Actility Webinar

Indoor Tracking with LoRaWAN® by Quuppa & Actility

Deploying one-size-fits-all Real Time Location System for people and assets, with testimonies from Favendo, M2M Germany and McCool Controls

Thursday January 20th
17:00 CET Paris (11:00 AM ET New-York)

Actility

Quuppa

Favendo

MCCOOL CONTROLS & ENGINEERING LTD.

m2m® your wireless competence

Agenda

Shmuel Solomon

Webinar Meeting Agenda

- Expand your business with LoRaWAN and Quuppa RTLS Indoor Positioning & Tracking – **Actility Shmuel Solomon**
- Delivering reliable location data in complex indoor and outdoor use cases or hazardous environments thanks to LoRaWAN – **Quuppa Torsten Amstein**
- Customized hybrid RTLS solutions for every kind of industry a real-life use case – **Favendo Stefan Balduf**
- Real-life Use Case: Optimizing logistics for cable drums using Quuppa and Abeeway – **M2M Germany Marius Nickolai**
- Making buildings smarter with LoRaWAN-enabled tracking, with Quuppa, Abeeway and Actility - **McCool Controls & Engineering Eóin McCool**
- Summary and Q&A

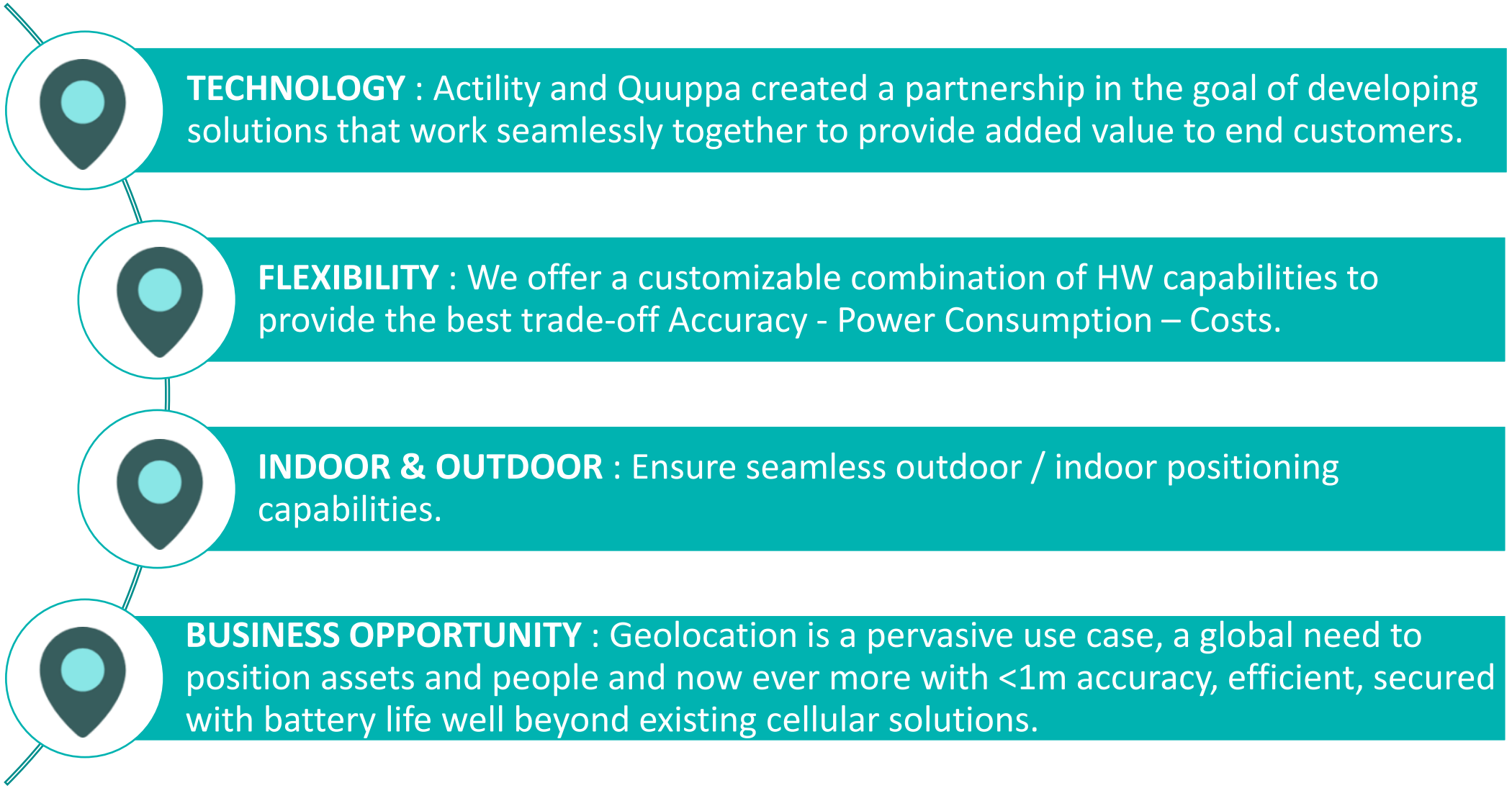
Actility

Copyright ©Actility - Confidential

Key Points

Shmuel Solomon

Webinar Key Points



TECHNOLOGY : Actility and Quuppa created a partnership in the goal of developing solutions that work seamlessly together to provide added value to end customers.

FLEXIBILITY : We offer a customizable combination of HW capabilities to provide the best trade-off Accuracy - Power Consumption – Costs.

INDOOR & OUTDOOR : Ensure seamless outdoor / indoor positioning capabilities.

BUSINESS OPPORTUNITY : Geolocation is a pervasive use case, a global need to position assets and people and now ever more with <1m accuracy, efficient, secured with battery life well beyond existing cellular solutions.

Actility

Copyright ©Actility - Confidential

Today's Speakers

Shmuel Solomon
Your Partner For Digital Transformation - Enterprise Channel Sales Manager at Actility. Join me on LinkedIn or contact me directly at +33-6-79-27-96-48.
https://www.actility.com/

Stefan Balduf
CEO & Sales at Favendo GmbH
stefan.balduf@favendo.com
+49 172 5859564
www.favendo.com

Torsten Amstein
Sales Manager Europe Quuppa
torsten.amstein@quuppa.com
+358 443 6528 44
https://www.quuppa.com/

Eóin McCool
Managing Director at McCool Controls and Engineering Ltd.
emccool@mccoolcontrols.ie
+353 18550542
www.mccoolcontrols.ie

Marius Nickolai
CEO M2M Germany
marius.nickolai@m2mgermany.de
https://www.m2mgermany.de/en

Actility

Copyright ©Actility - Confidential

Actility

Shmuel Solomon

Actility

In Short

- ✓ Actility is a **world leader** in LPWAN **industrial-grade connectivity solutions** for the IoT.
- ✓ Also provides revolutionary **ultra-low TCO geolocation technologies** through its subsidiary **Abeeway.**
- ✓ Headquarters **– Paris, France / Worldwide regional offices.**
- ✓ Founded – **2010.**
- ✓ Employees – 130. **60% R&D and Product Managers.**

Mission

✓ Actility believes in a more efficient and sustainable world through **ubiquitous digital-twin technology.** We want to spark this transition and become the **leading global mediation** platform between cloud apps and the physical world.

✓ Actility's ambition is to **put IoT at the service** of cities, citizens, industries, and communities, enabling them **to form a connected ecosystem**.

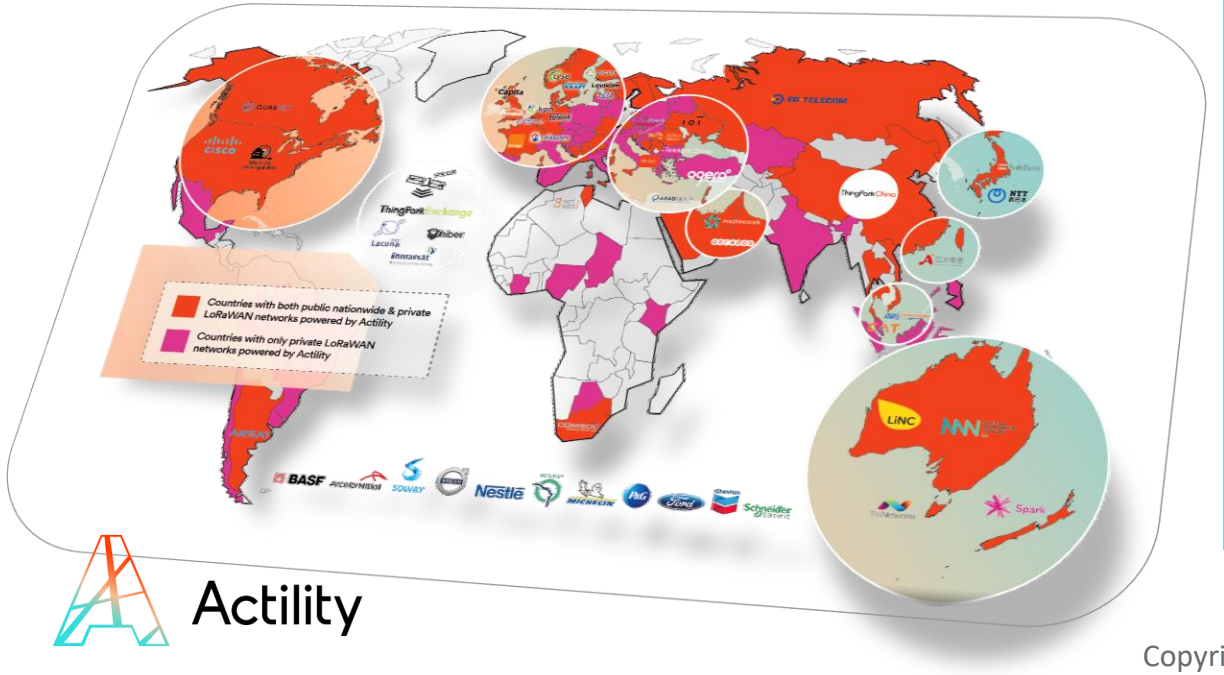
Actility

Copyright ©Actility

Actility Global Footprint

Actility deploy IoT networks across campuses, regions and whole countries

- ✓ **Thousand + of industrial enterprise** networks worldwide.
- ✓ Over **35K public network** base stations worldwide.
- ✓ **20 billion** IoT transactions per year.
- ✓ **24/7 regional georedundant datacenters.**
- ✓ **50+ large-scale Tier-1** service providers.
- ✓ **20 interconnected networks** across countries and space through **Roaming** platform.



Actility

Abeeway unlocks the value of LPWAN-enabled geolocation for IoT Vertical Segment

- ✓ **200k trackers** sold a year worldwide.
- ✓ Over **50 partners**.
- ✓ **Large-scale Tier-1** service providers – Proximus, KPN, Orange, and others.
- ✓ Trending solutions on major verticals – **connected construction, mining, oil and gas, assets tracking, search and find, vehicle car parking**

m2m your wireless competence
Favendo location-based innovations
MCCOOL CONTROLS & ENGINEERING LTD.
ThingLogix
mniscient
CISCO
tracktio
UNIGTEC
accenture
machinestalk innovation frontier
orange Business Services
macnica networks
here
ioThink Solutions
KWANT.AI
TATA

Copyright ©Actility

Current Geolocation Challenges

Accuracy required
Adequate accuracy can actually evolve over time

Battery Consumption
When reporting position
When in standby mode

Cost
CAPEX – tracker/NW costs
OPEX (replace batteries every week? Month? Year ? How many batteries?)

Device Form Factor
Commoditization of trackers requires miniaturization of components and batteries

Variety of environments
Indoor / outdoor tracking
Local / National / International
Land / Sea

Variety of geolocation needs
Real time tracking / position on demand
Geo fencing
Alert on events (T°/shocks/ Motion)

Various types of mobility
Devices can be Static, sporadically moving or constantly moving

Dynamic management
Connectivity needs to allow dynamic & flexible reconfiguration of the tracker

Actility

Copyright ©Actility

Geolocation Technologies overview

	Characteristics	Benefits	Remarks	In/Outdoor
GPS	• Sensitivity : -145dBm • Accuracy 1-15m	• Ubiquitous outdoor solution	• Ephemerid sent to device (GPS downlink needed)	Outdoor
LP-GPS	• High sensitivity : -165dBm • Accuracy(50-90%): 10-18m	• No Cold Start, fix time 10s • Very low power	• Patented solution -> TPX LE needed • DA-GPS to improve accuracy(roadmap)	Outdoor Light indoor
Wifi	• Sensitivity -86dBm • Accuracy : 20-40m	• Simple • Low Cost	• Accuracy depends on hotspot density	Outdoor Indoor
BLE	• Sensitivity -78dBm • Accurate short range geolocation solution	• Very Low Power consumption	• Can also be used for Firmware upgrades	Indoor
Quuppa	• Real Time <1sec • Accuracy : <1m	• Long battery life • Solution for diverse use cases	• Scalable	Indoor And Outdoor

A customizable combination of HW capabilities to provide the best trade-off Accuracy - Power Consumption

Positioning Statement

Abeeway + Quuppa

= **Technological Cooperation**

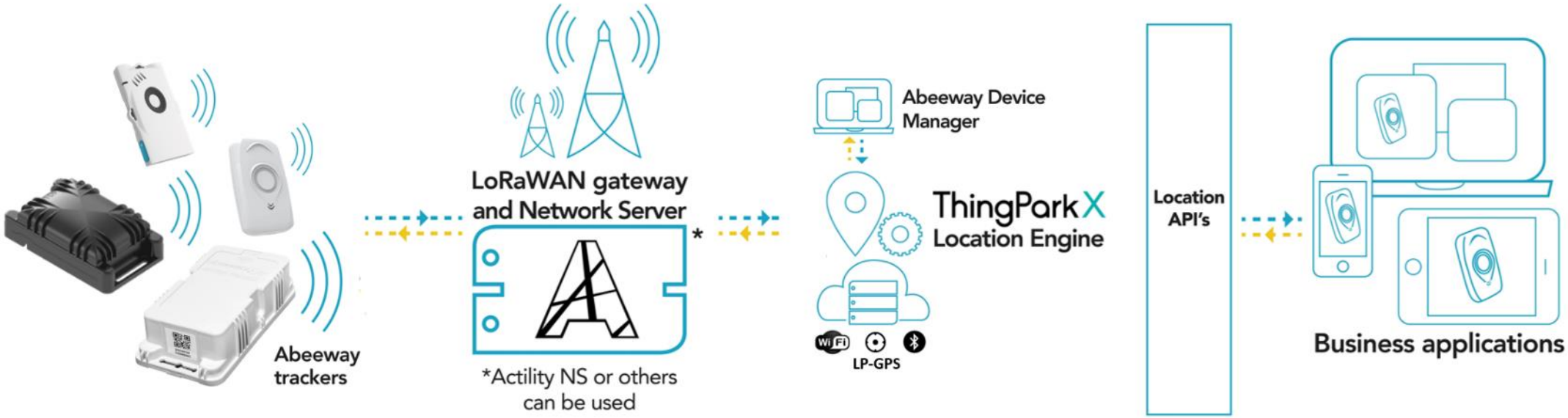
Through the partnership, we develop products that work seamlessly together to provide added value to end customers. Enhancements include making **Abeeway's ATEX certified tags** trackable by the Quuppa Intelligent Locating System, a one one-size-fits-all technology platform for location-based services and applications. This enables both companies to provide a powerful, versatile and scalable asset tracking solution for industrial environments, achieving a **location accuracy of below 1 meter.**

Copyright ©Actility

Actility – Abeeway - Quuppa System Architecture

A solution combining **low-power multi-technology trackers** with a **modular location engine** to allow IoT Application to unlock the value of LPWAN-enabled geolocation.

Quuppa Locators



Actility

Copyright ©Actility

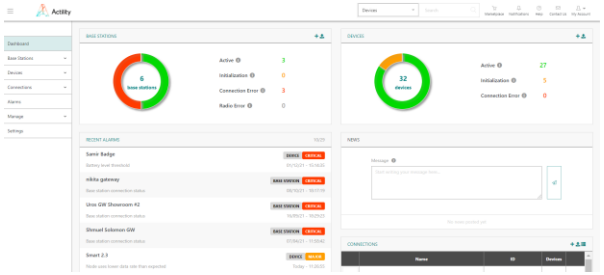
One-Stop Solution For Seamless Indoor And Outdoor Tracking

Low-power Wide Area Networks

LoRaWAN®

Quuppa Positioning Engine / End Customer Application

ThingPark Connectivity Management



Quuppa

Actility

Abeeway

Low-power asset tracking solution

Low-Power Multi-technology Trackers

MANUFACTURING, AUTOMOTIVE, CONSTRUCTION, MINES, OIL & GAS AND LOGISTICS INDUSTRIES

Quuppa Intelligent Locating System™

TORSTEN AMSTEIN

Sales Manager Europe at **Quuppa**
torsten.amstein@quuppa.com
+358 44 36 52844

© Quuppa 2022 | Confidential

Quuppa Company Overview

- Founded in 2012, spin-off from Nokia Research Center, technology developed since 2005
- HQ in Finland; offices in Bremen (Germany), Washington DC, Shanghai, Shenzhen and Sydney
- 60 employees as of today

3000+	1100+	200+	5.6M
DEPLOYMENTS	CUSTOMERS	PARTNERS	SQ. M COVERED

Gartner Magic Quadrant

Visionary in Indoor Location Services study 2021

Bluetooth

Bluetooth 5.1 Standard

Quuppa is leading the new AoD profile initiative

AIRBUS

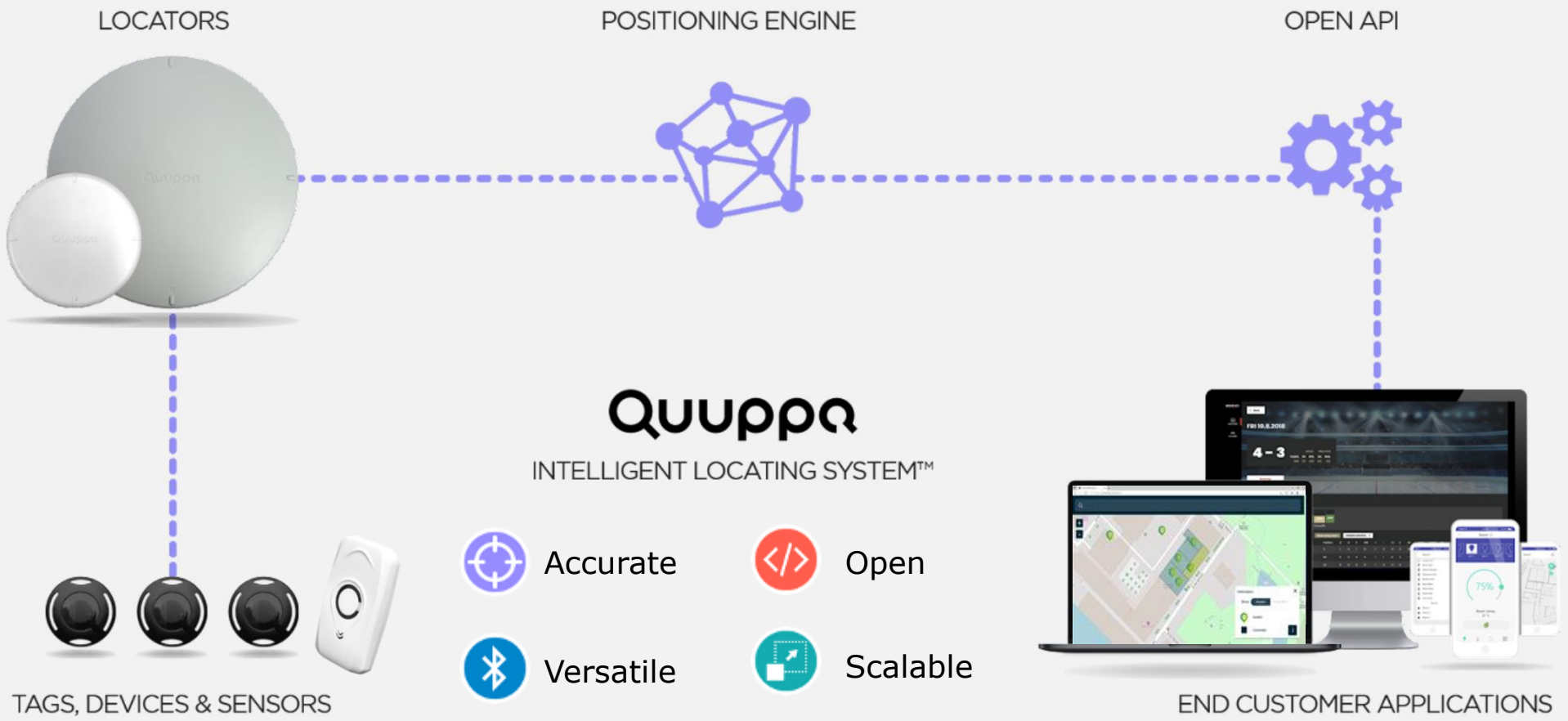
Airbus Global Frame Agreement (selected RTLS vendor)

NORDIC SEMICONDUCTOR, dialog SEMICONDUCTOR, SILICON LABS, ON Semiconductor

Forging partnerships with Silicon Labs, OnSemi, Dialogue, Nordic,...

© Quuppa 2022 | Confidential

Quuppa System Architecture



© Quuppa 2022 | Confidential

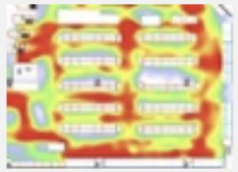
Industry 4.0 & Logistics Use Cases

Collision avoidance
Preventing forklifts and other machinery to collide with pedestrians in e.g. warehouses

Intelligent access control
Enabling quality assurance by associating work orders with asset and worker tracking

Dangerous area detection
Identify unauthorised entry to dangerous areas e.g. during production

Process optimisation
Optimising production process by locating workers, tools and assets.



Free-route AGVs
Real-time navigation of AGVs and other vehicles in warehouses and logistic centres

Remote sensing
Remote monitoring of worker vital signs or e.g. temperature or humidity of assets

Intelligent asset tracking
”Responding” tag (blinking LED) to quickly identify the wanted asset

Route optimisation
Providing the optimised route based on workflow orders in warehouses, logistic hubs, airline hangars,...

Tracking of mobile devices
Reducing search & find times via a tagless tracking of barcode scanners

© Quuppa 2022 | Confidential

Favendo GmbH

Stefan Balduf, CEO

Favendo GmbH

stefan.balduf@favendo.com

+49 172 5859564

An der Spinnerei 15 | 96047 Bamberg | Germany

www.favendo.com

Favendo – Real Time Location Services

This is Favendo

- Founded in 2014
- Based in Bamberg, Germany
- approx. 15 employees
- Partner of both: Quuppa & Actility
- Favendo RTLS enable sensor-based tracking of assets and people, positioning/navigation and proximity marketing/alerting with BLE-technology
  - cloud based or on-premises
  - extremely data secure
  - for complex environments – both indoors & outdoors

Focus Verticals

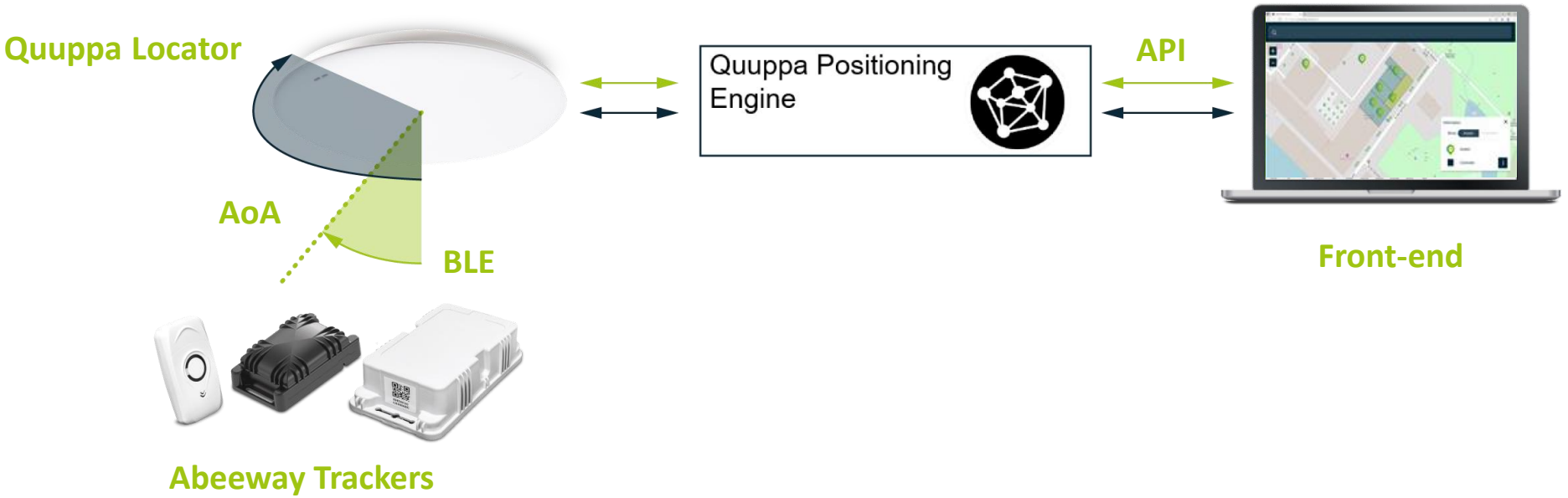
Favendo Asset Tracking Viewer – Open Front-end solution

- Easy-to-use front-end solution to search and find assets independent of any system, device or software
  - Accessible via browser
  - Responsive design
  - Easy integration (API)
  - No CRM/ERP system required
  - Reduce search times
  - For use cases in every industry
  - Search function
  - Filter options
  - Compatible with various technologies

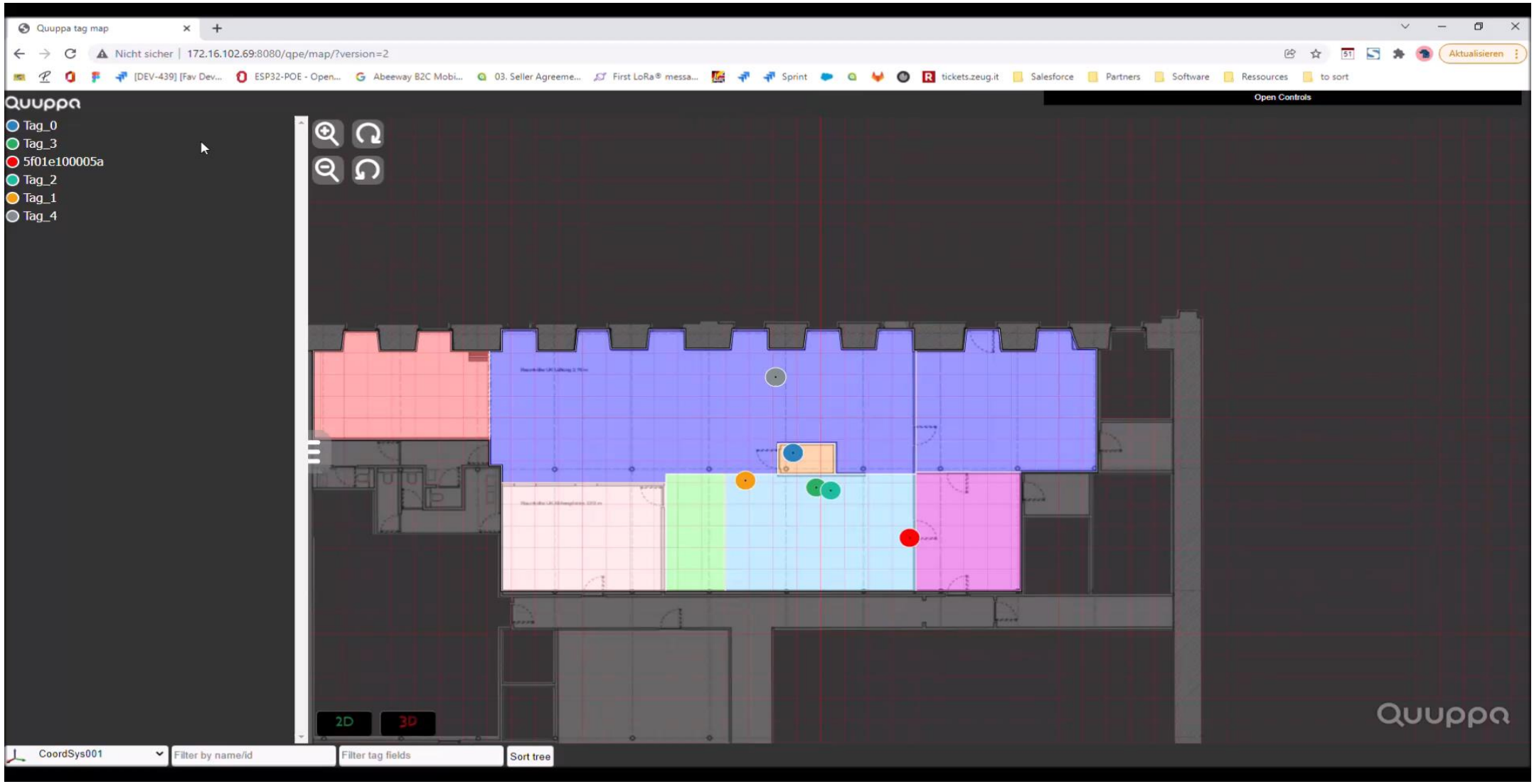
Custom-fit hybrid RTLS solutions

Hybrid solutions with both partner technologies:

- Enable seamless indoor/outdoor locating in complex/harsh environments
- Covering the widest possible range of use cases from high precision tracking to outdoor tracking with GPS



Demo - High precision tracking with Abeeway trackers



A Partner Success Story

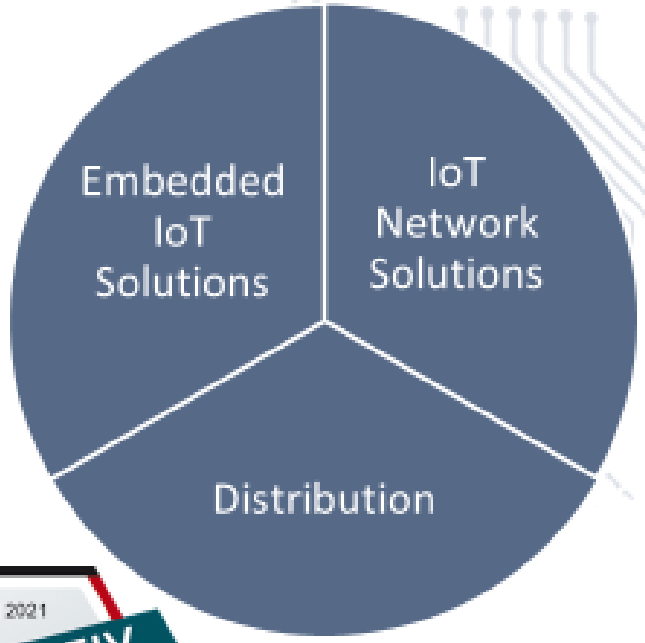
M2M Germany

Marius Nickolai

we make
your business
wireless

Who we are

- Specialist for M2M and IoT solutions
- Founded in 2007
- Company headquarter in Wehrheim / Frankfurt
- 20 employees
- Many years of experience from development & research projects
- Multiple awards for innovation & products



2020 | 2021
INNOVATIV
DURCH FORSCHUNG
Ausgezeichnet durch den Stifterverband
M2M4644WEH

® m2m Germany GmbH

we make
your business
wireless

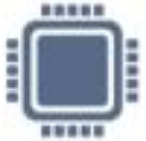
m2m Germany – LoRa Solution Portfolio

LORA SENSORS

Plug & Play sensors / actuators for various applications

LORA GATEWAYS

LoRa Gateways for professional networks indoor and outdoor



LORA MODULES

You want to integrate LoRa into your own electronics

LORA CONSULTING

Whether LoRa network setup or LoRa product development, we advise you comprehensively

LORA NETWORK SERVER

Rely on the worldwide number one for LoRa networks

LORA DEVELOPMENT

Develop your own LoRa products with us

LORA ANTENNAS

The critical component for the performance of your LoRa network

LORA RADIO NETWORK PLANNING

We determine the most suitable gateway locations for your LoRaWAN network and test them on site.

® m2m Germany GmbH

we make
your business
wireless

Use Case: cable drum tracking – the facts

- 500 cable drums
- One logistics yard
- Many construction sites
- Long searching times

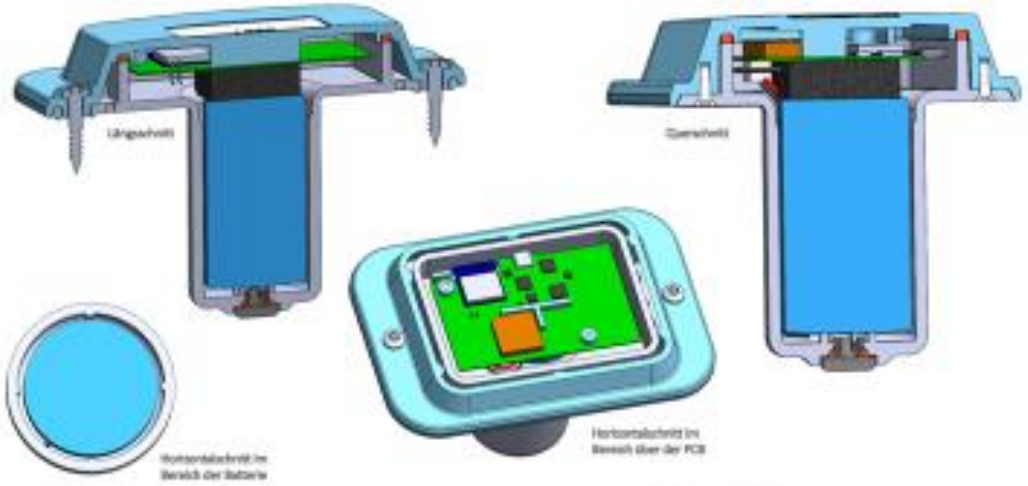
® m2m Germany GmbH

we make
your business
wireless

m2m
your wireless competence

Use Case: cable drum tracking – the solution

- Robust and small device needed due to cable drum handling
- Abeeway Industrial tracker
- Special housing
- Quuppa locationing system



® m2m Germany GmbH

m2m
your wireless competence

Use Case: cable drum tracking – the result

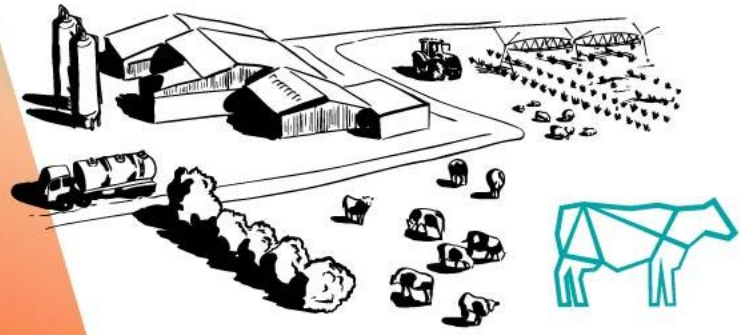
- Quuppa Locators on the logistics yard → 0,5m accuracy
- Reliable, robust Tracker especially designed for the use case
- Connected to their ERP system
- Reduced searching times
- Auto inventory
- optimized logistics

® m2m Germany GmbH

A Partner Success Story

MCCOOL CONTROLS & ENGINEERING LTD.

Eóin McCool
Managing Director at McCool Controls and Engineering Ltd.
emccool@mccoolcontrols.ie
+353 18550542
www.mccoolcontrols.ie



About McCool Controls & Engineering (MC³E)

MCCOOL CONTROLS & ENGINEERING LTD.

Master Systems Integrator

Established in 1991, McCool Controls is an innovative master systems integrator, specialising in:

- Smart Building Solutions
- Real Time Locating Systems
- Building Management Systems
- Energy Management Systems
- Smart Lighting
- Open Protocol Systems Integration

Quuppa

Actility

Abeeway

CoolSúil
IoT

MCCOOL CONTROLS & ENGINEERING LTD.

Work
The Edge

Abeeway

ATEX Rated

IP 65

Buzzer

LED

SOS Button

ID Card Holder

Key Connectivity

- Quuppa
- LoRa
- Low Power GPS
- WiFi
- BLE
- GNSS

MCCOOL CONTROLS & ENGINEERING LTD.

Enterprise/Cloud/BMS/SCADA
Connectivity

CONNECTIONS

Go to Connections List

	Name	ID	Devices	
https://	TP Location - ADM	TWA_100004732.1201.AS	9	...

Application Application operations provide the ability to manage ThingPark applications (e.g. Wireless Logger) and access codes.

GET `/productInfo` ProductInfo retrieval

Responses

Curl

```
curl -X 'GET' \
  'https://community.thingpark.io/thingpark/dx/core/latest/api/productInfo' \
  -H 'accept: application/json'
```

Request URL

```
https://community.thingpark.io/thingpark/dx/core/latest/api/productInfo
```

Server response

MCCOOL CONTROLS & ENGINEERING LTD.

RTLS
Floor Plan

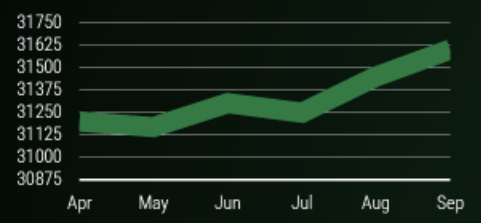
MCCOOL CONTROLS & ENGINEERING LTD.

DASHBOARD

TODAY | MONTH | YEAR

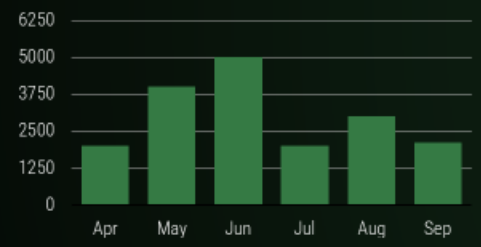
MCCOOL CONTROLS & ENGINEERING LTD.

GAS METER



ADDITIONAL METER READINGS

ENERGY METER



ADDITIONAL METER READINGS

CARBON FOOTPRINT

EMISSION

Till Date — Predicted

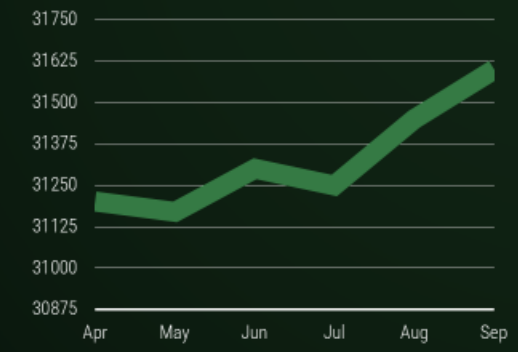
36.4 Kg of CO2 — 181.8 Kg of CO2

GREEN ENERGY GENERATED — Goal

21.20 kWh — 50 kWh

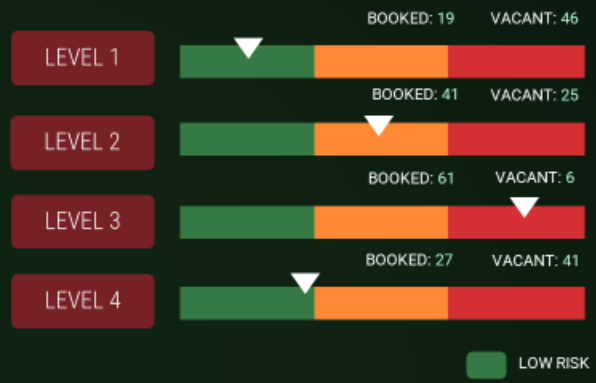
USAGE ESTIMATE

BUILDING LOAD

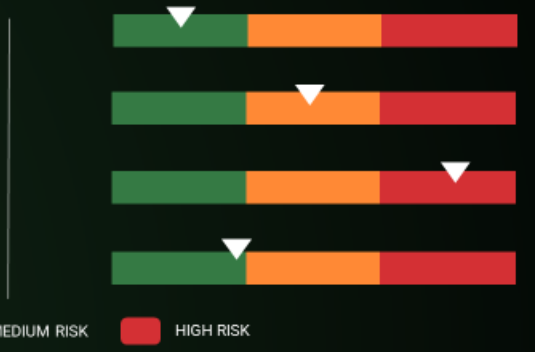


ADDITIONAL READINGS

OCCUPANCY LEVELS



CO2 LEVELS



KEY PLANT INFO

Generator	Good
Main Board Breakers	Good
UPS	Good
Oil Tank	Good
Heat Pumps	Fault
CHW System Temperature	Good
LPHW System Temperature	Good
Ventilation System	Fault
Water Services System	Good
Active Legionella Risk	Good
Predictive Maintenance Alert	Good

KEY COMMS ROOM

MER Room Temperature	Good
MER AC Unit	Good
MER AC Predictive Maintenance Sensor	Good
Leak Detection	Fault
Door Open/Closed	Good
Comms Cabinet Door Status	Good

NETWORK

BMS	Good
RTLS	Good
IoT	Good

Data
Analytics

MCCOOL CONTROLS & ENGINEERING LTD.

Data Analytics

MCCOOL CONTROLS & ENGINEERING LTD.

RTLS/IoT influenced HVAC controls

RTLS Based Ventilation Strategy

MCCOOL CONTROLS & ENGINEERING LTD.

Focus on Performance

.....Leave the Science to the MSI

MCCOOL CONTROLS
& ENGINEERING LTD.

Q&A

Please ask – we answer!

Thank You!

Continue the discussion and contact **Actility, Quuppa, Favendo, M2M Germany and McCool Controls & Engineering** technical and commercial experts directly at:

Torsten Amstein - torsten.amstein@quuppa.com

Stefan Balduf - stefan.balduf@favendo.com

Marius Nickolai marius.nickolai@m2mgermany.de

Eóin McCool - emccool@mccoolcontrols.ie

Shmuel Solomon - shmuel.solomon@actility.com