlock the car with a smartphone

Challenge

- Unlock the car with a smartphone
- In a secure way
- Without radio waves

Benefits

- Works without connection
- No hacking around
- Share a digital key with the app

Solution

- **Wi-Us**
  - Generate a unique token in the app.
  - Send it with ultrasonic signals via smartphone speaker
  - Receive and decode the signals in the door, resolving the unique challenge
  - Send instruction to unlock the door

Digital Services

Interactive venues ● Events ● Disability

UMIX

Transcribe vocal announcements into notifications on smartphone

PARIS AÉROPORT

Challenge

- Help hearing impaired to get the vocal announcements

Benefits

- Easy solution to install
- Universal solution on smartphones
- Top service for hearing impaired in a noisy environment

Solution

- **UMIX**
  - Wi-Us SDK is embedded in the app.
  - What is said on the speaker is transcribe into ultrasonic signals and mix into the sound system with UMIX.
  - The app writes down the notification on smartphones in the area.

STiMSHOP
Mobile interactions and data transfer

HBeacon

Fluid interactive visit

sycomore

Challenge

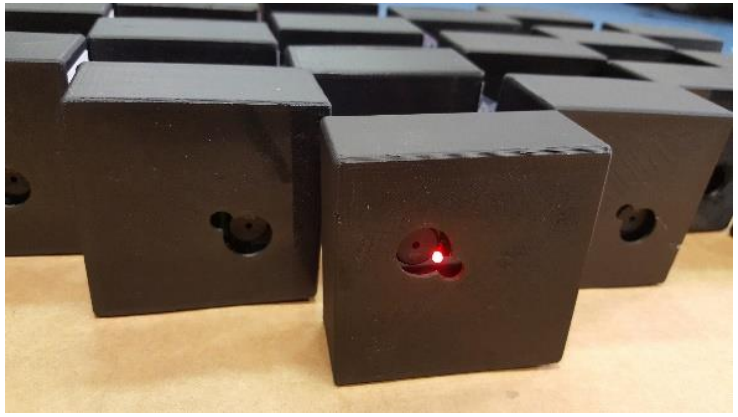
- Display contextualized contents during the visit in the app

Benefits

- Easy solution to install
- Fluid and transparent for the user
- No radio waves pollution

Solution

- **HBeacon**
  - Each point of interest is covered by an ultrasonic signal with a HBeacon, creating an interaction zone.
  - When the visitor is entering the zone, the app will display the comments linked to this place.
  - Possibility to get visit statistics, like a physical cookie.



UMIX

Synchronize smartphones during an event

Challenge

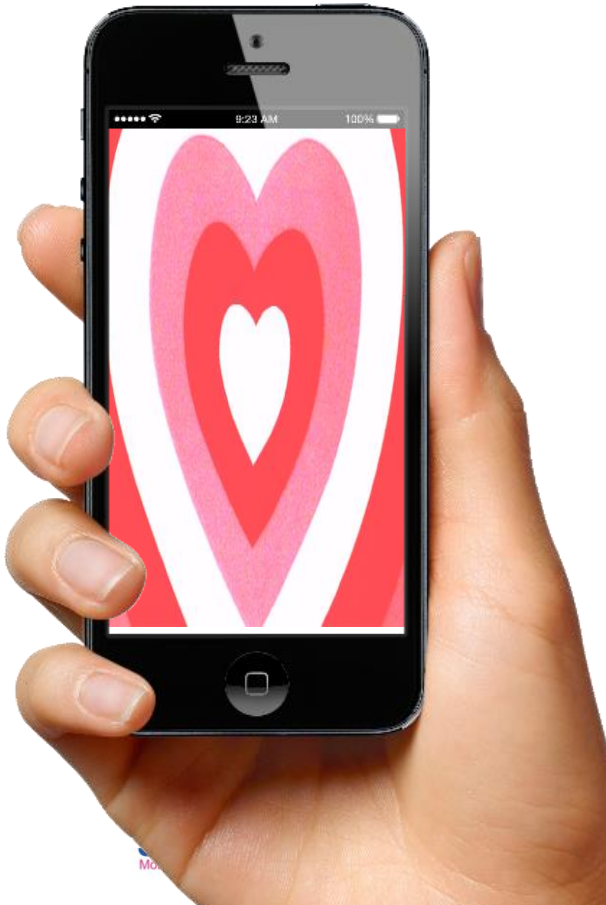
- Interact with a large audience during an event.

Benefits

- No connection needed
- Compatible with any smartphone
- Live and contextualized interaction
- Guaranteed emotion

Solution

- **UMIX**
  - Send ultrasonic signals through the sound systems.
  - Every spectator with the app in the audience will get the interaction scheduled (notification, link to a video, light show, loyalty points…).
  - Even with no connection.



Decarbonation

Save energy ● Increase batteries’ life ● Decrease waste

WAKEE

Save standby mode energy

somfy®

Challenge

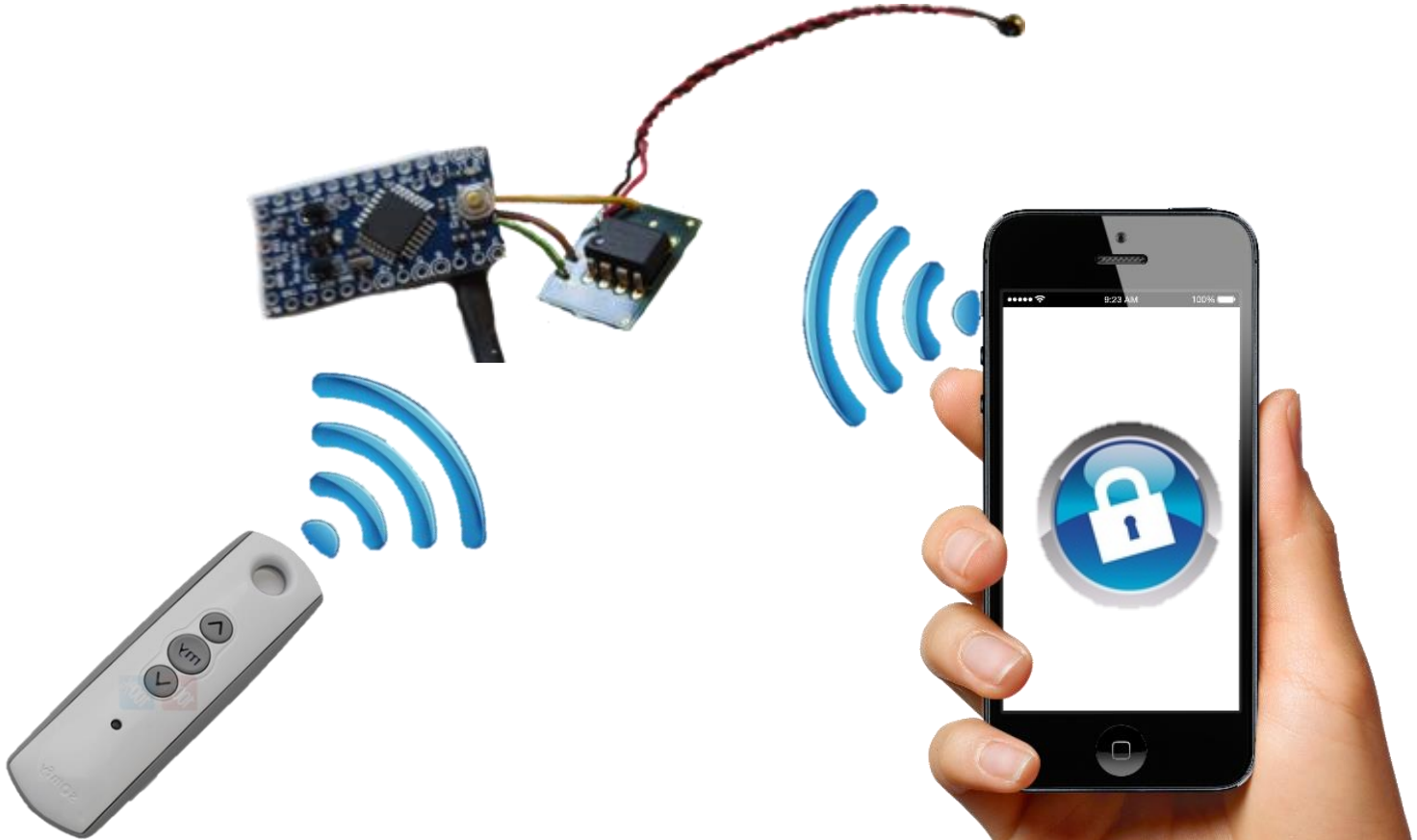
- Switch on and off device to save standby mode energy with an ultra low consumption system

Benefits

- Divide up to 300x standby mode consumption
- Multiply by 3 batteries' life
- Decarbonate 1 to 3 billiards tons of CO2

Solution

- **WAKEE switch**
  - Ultra low consumption electronic card to be integrated or connected to power supply.
  - On and Off ultrasonic signal to be played by any smartphone or remote control



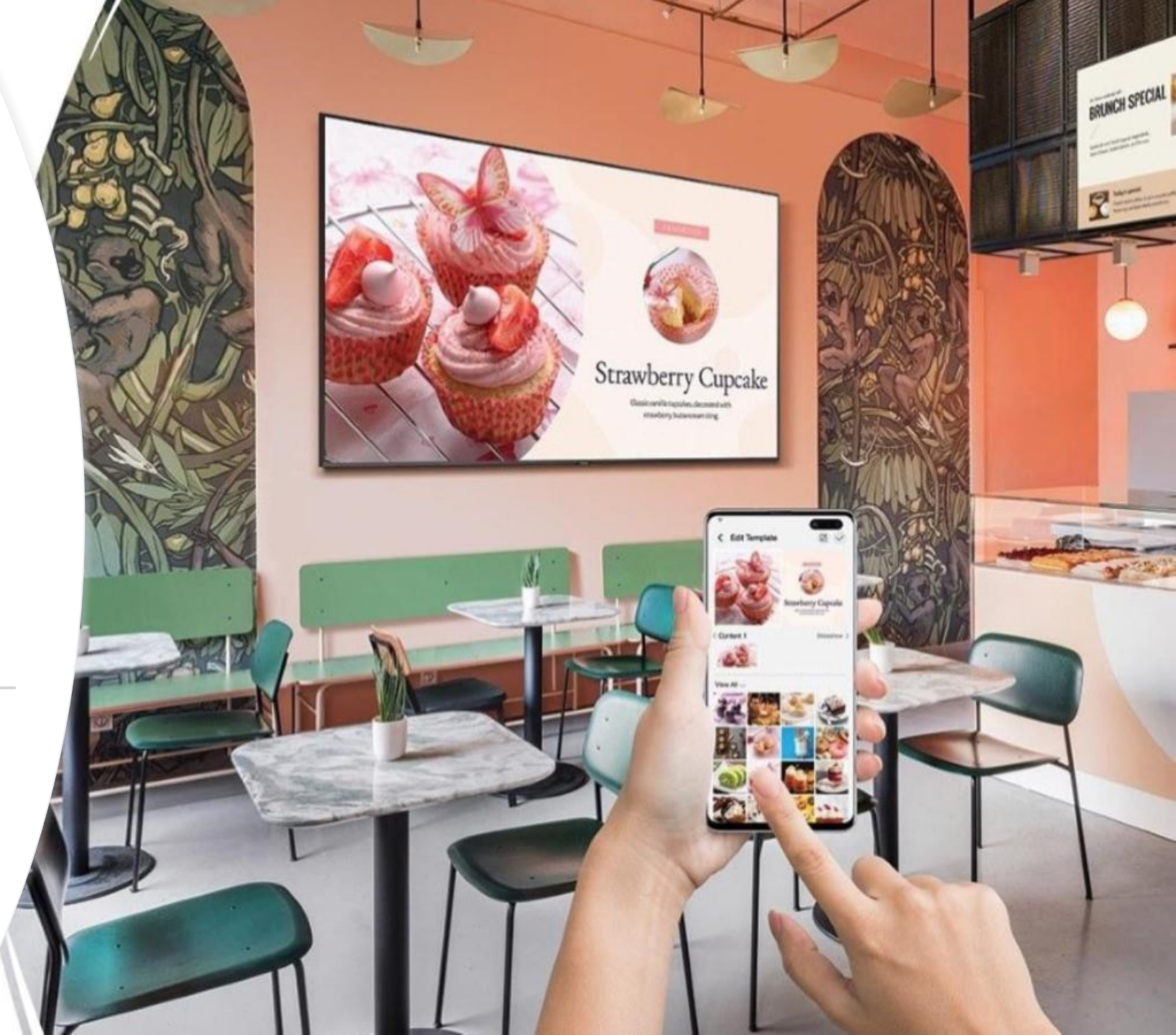
SmartShop

Digital Marketing

Contextualized notifications ● Loyalty ● Wait management ● Geolocation

Ucheck.in

Local second screen on smartphone



Challenge

- Interact with a display on a smartphone
- Without connection nor pairing

Benefits

- Increase consumer commitment
- Give value to the app
- Extend impact of the video

Solution

- **Ucheck.in**
  - Ultrasound signals are mixed in the content of the display.
  - They push interactive contents on the mobile app as a « second screen ».
  - Customers go back home with local content.

UMIX

Waiting Management through app and sound system

BRICO MARCHÉ
Pouvoir tout faire Moins cher

Challenge

- Alert the consumer when its his turn to be served

Benefits

- No queuing
- Easy to install
- Win Win service
- Increase the ticket

Solution

- **UMIX**
  - Instead of taking a ticket and wait for their turn, consumers type the number in the app.
  - They keep on shopping in the shop.
  - Numbers are broadcasted through the sound system via ultrasonic signals not audible.
  - Consumer is alerted when it’s his turn to be served.

New Shopping Experience by PICOM

Customers, partners and supports

Customers

EDF

Cargill

Air Liquide

AIRBUS

orano

NAVAL GROUP

Partners Distributors

orange Business Services

TOMTOM TELEMATICS

open WE EMPOWER YOUR DIGITAL WORLD

SOMRAS VENTURES

EFI AUTOMOTIVE

cuvice innova

Certifications

Systematic Paris Region Digital Ecosystem

NUCLEAR Valley FEDERER LES ENERGIES

hi France Le label des entreprises innovantes dans lesquelles investir

Awards

New Shopping Experience 2015, 2016

Vivatech 2016, 2017, 2018, 2019, 2021

IT Innovation Forum 2017, 2019

2018 : CEBIT Road Show, Airbus Développement
Total Développement Régional
Digital Day Nuclear Valley
Forum Innovation CETIM

2019 : Global Leader IE-Club – HPE Startups
e-Payments Worldline

2020: Global Industry, Slingshot

2021: French Tech Tour India, Somfy Challenge

TROPHÉE INNOVATION IT 2019

STIMSHOP Mobile interactions and data transfer

“If you want new results, stop doing the same things.”

Albert EINSTEIN

STIMSHOP
Mobile interactions and data transfer

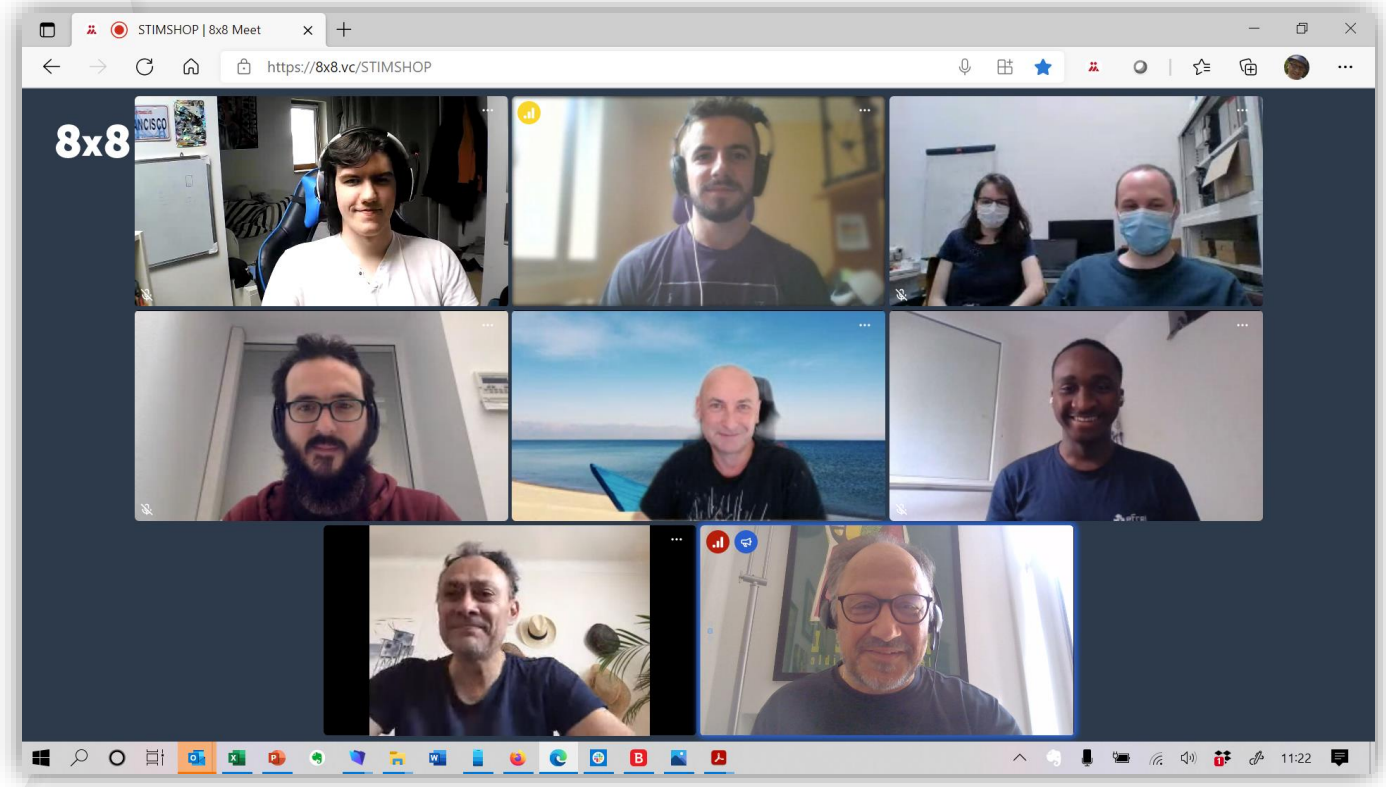
Paris – Toulon - Singapore

Wi.Us
Wireless via Ultrasound

SECUMETER

ucheck.in

UMITS



Dominique PALACCI

+33 (0)6 07 30 24 53

domi@stimshop.com

www.wi-us.eu – www.umits.eu