Reinventing the parking experience today.
Modern technology innovation has brought advanced parking information to smartphones and rich information to smart cities, offering greater convenience for motorists and car parking operators alike.

As our global population in urban areas reaches four billion, Smart Parking solutions have a major role to play in bringing about improvements in convenience, congestion, urban mobility, lower costs, and the delivery of practical data intelligence.

Smart Parking’s solutions meet the stringent parking business challenges of today’s comprehensive on-street and off-street requirements whilst creating technology innovations that will help to shape the future parking industry.

Smart Parking Limited is an Australian Securities Exchange (ASX:SPZ) public listed company

We are a global business with offices and teams in Australia, New Zealand and the UK along with a rapidly growing network of expert partners around the world.

To date, our advanced real time vehicle parking sensor solution, known as ‘SmartPark’ has been adopted in 17 countries.

As a pioneering technology innovator and services company, we have achieved the position of holding the largest market share for global intelligent parking sensor and integrated smart parking services. We estimate that at least 70% of those operating smart parking systems are using a Smart Parking Limited solution.

Smart Parking has over 40,000 wireless sensors installed worldwide and supports sophisticated sensing based parking solution systems in a range of environments including shopping centres, supermarkets, airports, commercial parking sites, universities and large scale municipal street environments.

Alongside the technology products division our managed services division operates and manages thousands of car parking spaces across the UK using complementary ANPR/LPR technology, as a single solution, combined with Pay & Display or integrated with sensing technology.
The influence of digital cities is changing the experience of consumers and setting expectations that shape demand for parking services. Smart Parking sensing technology is leading the way in the delivery of proven, fully integrated, end-to-end solutions, resulting in a transformation of the complete parking experience.

Ongoing exclusive innovations add to our capability and reinforce our market-leading position. These range from the sensing of in-progress parking events through to the live collection of these events within our cloud processing and analysis platform, ‘SmartCloud’, via flexible connectivity and networking infrastructure products.

The adoption of Smart Parking technology equips operators with the ability to deliver a wide range of additional services such as public broadband, safety video surveillance, air quality, lighting control, more efficiently, with new intelligent networks and greater automation via the SmartSpot network gateway products.

Everyday Smart Parking securely and reliably link and process millions of live parking events from across the globe to SmartCloud – the world’s most powerful parking services cloud platform.

SmartCloud is a real-time, global scale information platform that enables sophisticated and flexible services to be created using open web interfaces. It allows companies to quickly integrate the wide diversity of information technology components including operational management, sophisticated events processing, business process systems, and much more into extensible real business solutions.

As an open standards services platform, SmartCloud is specifically designed for the new generation of smart city and smart business data intelligence requirements where interaction with vast networks of sensors, information equipment, and interconnection to other software or service systems is required – serving real world solutions to millions of users everywhere.

SmartCloud delivers a proven information services integration platform for smart cities, businesses, and solutions developers. Our large base of operational sites and years of delivering these advanced solutions gives us unmatched capabilities and experience for delivery of reliable yet highly advanced sensor solutions reinventing the parking experience.
Smart Parking’s SmartAPI opens up a world of possibilities for integrating our platform with your assets. It provides access to the most highly requested real time and status information across a global parking network, in a single and consistent way. SmartAPI is rapidly becoming a powerful foundation for a wide variety of layered complementary solutions. These include Independent Software Vendors (ISVs), mobile application developers, new classes of highly linked services application and dynamic information driven web sites as well as general data integration requirements.

Easy-to-use App that enables drivers to easily locate vacant parking spaces in real time

**On-Street**
- Traffic congestion decreases.
- Pollution is reduced.
- Local businesses get improved footfall as parking capacity is maximised.
- Streets are safer as drivers are not distracted by hunting for spaces.
- Drivers are less stressed and have more time to do things other than parking.
- Best possible use of available space.

**Off-Street**
- Customers are happier as they find spaces quickly and easily.
- Less time spent parking means more time to use your services.
- Traffic flow improves, saving time and increasing safety.
- Integrates with SmartRep for pay-by-phone, compliance and enforcement information.
- Underused bays are more visible, leading to maximum use of your parking facility.
A principle module of the SmartCloud parking services platform is SmartRep which is widely endorsed as being the world’s most powerful, easy to use intelligent parking operations and monitoring system, placing you at the forefront of parking management.

Delivering powerful web standard compliant services, SmartRep is designed to meet the business needs of commercial parking operators, retailers and regulatory authorities. It offers a real time and historical dashboard reporting of every detail of your parking operation, from bay occupancy levels, to average stay information and parking enforcement.

As well as transforming parking services for customers, SmartRep increases enforcement efficiency and unlocks an expansive array of information to enable you to plan for the future.

**SMARTREP**

See exactly how your parking real estate is being used, anytime, anywhere

**SITE EFFICIENCY INCREASED**

The package

SmartRep is a modern software as a service solution delivered through the SmartCloud platform – a quick and easy process that doesn’t require major infrastructure. Access is delivered using the latest web browsers on a desktop, tablet or even smartphone device.

Apart from Internet network connectivity, the SmartRep services are delivered totally independently of existing IT infrastructure and therefore allows immediate access to the power of the Smart Parking services without any increased burden and demands upon your IT operations.

We offer advanced training in how to use SmartRep to its fullest capabilities, to;

- analyse operational information
- generate reports
- increase site efficiency
- increase the insight of parking usage;
- how to use this new knowledge to transform and improve the parking experience.
How does SmartRep work?

SmartRep automatically monitors the duration of stay of every vehicle, alerting an attendant to any that have stayed beyond the maximum time allowed.

The system records how the car park is used and presents this information through SmartRep providing live space-by-space occupancy status information, average stay time reporting and historic car park capacity statistics.

The data collected enables a multitude of parking guidance opportunities ranging from live signs and indicators, to smartphone applications.

Analytics

SmartRep gives you a macro and micro view in real time from a range of reports that are live and historical. With SmartRep you can export data straight to CSV or PDF as well as integrating to your ERP system.

Set, or customised, rollback periods show car park activity for up to the past 12 months and selected periods as “live”.

• Variable viewing speeds plus stop, pause and rewind.
• View activity and occupancy trends for analysis when required.
• Compare activity of ‘same time’ periods over days, weeks or months.
• See average turnover at a glance.
• Compare occupancy hours against actual stay count in the car park.
• Create ‘heat map’ style reports of parking usage.
• Make informed decisions on signage and tariffs based on real time information.

What are the benefits to you?

The SmartRep service is compatible with your existing systems. Its historic rollback facility enables accurate forecasting, enabling you to monitor parking trends and plan future developments. This means there is reduced burden upon your parking operations team and attendants alike. Essentially it delivers greater site efficiency, resulting in increased revenue and convenience from your parking operation.

Equipped with real time information, customers are able to make informed choices when looking for parking in less occupied locations close to their desired destination. This reduces the time taken to find a parking space resulting in an easier and more convenient experience for the driver whilst leading to a reduction in traffic congestion and better utilisation of parking capacity.

SMARTSPOT GATEWAY

The SmartSpot Gateway introduces a new class of smart cities communications infrastructure

The SmartSpot Gateway is a highly flexible IoT building block that allows city operators to begin with the deployment of smart parking sensing.

Using the same infrastructure, SmartSpots provide a common IoT gateway platform which is flexible enough to accommodate a wide range of additional connectivity requirements and protocols within smart city environments ranging from common Ethernet and WiFi compatible devices (public broadband, video surveillance, air quality, lighting control, and many more) to smart vehicle detection sensors and open standards such as Zigbee/802.15.4, LoRaWAN, 3G, 4G, and the upcoming 5G. We like to call these areas of open connectivity - SmartZones.

SmartZones make obsolete the growing problem faced by cities driven by a multitude of costly and isolated communications devices installed within the city street environments.

Smart Parking offers a family of SmartSpot Gateways.

SmartSpot Omni models offer wider options for connectivity including Ethernet/Fibre Optic, WiFi, as well as wireless type sensors.

SmartSpot Lite models are focused towards wireless type sensor connectivity.
At a glance

- Industry compatible with Power over Ethernet (PoE) power.
- Optional battery/solar PoE connected power pack.
- Multi-band global 4G/5G and cellular based uplink communications with integrated global SIM (activation is bundled with the SmartCloud service) with a failover option to a second SIM/carrier if required.
- Dynamic star mesh networking for high availability and reliability of vehicle detection sensor communications.
- Ultra-Low Power vehicle sensor communications management and aggregation.
- Synchronized UTC real time clock for accurate time reference for all message timestamps and vehicle detection sensor clocks/events.
- Supports RFID based vehicle identity based services and electronic permits.
- Independently validated for accuracy and compliance.
- Site planning RF Survey system to guarantee optimal SmartSpot placement for coverage and high availability operation.
- Easy, automated activation via an Android based SmartInstaller app.
- Over-The-Air (OTA) provisioning, configuration management, firmware updates.
- IP-67+ rated, low-mass, high strength aluminium alloy construction means that they will survive many years of extreme operational environment conditions – indoors or outdoors.
- No conflict, independent co-existence with existing IT infrastructure.
- Centrally managed and operated from the SmartCloud service platform.
- Simple, Plug’n Play deployment and activation.
- Automatic, Rugged and Robust – dependable network coverage for smart sensors and devices.
- Delivers a multi-purpose communications gateway for open extensible support of common services such as WiFi, video/audio monitoring, digital displays, smart lighting control; other sensors, and more – all from a single installed network base station subsystem.
- Enables powerful strategic options for SmartZone infrastructure – including future open IoT opportunities.

Technical specification

### Communications Modes

- 433/868/915MHz ISM bands sensors
- Multiband 3G with Dual SIM - default integrated internal SIM/pluggable second SIM
- IEEE 802.3 100BaseT Ethernet WiFi (IEEE 802.11n)

### RF Frequencies

- 3G Cellular Pentaband
- 902-928MHz ISM Band
- 868-870 SRD Band
- 433MHz LPD ISM Band
- Dual Band 2.4/5GHz WiFi

### Power Supply Modes

- Mains power 90–264VAC
- Passive 24Volt PoE IN/OUT
- Optional 802.3af/at PoE
- Optional Battery Backup
- Optional Solar Panel

### Specifications Compliance

- FCC, CE, RCM

### Average Sensor Communications RX Sensitivity

- 433MHz = -110dBm
- 868-870MHz = -112dBm
- 915MHz = -112dBm

### Enclosures Characteristics

- SmartSpot Lite 121.5mm x 214.5mm x 64.6mm (WxHxD)
- SmartSpot Omni 255mm x 255mm x 82.4mm (WxHxD)
- IP67+

- Yes
SMART DEVICES
IN-GROUND VEHICLE DETECTION SENSORS

Live, precise information gathered from each individual car parking space

Smart Parking has over a decade of specialist experience in developing and implementing vehicle detection sensor technology and real time parking information services solutions.

We deliver a range of vehicle detection sensors for a variety of environments, which have a proven track record for reliable and accurate service in many countries.

Smart Parking’s sensor technology is designed to detect the presence of parked vehicles, report overstays to infringement handheld devices and to provide space availability information to digital guidance signs and smartphone applications. For management on street or off street.

Centrally managed and operated via SmartCloud, Smart Parking sensors interface into the SmartRep Management and Reporting System allowing you to manage your facilities efficiently with real time, individual vehicle, individual space information. For daily management and long-term planning.

Features
- Utilising both magnetic field change trigger and infrared digital pulse validation sensing guarantees the highest vehicle sensing accuracy available in the industry.
- High availability, star-mesh software defined digital radio communications delivers simple deployment and reliable operations.
- Road surface grade polycarbonate alloy construction means that they operate reliably for many years in the most extreme operational environment.
- Associated with sensor/bay specific geo-location co-ordinates for all transactions.
- Supports RFID based vehicle identity based services and permits.

Benefits
- Live, full information on each and every parking space.
- Guide drivers to available spaces, improving traffic flow.
- Instant information on overstays for infringement enforcement.
- Facilitates simple, ticketless, barrier free payment systems.
- Comprehensive information collected from the sensors enables profitable future planning.
- Allows city and parking operators to identify the best possible use of available space.

DETECTION/SENSING

<table>
<thead>
<tr>
<th>DETECTION/SENSING</th>
<th>2ND GENERATION SENSOR</th>
<th>3RD GENERATION SENSOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanisms</td>
<td>Optical Infrared Digital Pulse measurement</td>
<td>Optical Infrared Digital Pulse measurement</td>
</tr>
<tr>
<td></td>
<td>Magnetic Field Change Detection</td>
<td>Magnetic Field Change Detection</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Overall &gt;99.7% vehicle detection</td>
<td>Overall &gt;99.7% vehicle detection</td>
</tr>
<tr>
<td>Detection rate</td>
<td>Arrive: Average 2.5 seconds (Max. 5 seconds)</td>
<td>Arrive: Average 2.5 seconds (Max. 5 seconds)</td>
</tr>
<tr>
<td></td>
<td>Depart: Average 1 second (Max. 2 seconds)</td>
<td>Depart: Average 1 second (Max. 2 seconds)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10 to 65°C</td>
<td>-30 to 80°C</td>
</tr>
</tbody>
</table>

3RD GENERATION IN-GROUND VEHICLE DETECTION SENSORS

Smart Parking’s 3rd Generation vehicle detection sensor demonstrates our commitment to innovation and provides the industry benchmark for accurate, real time, space-by-space monitoring.

- A combination of infrared and magnetic field detection mechanisms setting the highest standards for accuracy.
- An ultra-long battery life of between 7-10 years
- A 50mm physical diameter
- Quick installation
- Operation in extreme environment conditions between -30 and 80°C
- Over-The-Air (OTA) maintenance design
- Supports RFID based vehicle identity based services and permits.
- Independent co-existence with other existing IT infrastructure meaning that there is no impact upon other systems.

Widely used around the world today, Smart Parking’s 2nd Generation sensors are industry proven, anti-trip, anti-slip and easy to install.

- A combination of infrared and magnetic field detection mechanisms setting the highest standards for accuracy.
- Overall >99.7% vehicle detection accuracy
- Associated with sensor/bay specific geo-location co-ordinates for all transactions.
- Supports RFID based vehicle identity based services and permits.
- Independent co-existence with other existing IT infrastructure meaning that there is no impact upon other systems.

2ND GENERATION IN-GROUND VEHICLE DETECTION SENSORS

Widely used around the world today, Smart Parking’s 2nd Generation sensors are industry proven, anti-trip, anti-slip and easy to install.

- A combination of infrared and magnetic field detection mechanisms setting the highest standards for accuracy.
- Overall >99.7% vehicle detection accuracy
- Associated with sensor/bay specific geo-location co-ordinates for all transactions.
- Supports RFID based vehicle identity based services and permits.
- Independent co-existence with other existing IT infrastructure meaning that there is no impact upon other systems.

- A combination of infrared and magnetic field detection mechanisms setting the highest standards for accuracy.
- Overall >99.7% vehicle detection accuracy
- Associated with sensor/bay specific geo-location co-ordinates for all transactions.
- Supports RFID based vehicle identity based services and permits.
- Independent co-existence with other existing IT infrastructure meaning that there is no impact upon other systems.

14 smartparking.com

T. 0845 230 3081
The Smart Parking Overhead Indicator system transforms the multi-storey parking experience for drivers with ‘guidance at a glance’.

Smart Parking’s sensors detect the presence of a vehicle within each parking bay. Each sensor is linked to an overhead indicator powered using safe, low voltage (18-36v) parallel wire cabling from shared power supply units.

High visibility LED green or red lights indicate live parking availability to motorists whilst blue lights indicate available mobility bays and magenta lights highlight vehicles parked in contravention. All status and indicator display is controlled by the SmartCloud parking management services platform.

Because Smart Parking’s systems are based around a modular approach, we are also able to offer car counting solutions, fixed & mobile automatic number plate recognition solutions and valet management solutions for casinos, hotels, airports, etc.

**Smart Parking Overhead Indicators:**
- Improves traffic flow.
- Minimises congestion and vehicle emissions providing a cleaner parking environment.
- Optimises use of available space.
- Ensures no space is missed at busy times with individual space LED light indicators.
- Delivers more cost-effective enforcement and improved compliance.
- RFID tag identification technology means employee exemption lists, customer loyalty programmes and receipt-based refund schemes are all deliverable.
- Can be integrated with Pay & Walk or Pay on Foot facilities.
- Leads to happier customers as parking is now stress-free and time efficient.

**SMART DEVICES OVERHEAD INDICATOR SENSORS**

A simple, cost-efficient and highly-effective off-street parking management system

By combining In-Ground and Overhead Indicator Sensors with SmartRep technology, real time space availability is displayed directly through variable message signs.

Smart Parking’s sensors use proprietary digital coded infra-red beams to detect the arrival, departure, and presence of the vehicle in each individual parking bay.

The real time sensed status is transmitted between the sensor and the SmartCloud parking management services platform using two way digital RF communications.

- The quantity, type and location of available spaces is displayed on large variable message signs with direction indicators to get the driver there.
- Signs can be placed within the car park at each driver decision point, at main entrances as well as on-street locations.
Smart Parking’s Automatic Number Plate Recognition (ANPR)/License Plate Recognition (LPR) parking system is a reliable, accurate and cost-effective off-street car park management solution, already proven to serve a wide range of industry groups including supermarkets, retail parks, hotels, hospitals and leisure centres. Currently managing hundreds of car parks throughout the UK, Australia and New Zealand, our LPR linked to a Pay & Walk solution improves customer satisfaction, ensures greater compliance, and increases parking revenue.

Features
- CCTV style cameras are placed at the entrance and exit to a car park. Timed photographs are taken of the vehicle entering and leaving the premises.
- The vehicle stay duration is calculated from the times registered on the two sets of photographs and communicated to SmartRep.
- Pay & Walk machines accept payment and report back to SmartRep validating the parking session.
- We are also able to offer car counting and mobile automatic license plate recognition solutions.

Benefits
- Ticketless, barrier-free system.
- Simple and low-cost to install and operate with little maintenance required.
- Customers simply pay & walk, using their license plate number as ID.
- Permit only, staff only, free limited time parking, zero tolerance and after business hours are just a few of the set parameters we can cater for.
- SmartRep provides full occupancy, average stay and enforcement efficiency reporting for management and future planning.

Real time Radio-Frequency Identification (RFID) for enforcement and management, including parking permits

Smart Parking’s RFID solutions enable you to manage permit parking easily.

Through the use of an in-vehicle RFID tag, SmartTag solutions combine a driver to a vehicle detection sensor. Working together the SmartTag connects a driver or class of driver to a particular space, or type of space.

Already deployed in Westminster, London and Sydney, Australia, permit holders are happier as more space becomes available through improved enforcement and fact-based planning.

On-Street
- SmartTag pairs a specific class of driver to specific locations.
- Ideal for resident and disabled parking permits.
- Allows instant identification of misuse of space.
- Drivers are less stressed and have more time to do things other than parking.

Off-Street
- Ideal for staff car parks and leisure facilities.
- Perfect for customer and member permits at businesses and services.
- Promotes customer satisfaction and loyalty.
- Stops abuse of disabled driver or parent & child parking bays.
- SmartTag pairs a specific class of driver to specific locations.
- Allows instant identification of misuse of space.