Smart Parking

Smart Parking Sensor Technology is a radar sensor device that allows the detection of parking availability indoors and outdoors. Its main features are:

- Wireless detection of parking spot occupancy.
- Best accuracy in the market: radar and magnetic technology combination.
- IP68 and IK10 protection and fully certified (CE, UKCA and FCC).
- LoRaWAN wireless communication protocol.
- Over the air (OTA) set up.
- Two ways of installation (on surface and semiunderground
- Almost zero maintenance needed.
- **Removable battery** to only buy component, instead of buying a new device. Therefore we are sustainable and we can reduce costs compared to other options.
- **Now it is** FIWARE **ready**

Its main use cases are, among others:

Parking Slots and public areas

- Capacity optimization
- Emergencies management
- Online payments and additional revenues
- Special permits detection
- Loading / unloading areas
- Taxis / public transport
- Disabled parking places
- Parking guided systems
- Electric vehicle recharging places

Roads

- Traffic congestion
- CO_2 measurement
- Noise level measurement

Malls

- Pricing strategies
- Time spent looking for a parking space

Dual detection system

	RADAR ★★★★★	MAGNETIC back-up	INFRA-RED
Reliability against nearby vehicle movement	✓	✘	✓
Reliability against nearby parked vehicles	✓	✘	✓
Reliability against electromagnetic interferences	✓	✘	✓
Reliability in any lighting scenario	✓	✓	✘
Stability during long-duration vehicle stays	✓	✘	✓
Do not need an aperture in enclosure	✓	✓	✘
Immunity against dirt or dust on enclosure	✓	✓	✘

Double Installation Deployment

	ON-SURFACE	SEMI-UNDERGROUND
Type of enclosure	Vaulted	Vaulted
Presence of node over the ground	Full node(40.25 mm)	Part of (~6 mm)
Rain inmunity	✓	✓
Puddle inmunity	✓	✓
Vandalism/Robbery inmunity	Medium	High
Snowplow inmunity	No	Possible
Installation process	Fast and easy	Special tools needed
Tools needed	Normal drill	Industrial, big crown drill. Epoxy
Can be dismantled for maintenance?	✓	✘

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MECHANICAL SPECIFICATIONS	Dimensions	200 x 200 x 37.25 mm
	Enclosure materials	Polyamide, polypropylene and glass fiber
	Weight	0.813 kg (including installation accessories) 0.540 kg (just the Smart Parking node)
	IP Grade	IP68
	IK Grade	IK10
	Operating temperature	-20 to +65 °C
GENERAL SPECIFICATIONS	Provisioning	Ready to install (factory LoRaWAN OTAA IDs and key are loaded to each node)
	Configurable sleep time	Min: 10 seconds Max: 10 minutes
	Detection accuracy	> 99%
CONNECTIVITY	Wireless communications	LoRaWAN
	LoRaWAN regions supported	EU 863-870 MHz ISM Band (Europe) US 902-928 MHz ISM Band (United States) AU 915-928 MHz ISM Band (Australia) IN 865-867 MHz ISM Band (India) AS 923 MHz ISM Band (Asia and ASEAN region)
	Remote parameter configuration	Via Libelium Cloud
	LoRaWAN parameters re-configuration	Via USB port
POWER SPECIFICATIONS	Built-in lithium-thionyl chloride (Li-SOCl2) batteries	Expected lifetime of 4-10 years
SENSORS	Radar	
	Magnetic	
	Temperature	
	Battery level	
CERTIFICATIONS	FCC, IC, CE, UKCA	

Robust waterproof IP68 enclosure and low-power battery

The best quality parking solution

The device is protected inside a small and extremely tough enclosure. It is IP68 rated, which means it remains waterproof even submerged in water. Each node is provided with professional screws and anchors, resistant to tampering and vandalism. Besides, it is certified for IK10, the maximum rating too for external mechanical impacts: protected against 20 joules of impact (the equivalent to the impact of a 5 kg mass dropped from 400 mm above the impacted surface). Easily reset by passing the magnet over the node. Wide range of temperature: -20°C to 65°C.

On top of this, Libelium Smart Parking was created to last. Apart from the robust enclosure, the electronic design focus on being low-power and the battery has a huge capacity of 10,400 mA·h. Besides, the Night Mode saves energy during hours of low rotation. All this can lead to 10+ years of uninterrupted operation.*

(*) Battery Life depends on parameters such as the number of packets sent per day or the distance from the nodes to the Base Station

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