VORTEX IoT

Making the Physical Digital

OptiPark– VL0116 Dec. 2018

Retrofit Smart Parking System

DESCRIPTION

OptiPark is a smart parking product delivering a low-cost, retrofit and scalable system for monitoring parking spaces. The system offers low-power, bespoke Light Detection and Ranging (LiDAR) remote sensing technology using range-gated laser to detect the presence of vehicles parked on street and outdoor parking bays.

The wireless device is designed for low-cost deployment on exisiting urban infrastructure and street furniture e.g. light poles.

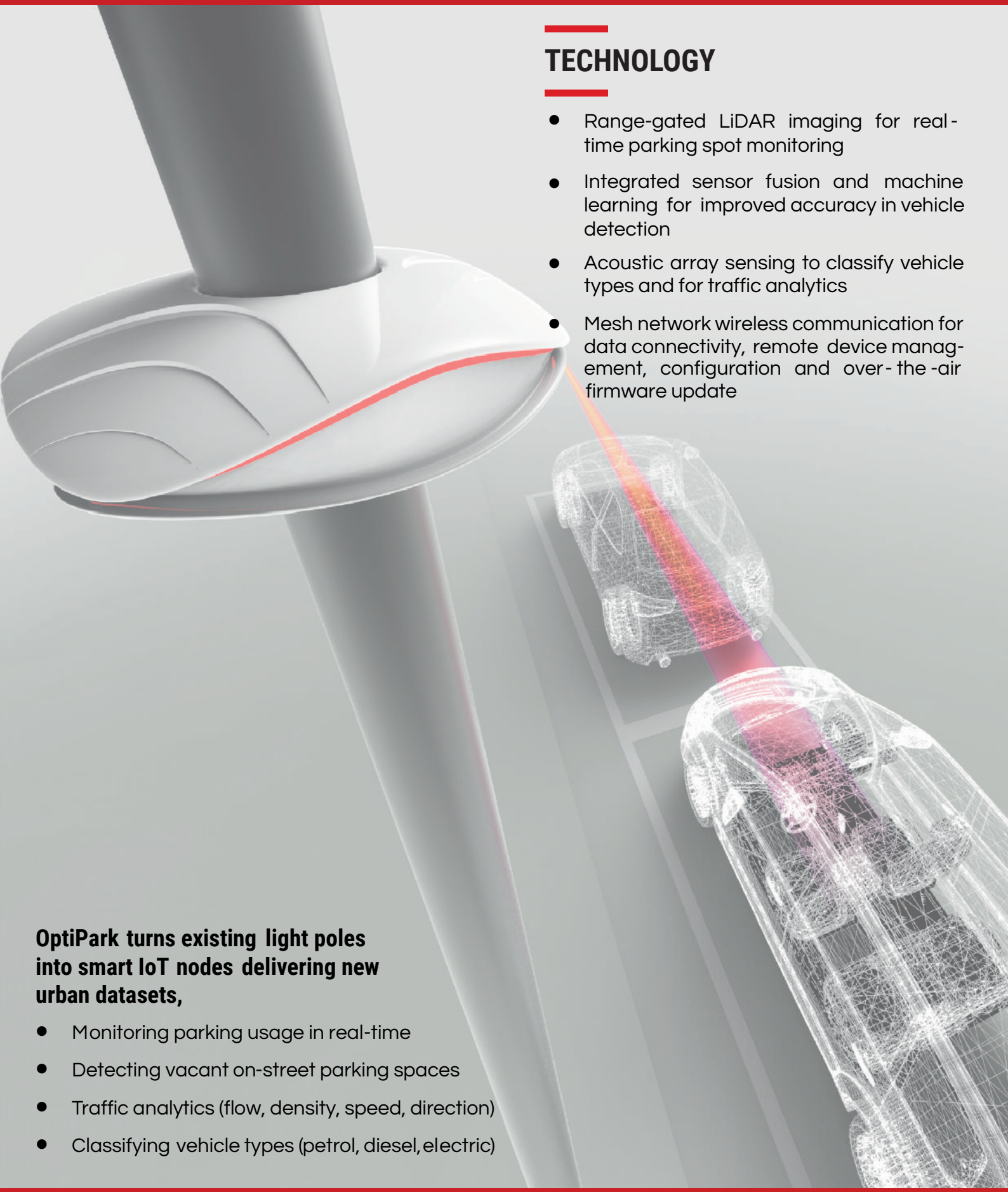
KEY FEATURES

- LiDAR-based parking spot monitoring
- Integrated AI and Sensor Fusion
- Retrofit design for low installation cost
- Coverage of multiple parking spots by a single device
- Scalable wireless mesh network (Thread ZigBee)
- Integrated wireless mesh connectivity to Edge/ Cloud
- Low maintenance, non-invasive and long life (>10 years)
- Mains power option by tapping into light poles
- Mounts on light poles and vertical posts e.g. signposts, CCTV posts

APPLICATIONS

- Backbone IoT infrastructure for smart city deployments
- Next generation 3rd party mobile apps for parking guidance
- Large-scale smart city deployment with the potential to deliver new revenue-generating streams for local authorities
- Improved customer experience for private parking providers

OptiPark



TECHNOLOGY

- Range-gated LiDAR imaging for real-time parking spot monitoring
- Integrated sensor fusion and machine learning for improved accuracy in vehicle detection
- Acoustic array sensing to classify vehicle types and for traffic analytics
- Mesh network wireless communication for data connectivity, remote device management, configuration and over-the-air firmware update

OptiPark turns existing light poles into smart IoT nodes delivering new urban datasets,

- Monitoring parking usage in real-time
- Detecting vacant on-street parking spaces
- Traffic analytics (flow, density, speed, direction)
- Classifying vehicle types (petrol, diesel, electric)

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INTEROPERABILITY

- Supports Internet Protocol IPv6 and is interoperable with devices that support internet protocol providing transparent network connectivity between nodes.
- Interoperable with other commercially available Zigbee systems.
- Smart City sensor devices from other vendors that comply with Thread, 6LoWPAN and IEEE802.15.4 will able to join and establish connectivity with Vortex Mesh Network™ allowing it to act as a backbone infrastructure for carrying the data generated by 3rd party sensors.

CLOUD & EDGE CONNECTIVITY

- 6LoWPAN(IEEE802.15.4, 2.4GHz,868MHz) standard compliance with physical layer level and MAC satisfying IEEE 802.15.4 standard. Furthermore, it uses MQTT standard (ISO/IEC PRF 20922) for establishing connection in bandwidth-limited networks.
- Each device has its own IPv6 addressing and security is provided by AES 128bit encryption AES 256bit is optionally available.

Vortex IoT Edge Architecture