



Real-time locating technology for Yard Management



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Imagine the world in 10+ years...



The **CONTEXT** makes the
CONTENT relevant.





Smart Yard use cases that require real-time (location) data

Locate and manage Work-In-Progress (WIP) in real-time

Locate assets and vehicles in need of maintenance. Prevents valuable tools from being "misplaced".



Process efficiency

Route optimisation based on workflow orders and accurate tracking of assets and personnel



Intelligent access control

Allowing only personnel and vehicles to enter the area with authorised profiles (tags with unique user ID)



Evacuation management

Ensure fast evacuation in case of emergency by knowing the location of the personnel



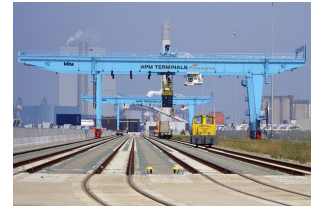
Collision avoidance

Preventing coning vehicles and other machinery from colliding with maintenance personnel



Dangerous area detection

Alarm triggering when detecting unauthorised entry to e.g. the rail yard





Improved operations and employee safety by locating trailers and other vehicles during loading of vessels

Challenge

- Finding the relevant assets (i.e. trailers and containers) for the loading process is crucial due to the limited time being allocated. Assets look similar, they may be parked as instructed all which causes unnecessary search times
- Many moving vehicles in a small area can cause accidents to happen

Solution

- Tags are mounted to assets to track them
- Quuppa Locators are installed in the high lamp masts
- Quuppa system locates the assets in real-time (<1m) which helps to significantly reduce search times
- Assets can be also tracked in real-time as they are being moved





Bluetooth Standard for Direction Finding Feature



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.





Global standard but Technology independency



























- Tags
- Sensors



- Handset manufacturing
- Robotics and automation





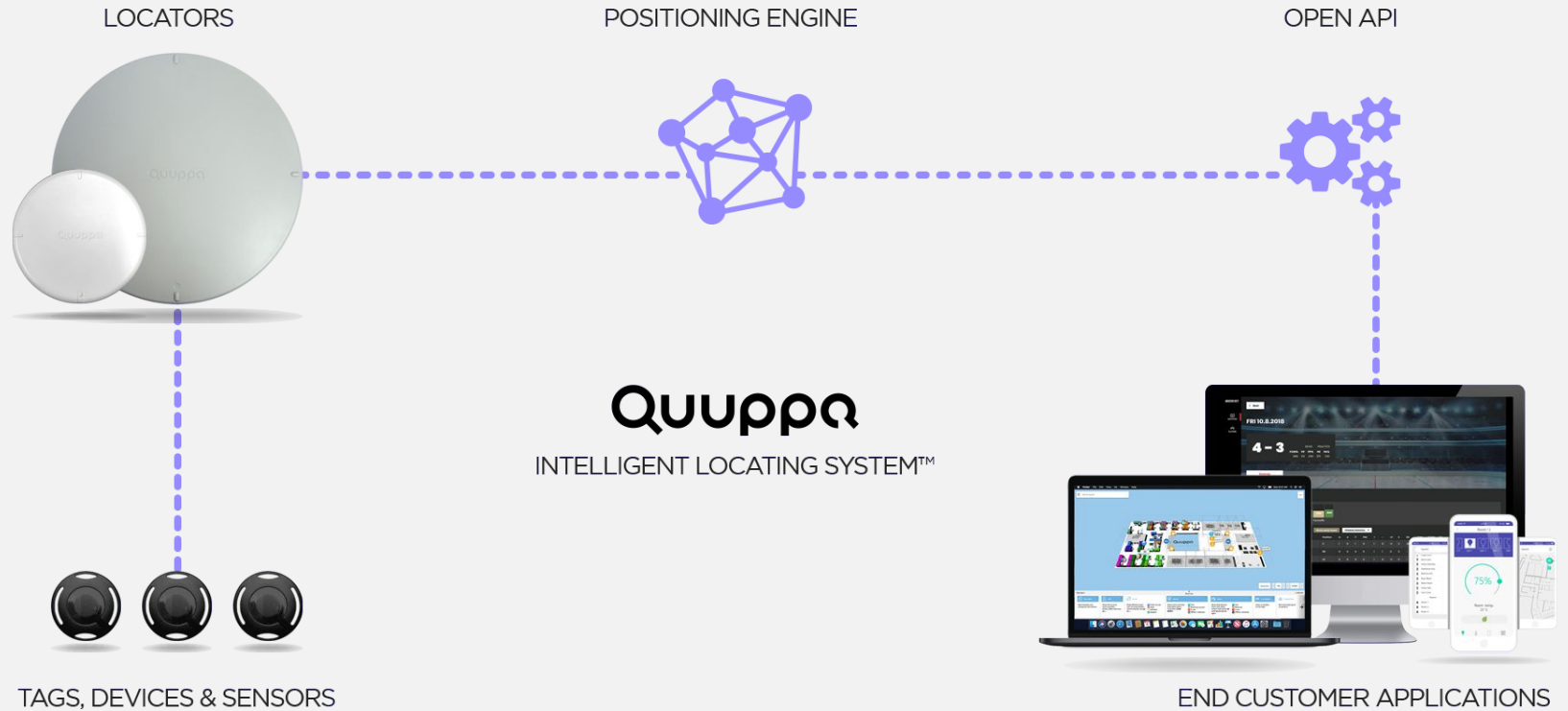
	Quuppa	Bluetooth® (RSSI)	LWB	WiFi™	RFID	GPS
ACCURACY	 < 1m	 1-5m	 < 1m	 5-20m	 1-5m	 5-20m
REAL-TIME	< 1 sec	10-30 sec	< 1 sec	10-30 sec	10-30 sec	10-60 sec
BATTERY CONSUMPTION	 Low	 Medium	 High	 High	 Low	 High
RANGE	upto 300m	upto 300m	upto 200m	upto 150m	upto 5m	Global
IOT GATEWAY*						
SMARTPHONE COMPATIBLE						
TOTAL COST OF OWNERSHIP**	€	€	€€	€€	€€	€€€
SCALABILITY	1000s of Tags	Unlimited	1000s of Tags	100s of Tags	1000s of Tags	Unlimited
SECURITY	★★★★★	★★☆☆☆	★★★★★	★★☆☆☆	★☆☆☆☆	★★★★★

* Capability to transmit data effectively for remote sensing

** Defined by cost of initial planning & deployment cost + 3-5 years maintenance



Quuppa System Architecture





Thank You!

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