Quuppa Overview

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Quuppa Company Overview

- Founded in 2012, spin-off from Nokia Research Center, technology developed since 2005
- HQ in Finland; offices in Washington DC, Shanghai, Shenzhen, Beijing, Sydney, Mumbai and Dubai
- 500+ customers
- 160+ business partners (system integrators, service providers, tag vendors,…)
- 2000+ systems delivered to 53 countries
- Key achievements in 2019;

Gartner Magic Quadrant

Visionary in Indoor Location Services study 2020

Quuppa Generation Q

Generation Q Locators and new subscription model launched

Liiga KHL

Wisehockey wins Finnish Hockey League and KHL league deals

orange

Orange Business Services Global Partnership

Bluetooth

Bluetooth 5.1 Standard in-line with Quuppa AoA/AoD

NORDIC SEMICONDUCTOR

Nordic Semiconductor Global Partnership

SILICON LABS

Silicon Labs Global Partnership

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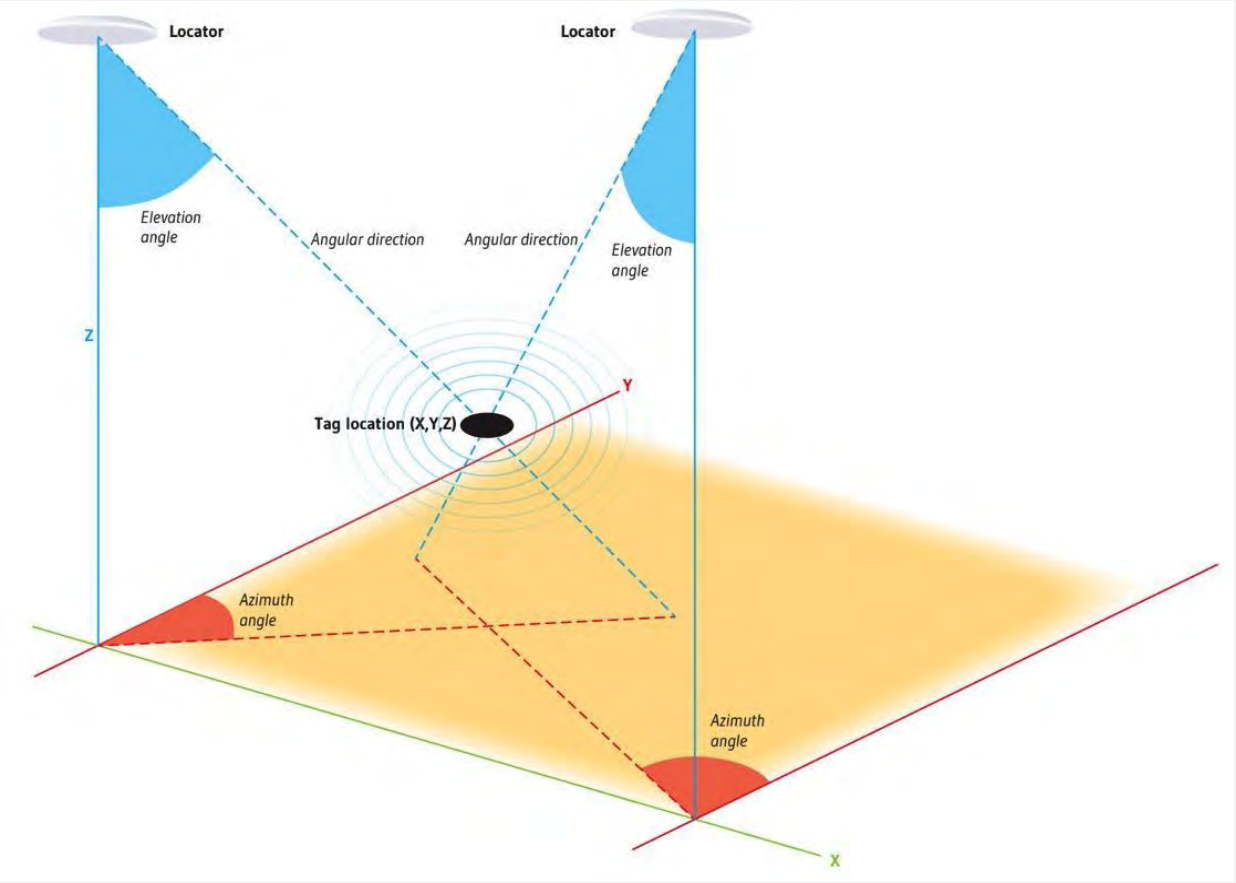

Quuppa Intelligent **Locating System™**

Standard Bluetooth Low Energy (BLE) technology but not RSSI

Angle of Arrival (AoA) and Angle of Departure (AoD) methodologies

Advanced Positioning Engine

Advanced Software Tools

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Bluetooth Standard for Direction Finding Feature

BT5.1: Enhancing Bluetooth Location Services with *Direction Finding*

KIRKLAND, Wash. – January 28, 2019 – The Bluetooth Special Interest Group (SIG) today announced a new direction finding feature that holds the potential to significantly enhance the performance of Bluetooth location services solutions. The new feature allows devices to determine the direction of a Bluetooth signal, thereby enabling the development of Bluetooth proximity solutions that can understand device direction as well as Bluetooth positioning systems that can achieve down to centimeter-level location accuracy.

Bluetooth®

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Technology Comparison

	Quuppa (BLE/AoA)	UWB (RTT/ToF)	UWB (TDOA)	Wifi / Active RFID (RSSI)	Beaconing (BLE/RSSI)
Developed for Positioning	Yes	Yes	Yes	No	Some Profiles
Tag Power Consumption	Very Low	Very High	Low	High	High
Accuracy	0.1m - 1m	0.1m - 1m	0.1m - 1m	5m - 20m	5m - 20m
Real-time	Yes	Yes	Yes	No	No
Smartphone Compatibility	Yes	No	No	Yes	Yes
IoT Gateway	Yes	No	No	Yes	No
Cost of Setup	Medium	Medium	Very High	Medium	Low
Cost of Ownership	Low	High	Medium	Medium	Medium

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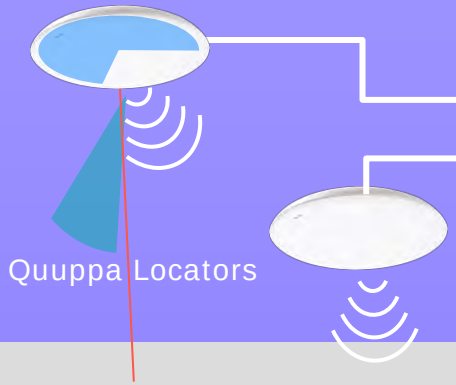
Quuppa Intelligent Locating System™



Quuppa Locators

Power Over
Ethernet switch

Quuppa Positioning
Engine

Open API

Quuppa-compatible
BLE tags and devices

BLE-enabled
sensors

Customer Applications
and System Monitoring

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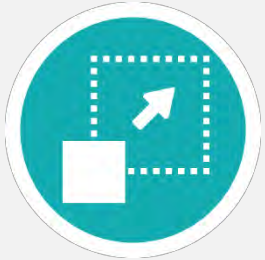
Key Benefits

Accurate

Versatile



Scalable

Open

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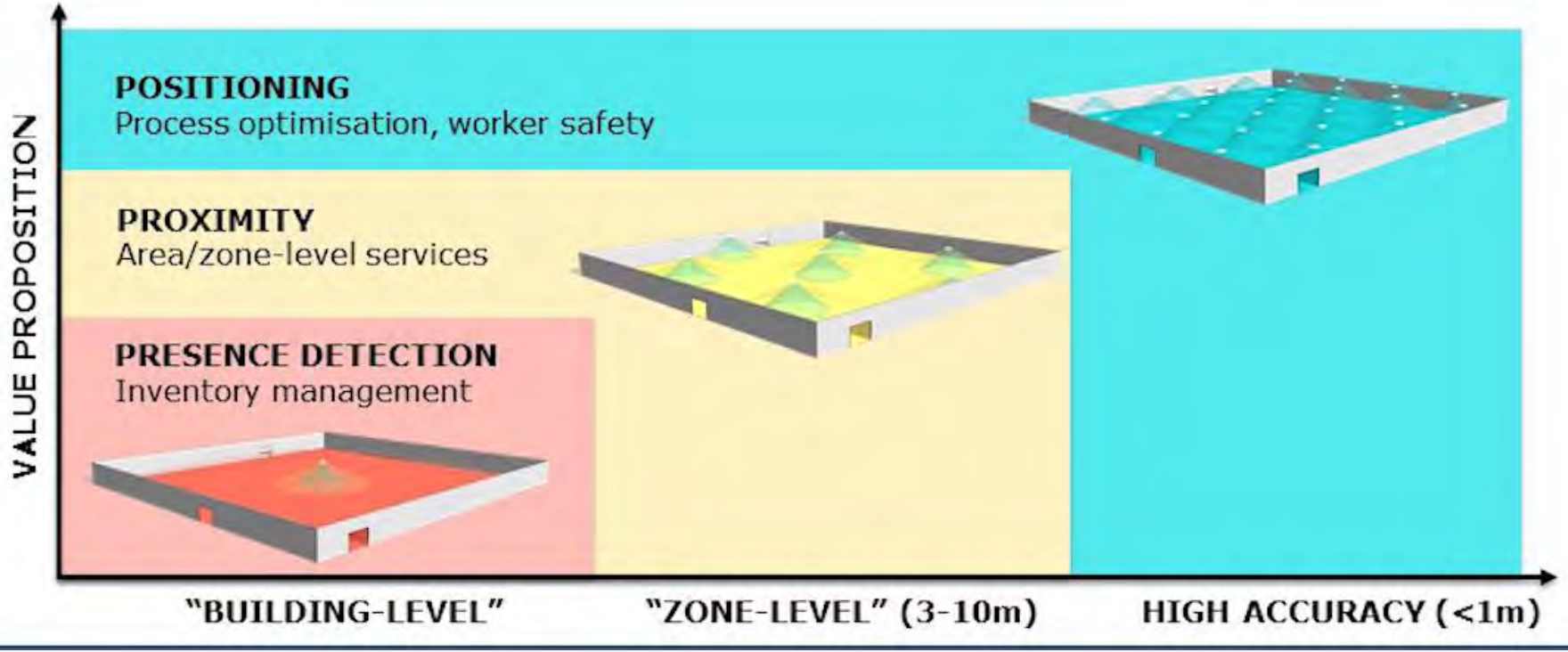
Scalable, versatile solution



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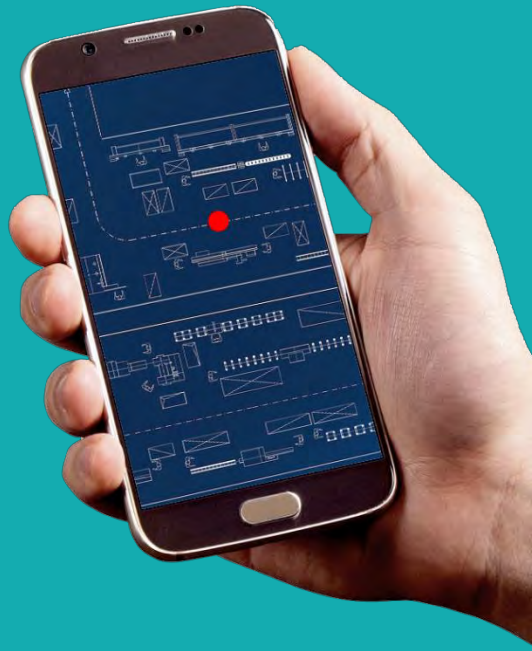
Open: Wide Range of Quuppa Compatible Tags, Sensors & Devices



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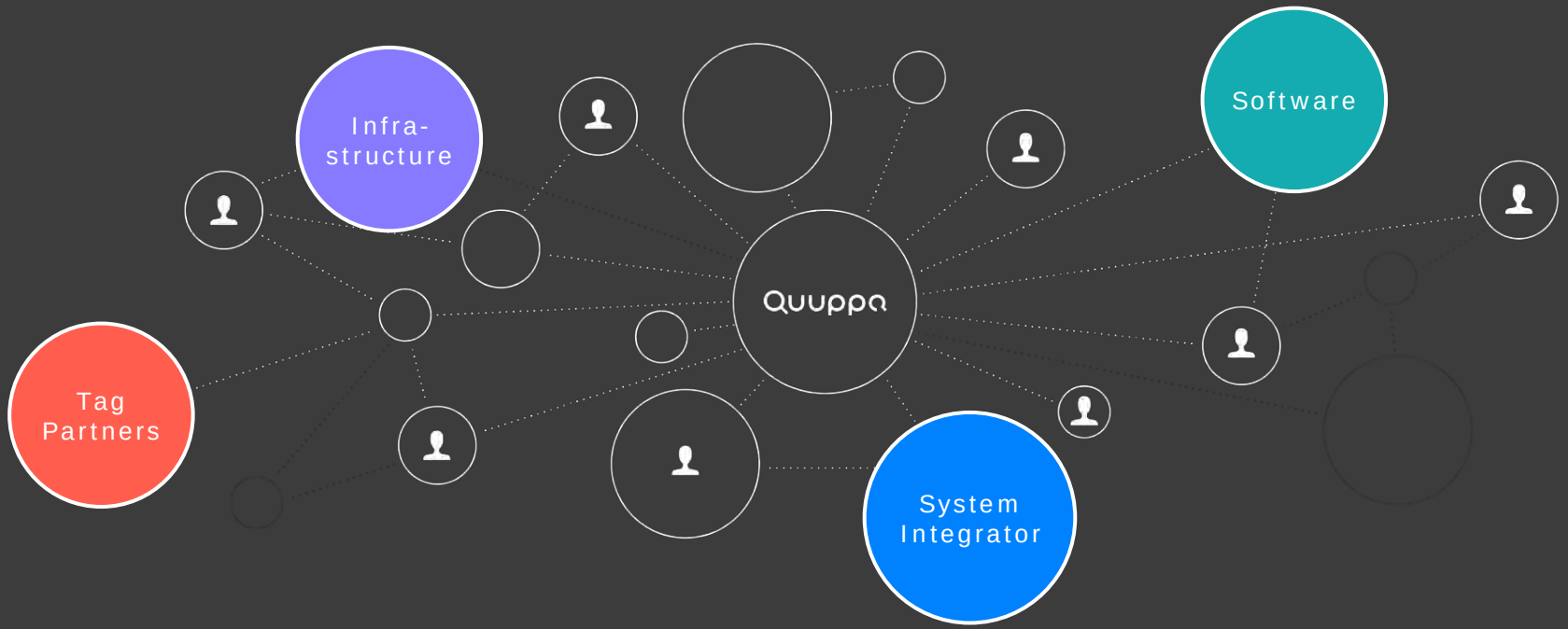
View More About Partner Tags

Open go-to-**market strategy: building the world's largest RTLS ecosystem**



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Case Ice Hockey: Fully automated data collection and continuously evolving AI-based analytics

Player performance

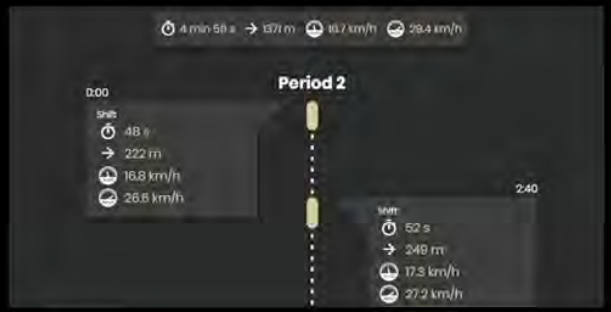
- Time on ice
- Skating distance
- Average/maximum speed
- Shot velocity
- Player heat maps
- Plus-minus statistics

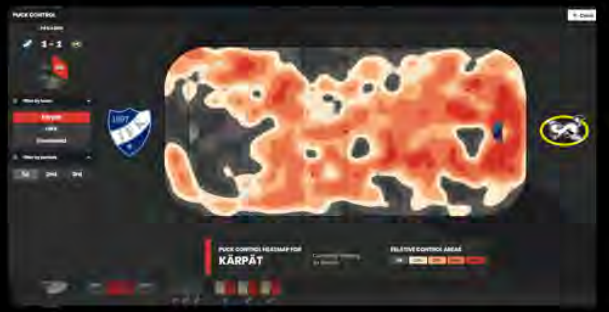
Team performance

- Shot maps
- Faceoffs
- Puck possession
- Zone entries
- Power play effectiveness
- Shooting effectiveness

Tactical performance

- Virtualized game events
- Shift charts
- Game flow (momentum)
- Team & puck heatmaps
- Offensive / defensive performance





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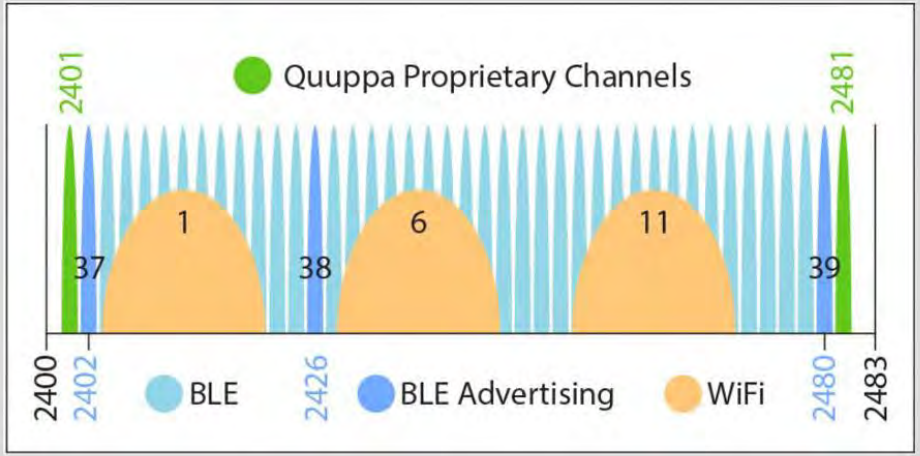
Radio Interference Free Solution

- Proprietary operation mode for tracking Quuppa Tags.
- For environments where fast location update rates are required and/or BLE channels are crowded, such as sport stadiums
- Utilizing frequency channels at the edges of the 2.4GHz ISM band
- Free from other standard wireless systems, including WiFi, Bluetooth, BLE, and wireless microphones
- Minimized inter-system interference



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Use Cases - Industry Examples

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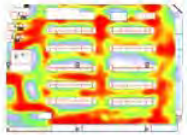
Industry 4.0 (Manufacturing & Logistics)

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,...

Maintenance of assets and vehicles
Locate assets in need of maintenance (e.g. forklifts). Prevents valuable tools from being "misplaced".

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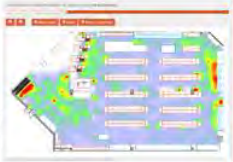
Retail

Shopper behaviour analytics
Tracking of shopper baskets and trolleys



In-store navigation
Context-aware marketing campaigning to shoppers with smartphone app

Assistance Needed Service
Provide shoppers with a location based service (e.g. find a product)

Self scanner tracking
Locationing of consumer self-scanners to provide accurate product placement information

Picker service optimisation
Using back-channel on ESL to guide pickers to the right products

Remote sensing
Remote monitoring of e.g. white goods in a retail store

Anti-theft alert
Prevent theft of valuable products, e.g. With integratíon to CCTV system

Queue management optimisation
Forecast the queue development based on historical patterns and current locationing data

Customer service monitoring
Monitor staff activity based on time engaged with shopper

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Hospitality

Visitor behaviour analytics
Tracking of exhibition visitors, providing heatmaps, journeys, time spent at ...

Visitor navigation
Navigation to the place of interest with smartphone application or e.g. with interactive screens

"Find my child"-service
Tracking of e.g. children in large exhibition venues

Personalised service for VIPs
Personalised treatment to VIPs, based on provided personal profiles on their event tags

Location-aware services
Providing e.g. the exhibitors location-based marketing services to visitor smartphones in the vicinity

Asset tracking
Inventory and maintenance process optimisation by tagging valuable and business critical assets (e.g. tools, forklifts)

Workforce management
Managing the security guards by knowing their location and by sending commands (dynamic tags with e.g. LCD screens)

Evacuation management
Ensure fast evacuation of venue in case of emergency by knowing where people are located.

Contractor management
Ensure subcontactors are fulfilling agreed service level agreements

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Healthcare

Staff Safety
Anti-assault and assistance needed-button with back-channel acknowledgement

Inventory Management
Crash cart inventory and patient bed check and locationing

Hand-held hygiene compliancy
Ensure hand sanitation is done as required

Asset tracking
Locationing of mobile valuable medial equipment for compliancy and cost efficiency reasons

Patient safety
Alzheimer and dementia patient tracking with minimum privacy intrusion

Productivity optimisation
Optimise staff member productivity based on asset locationing

Visitor guidance
Online navigation in hospitals using smart phone navigation and/or displays

Contractor management
Ensure subcontactors are fulfilling agreed service level agreements

Assistance Needed
Non-intrusive Assistance Needed-button on patient mobile assistance equipment

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Sports

- Automated Statistics
- Asset Tracking
- Athlete Training
- In-Game Analytics
- Fan Engagement
- Betting
- Athlete Performance
- Team Strategy
- TV Broadcast Overlay

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Smart Buildings

- Access Control
- Visitor Management
- Automate Emergency Procedures
- Optimise Spaces
- Optimise Operations
- Increase Performance
- Reduce Carbon Footprint
- Improve Well-being & Happiness
- Encourage & Accelerate Collaboration

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Security

- Access Control
- Ensuring Legal Compliance
- Automatic System Monitoring
- Intrusion Detection
- Staff Management (SLA)
- Space Utilisation
- CCTV Integration
- Automated Emergency Procedures
- Visitor Management

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Versatile Solution Across Industry Verticals

Industry 4.0	Healthcare	Smart Buildings	Sport	Security	Hospitality & Retail
Employee safety	Staff & Patient Safety	Space Optimisation	Game & Player Analysis	Staff & Inmate Safety	Customer Behaviour Analytics
Process optimisation	Medical Equipment Tracking	”Find Your Colleague”	Fan Engagement	Compliance Regulations	Inventory Management
Quality Assurance	Hospital Workflows	Staff Safety	Online Betting Services	Automated Surveillance	Fast-food Service Optimisation
Inventory Management		Access Control			
		Domotics			

Quuppa

Providing an open, versatile and scalable hardware and software platform for all industries

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View Use Cases on quuppa.com

Key Features and Benefits

- Superior Accuracy
- Open Tag Design
- Long Battery Life
- Real-time
- Open API
- Maintenance-free
- Compatible
- IoT Gateway
- Interference-free

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Thank You

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