



fastprk^W

WORLDSENSING

PARKING MANAGEMENT SYSTEM

SOFTWARE SUITE

GATEWAY



SENSORS





WORLDSENSING

THE LEADING OUTDOOR PARKING MANAGEMENT SYSTEM REVOLUTIONIZING HOW PARKING SPACES ARE MANAGED

Fastprk is an intelligent Parking Management System that allows cities and operators to manage parking resources more efficiently and parking operators to generate additional revenue.

The wireless system uses smart sensors installed in parking spaces and guides drivers to areas with vacancies via electronic panels and mobile Apps.

While **Fastprk** provides drivers with information to save gas, money, and nerves, parking operators can leverage insights and updates to optimize parking policies.

Fastprk is the only system on the market featuring an integrated monitoring tool for sensors which provides real-time sensor updates on battery status, temperature, last message transmitted, and more.

FEATURES

For cities & operators

- Real-time occupancy information
- Detection of overstaying vehicles
- Centralized data management from a single control center
- Data analytics software
- Third party data input APIs

For drivers

- Search guidance through electronic panels and Mobile app
- Special permits detection
- Integrated payment platform

BENEFITS

For cities & operators

- Improve parking occupation policies
- Implement flexible pricing strategies based on demand
- Have greater control over special permit spaces
- Integrate existing city operation systems
- Save resources through fast implementation
- Decrease costs through easy maintenance
- Generate additional revenue
- Improve customer experience and increase loyalty
- Create a more sustainable city

For drivers

- Save time, costs, and nerves looking for parking spaces
- Find spaces for special permits
- Use the Mobile app to find parking spaces faster



FASTPRK TECHNOLOGY

COMPLETE SOFTWARE SUITE

The Fastprk Software Suite is a real-time, 24/7, web-based software (available on Firefox and Chrome) enabling cities and parking operators to effectively manage parking spaces. It includes four individual tools for analyzing and archiving data in real time: the Fastprk Configuration, Monitoring, Visualization, and Analytics Tool. In addition, the Fastprk Parking Management System offers secure, standard web-based API REST services to connect to 3rd party software solutions and provides a connection to a data warehouse where historical data is aggregated and stored.

ADVANCED SENSORS

The Fastprk Parking Management System is built to perform in magnetically challenging environments thanks to its capacity to dynamically adjust its calibration values and vehicle detection thresholds. Fastprk uses infrared and electromagnetic sensors to accurately detect the presence of vehicles. All sensors have a minimum detection rate of 95% due to advanced and proprietary computing algorithms implemented in the sensors and the server. All sensors feature high-quality LITHIUM-ION batteries which last up to 7 years.

HOW IT WORKS



Operational Intelligence
for Cities and Parking Operators

Worldsensing was not only among the first in the world to equip parking spaces with smart devices, we also know how to extract intelligence from collected data to transform parking management operations.



CONFIGURATION TOOL

The Fastprk Configuration Tool helps users to easily set up their network. It is user friendly and allows configuring all network devices.

MONITORING TOOL

The Fastprk Monitoring Tool constantly monitors all network devices and triggers an alarm in case of a communication shutdown between devices.



SOFTWARE SUITE - BASIC

CONFIGURATION TOOL

FEATURES

- Location configurator (longitude and latitude)
- Group sensors in areas or sectors
- Assign attributes to sensors such as:
 - Type of area (payment area, disabled parking, etc.)
 - Payment information (pricing, description, etc.)
 - Occupancy thresholds (percentage of free spaces, medium or total occupation)
- The Configuration Tool includes a table and map showing all network devices:
 - Sensors and sectors
 - Gateways
 - DMS (Dynamic Message Signs)

MONITORING TOOL

FEATURES

The tool consists of two main dashboards:

- The tactical overview dashboard provides a general view of all activity and alarms from the previous month.
- The devices dashboard gives a detailed overview over the health of all sensors and gateways and their behavior during a chosen period of time. It can detect a local issue in time and sets off an alarm to prevent critical situations.
- Summary of recent data from the entire network.

VISUALIZATION TOOL

FEATURES

- Indicates length of stay:
 - Sensors are colored in a different hue depending on whether the parking spots have been occupied for 30 minutes, 4 hours or over 4 hours.
- Users can quickly visualize the average occupancy time and turnover of each sensor and sector within the network by clicking on the respective device.
- Historical installation information (by sector or sensor) is available also.
- Downloadable Reports per slot or sector, daily or monthly, in CSV or MS Excel formats.

APIs & DATA WAREHOUSE MANAGEMENT

The Fastprk system offers secure, standard web-based API REST services to connect to 3rd party software solutions and provides a connection to a data warehouse where all historical data is aggregated and stored.

The system provides two types of APIs following JSON format:

- Basic PUSH API
- Extended PULL API
- Mobile PULL API

The type of API used depends on the solution the customer needs to implement.



VISUALIZATION TOOL

The Fastprk Visualization Tool allows visualizing the average occupancy and turnover of each sensor and sector within the network.

ANALYTICS TOOL

The Fastprk Analytics Tool is based on a Business Intelligence Platform which allows analyzing collected sensor data.



SOFTWARE SUITE - PREMIUM

ANALYTICS TOOL

FEATURES

The tool permits:

→ Advanced historical data analysis and data mining.

All data can be filtered by:

- Sector
- Type of sector
- Date and time

Other sources of data can also be integrated in order to perform data discovery and data matching, for instance for payments or enforcement data.

Fastprk may also be integrated with OneMind, Worldensing's intelligent IoT solution builder, to enable monitoring of all the city systems and add parking enforcement capabilities for:

- Special bays (loading/unloading, handicapped)
- Overstays and non-payment.



FASTPRK SENSORS

Fastprk sensors are advanced infrared and magnetic sensors for on-street and off-street parking spaces.

They can be easily flush-mounted or installed on the surface of a parking space.

The LPWA wireless design and battery operation ensure a quick and cost-effective installation and flexible operation.

Fastprk sensors feature reliable detection based on remote automatic vehicle recognition and can be calibrated in the cloud or with on-premise servers.

KEY FEATURES

MAGNETORESISTIVE & INFRARED SENSOR

NO REPEATERS NEEDED

BATTERY LIFE OF UP TO 7 YEARS

EASY TO INSTALL & USE

FLUSH MOUNTED

DETECTION AND CALIBRATION (CLOUD OR ON-PREMISE SERVER)

LOW-MAINTENANCE & SCALABLE

FEATURES

- Fastprk uses infrared and magnetic sensors to accurately detect the presence of vehicles.
- All sensors have a minimum detection rate of 95% due to advanced and proprietary computing algorithms implemented in the sensors and the server.
- The Fastprk system is built to perform in magnetically challenging environments thanks to its capacity to dynamically adjust its calibration values and vehicle detection thresholds.
- Fastprk's communication protocol is based on standard and certified technologies. Sensors communicate with their gateways wirelessly in a single hop.
- Gateways can be located within a radius of up to 500m (line of sight).
- Gateways forward all data to the database servers. This approach offers significant savings as there is no need for spending associated costs on either repeaters or a mesh network.



Fastprk Duo double encapsulation design for easy battery replacement



Fastprk Commissioning App



Fastprk Calibration App

MAIN SPECIFICATIONS

DETECTION

Magnetic and infrared detection

Detection time: 10 seconds

High reliability: minimum of 95% and up to 98%²

COMMUNICATION

LPWA, LORA[®]

Operating frequency bands: 868 MHz (EU) / 902 MHz to 928 MHz (US) / 920 MHz to 925 MHz (Singapore).

No repeaters needed

Communication area (1 km²): up to 500 metres from sensor to gateway.

BATTERY LIFE ESTIMATION

Flush: Seven years² of operation with built-in lithium-ion batteries.

MECHANICAL

IMPACT RESISTANCE: IK10 – Vandal proof design

SIZE: Flush: Ø 120 x 71 mm (Outer case)

WEIGHT: Flush: 435g

DOUBLE ENCAPSULATION CASING MATERIAL: PA

OPERATING TEMPERATURE: -30°C to +70°C

STORAGE TEMPERATURE: -30°C to +70°C

HUMIDITY: 0% to 100%

IP67: Compliant – Resistant to all kinds of weather conditions

STANDARDS COMPLIANCE: CE-FCC-IC-IDA

ELECTROMAGNETIC COMPATIBILITY: EN 300-220

EFFICIENT USE OF THE RADIO FREQUENCY SPECTRUM: EN 55022, EN 55024 and EN 61000

SAFETY: EN 60950

FCC PART 15: FCC ID 2AHN4FPGFLL

DEPLOYMENT TOOLS

To improve operations, each sensor contains a passive RFID tag. All configurations are selected from the calibration app which interacts directly with the sensor via a RFID transceiver.

The sensor ID is capable of being read even without sensor battery or when sensors are broken.

The commissioning app allows operators to follow a pre-configured route (i.e. an ordered sequence of parking bays) and to manually introduce the occupation status of each parking bay.

The application automatically retrieves the real occupation information of a sensor from the system servers. This ensures agile and accurate inspections while also minimizing the likelihood of human errors.

¹ Specifications are subject to review and change without notice

² Under normal usage and environmental conditions and depending on communication settings

FASTPRK GATEWAY

Fastprk Gateways collect data from deployed sensors via implemented LPWA wireless connectivity and deliver all data through a backbone network. The gateways offer long distance communication with sensor nodes over ISM bands.

KEY FEATURES

APPROXIMATE COVERAGE OF 1 Km2 IN DENSE CITIES

MULTIPLE BACKHAUL OPTIONS

ROLL-OUT FLEXIBILITY AND SCALABILITY

LOW POWER CONSUMPTION

ISM SUB GHz BANDS

EASY TO INSTALL & USE

FEATURES

- Type of coverage:
 - Bidirectional ultra-narrowband communication over ISM bands.
 - Frequencies may be adjusted to meet regulations in specific countries.
- The gateway scans ultra-narrowband channels of the radio-electric spectrum to identify incoming connections from sensor devices:
 - All potential signals are detected, recognized, selected and afterwards treated in parallel with the best possible optimization to ensure a secure and fast delivery to the backbone network.
- The gateway is connected to a receiving antenna, which covers a wide range of frequencies.

MAIN SPECIFICATIONS

ANTENNA OPTIONS

Detachable omnidirectional 1/2 Dipole

OPERATING FREQUENCY BANDS

Operating frequency bands: 868 MHz (EU) / 902 MHz to 928 MHz (US) / 920 MHz to 925 MHz (Singapore)

No repeaters needed

Communication area (1 km2): up to 500 metres from sensor to gateway

POWER SUPPLY

48V DC PoE (Max 15 Watts). 802.3af

DC power supply (ex : solar panel use): 10 to 30Volts.

GPS

Integrated GPS antenna. GNSS High Sensitivity NMEA 2.0 compliant

NETWORK INTERFACES

10/100 Ethernet WAN (RJ45 PoE)

Integrated 3G Modem & Antenna (HSDPA, EDGE, GPRS) quad band

MECHANICAL

RESISTANCE:

Impact: IK08

UV: UL508

Flammability: UL94-V0

SIZE: 210 x 310 x 170 mm (DxHxL)

WEIGHT: About 2 kg (including mounting kit)

CASING MATERIAL: PA

OPERATING TEMPERATURE: -30°C to +70°C

STORAGE TEMPERATURE: -30°C to +70°C

HUMIDITY: 0% to 100%

IP67: Compliant – Resistant to all kinds of weather conditions

STANDARDS COMPLIANCE

ELECTROMAGNETIC COMPATIBILITY:

EN 301 489-1, EN 301 489-7, EN 301 489-17, EN 301 489-19

EFFICIENT USE OF THE RADIO FREQUENCY SPECTRUM

EN 301 511, EN 300 328, EN 300 440-1, EN 300 440-2.

SAFETY: EN 60950

FCC PART 15: 2AFYS-KLK915LOI



BENEFITS

→ SIGNAL REDUNDANCY

Signals coming from different gateways can be overlapped in order to give better coverage and redundancy to Fastprk sensors.

→ LPWA WIRELESS

A wireless solution such as Fastprk is inherently scalable and does away with the high installation and maintenance costs of cables.

→ NO REPEATERS

Worldsensing's communications platform design is secure from end to end: from sensors to gateways and control servers.

→ ROBUST

The rugged design of the Fastprk gateway offers industrial reliability and performance. Sensors are built to perform in any city environment.

→ 24/7, 365 DAYS IN A YEAR

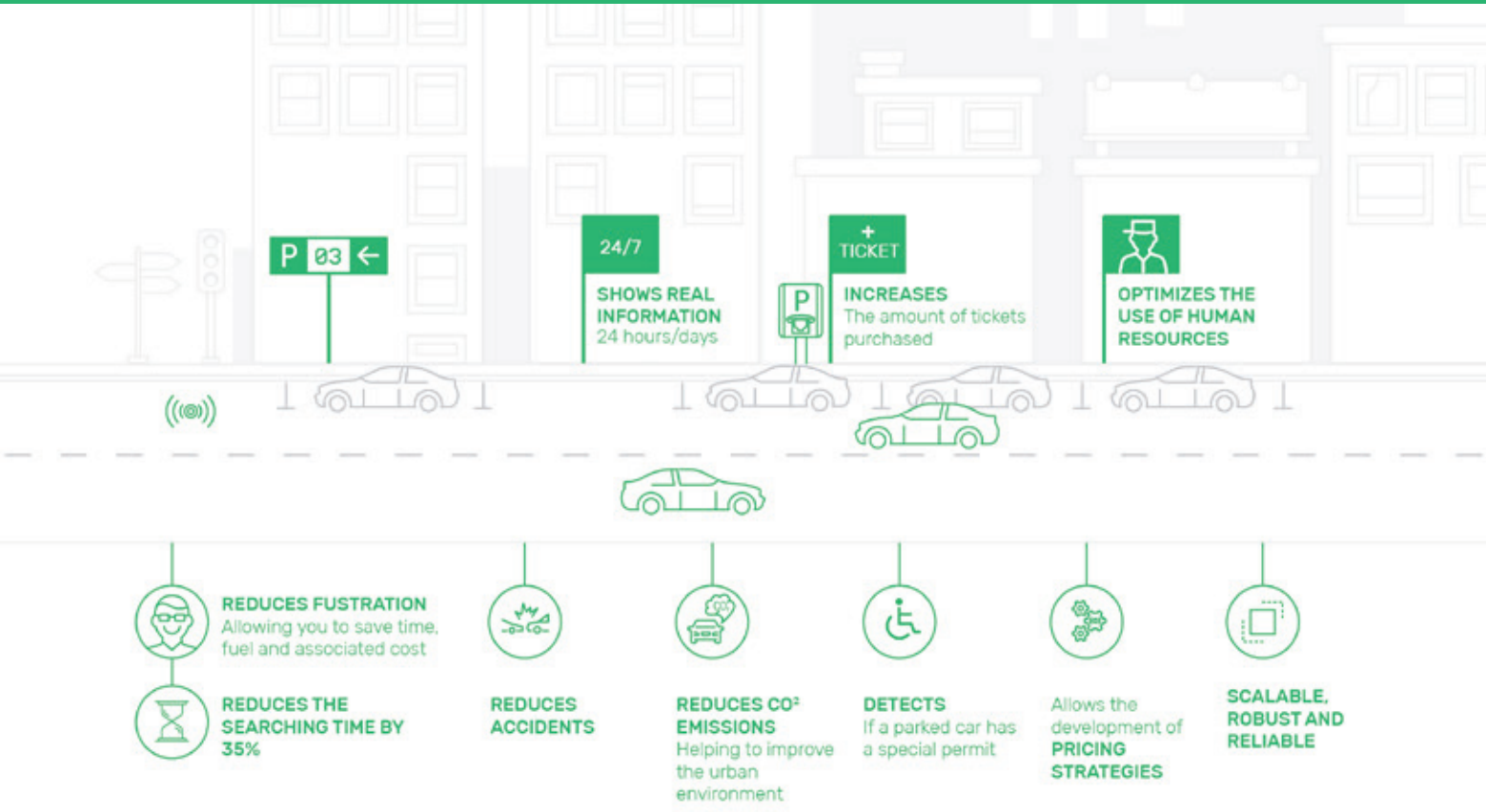
Fastprk offers round-the-clock remote monitoring with real-time data and alerts, a unique feature in the market.

→ COST

The cost of the solution is very competitive and thus allows for truly large-scale city deployments.

→ REAL-TIME DISPLAY PANELS

The parking information may be sent to visual message signs (VMS) or panels that can be installed on the streets or parking bays.



SMART PARKING APP

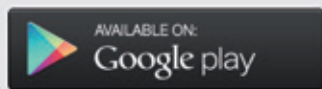
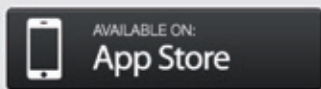
A unique opportunity for citizens to find parking spots quicker.

The Fastprk App is free and easy to use and reduces search time between 35-60%. It also facilitates payment via smartphones.

Based on reliable real-time traffic and parking information, the app indicates open parking spots and guides drivers to the nearest open spot. It even remembers where you parked.

The Fastprk App is now available for Android and iOS devices.

It also automatically connects to Google Maps



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