Tinynode
Parking, smarter.
A PARADOX ENGINEERING COMPANY

Press release

Smart Parking: Tinynode releases enhanced wireless systems for vehicle detection

New sensing technology granting over 99% radio communication availability, 98% detection accuracy and up to 10-year battery life will be unveiled at Parkopolis 2017 (Paris, June 21st and 22nd 2017)

Novazzano, Switzerland, June 12th 2017 – **Tinynode**, the Swiss company specialized in wireless vehicle detection systems, now a **Paradox Engineering** company, introduced an **enhanced version of its sensor technology** offering **superior performance, robustness and extended life-time**. Thanks to substantial achievements in algorithm, hardware, software and firmware, Tinynode parking solutions grant **over 99% radio communication availability**, **98% detection accuracy** and **up to 10-year battery life with a single sensing technology that assures outperforming stability and reliability**.

Urban mobility and traffic are increasingly hot issues in contemporary urban areas, and independent studies proved that about **30% of overall road congestion is due to parking search**. Smart Parking solutions allow municipalities to improve drivers experience and increase the average usage of existing facilities, thus reducing idle itineraries looking for a free spot, and related fuel, time waste, stress, and air pollution.

Tinynode solutions provide **high-accuracy vehicle detection systems** for **a number of Smart Parking applications**, including street level car parking, indoor and outdoor facilities, multi-storey parks, time-limited parking lots, and specific solutions for electric vehicles spots and charging stations, truck and heavy goods vehicles rest areas.

Tinynode solution integrates **A4 and B4 car sensors** to detect single-space occupancy, **R4 and SR4 repeaters**, and **G4 gateways** to build a reliable and secure wireless network to **remotely monitor and control parking facilities**, collecting and taking advantage of a full range of **parking-related data**, such as the number of available lots in a specific area, the duration of each parking and possible abuses (ie. vehicles exceeding time limits, unauthorized parking in disabled spots or in electrical vehicle charging stations, etc.).

By seamlessly integrating the solution with **mobile apps, variable message panels and traffic guidance systems**, it becomes possible to alert drivers with real-time parking availability and route them to the nearest facility. Parking managers can set **dynamic**

pricing schemes and launch **additional services**, such as online booking and payment services, parking coupons and valet services for shops and local businesses, and more.

Superior performance, robustness and extended life-time

At Parkopolis 2017, the parking and mobility event taking place at Paris – Porte de Versailles on June 21st and 22nd 2017, Tinynode is showcasing the **latest version of its sensor technology**, featuring relevant improvements in algorithm, hardware, software and firmware.

Based on purpose-built, lowest-power electronics and a multi-hop, self-configuring, self-healing mesh, patented radio protocol, Tinynode technology has been perfected over time by the R&D department, in close collaboration with data scientist experts leveraging machine learning methods.

Having optimized radio hardware on sensors, **radio communication availability now exceeds 99%**, while **detection accuracy is over 98%** thanks to the **proprietary statistical algorithm** enabling a more accurate signal processing. The new software, embedded on G4 gateways, compares esteemed vs. actual vehicle presence once per minute for about 14 thousand times, ensuring higher stability and overall performance of the detection technology.

Tinynode sensors also offer **higher robustness** thanks to the revised physical positioning of internal components and PCB layout, thus granting an **increased resistance** to mechanical constraints (ie. street and high pressure cleaning, heavy goods vehicle transit, etc.), temperature variations, humidity, vibrations, and a **more effective protection against interferences**. These improvements allow Tinynode devices to be successfully implemented in any outdoor environment and harsh weather condition.

Product life-time has been extended by equipping vehicle sensors with **top-class batteries** which ensure **up to a 10-year autonomy**, also offering **low-tech installation and management**.

Visit Tinynode at Parkpolis 2017: hall 5.1, stand E03

About Tinynode SA

Tinynode provides high-accuracy outdoor vehicle detection systems for parking-related applications, based on purpose-built, lowest-power electronics and a multi-hop, self-configuring, self-healing mesh radio protocol.

Tinynode SA was created in 2012 as a spin-off of Shockfish SA. In the early 2000's Shockfish had built strong expertise in low power electronics and radio protocols by developing a device used in event management (SpotMe). Based on this experience, Shockfish began working on wireless vehicle detection in 2004, starting with a European research project on developing smarter highways. Eight years later, the business unit was transformed into a subsidiary, Tinynode SA, which entered Paradox Engineering's ecosystem in 2015.

Tinynode's mission is to design and sell wireless vehicle detection systems. Tinynode aims at contributing to a smarter, safer, easier and more comfortable driving world. Tinynode's products are reliable, high-performing, cost-effective and long-lasting, and they easily integrate with other technologies.

For more information, please visit www.tinynode.com

About Paradox Engineering SA
Paradox Engineering SA is a technology company that designs and markets solutions and services to unlock the value of data for smart industrial and urban networks in the Internet of Things (IoT) age. Unique competences in radio design, network design and management, low power consumption and data collection at the heart of Paradox Engineering's technological leadership. The Company conceives and provides open standard wireless sensor network solutions for smart environments, global virtual networks and OEM versions of its core network technologies.

Established in 2005 and headquartered in Switzerland, the Company is part of MinebeaMitsumi Group, leading global provider of Electro Mechanics Solutions™, which acquired full capital and assets of Paradox Engineering SA in July 2015.

For further information: www.pdxeng.ch

Media contact:
Silvia Vergani, Tinynode SA, ph. +41 91 233 01 00, e-mail: svergani@pdxeng.ch