OpenPark
IoT Parking Solution and AFC overview

About OpenPark Technologies Kft

- OpenPark develops embedded devices, sensors and controllers for smart mobility solutions for more efficient people and car flow around modern smart cities.

- We bring open source IoT enabled devices and controllers to the hands of third-party software developers to serve the city operators, real estate developers without being locked to a certain vendor.

R&D and Manufacturing capabilities

- Electronics and software R&D and manufacturing in Hungary

- Manufacturing of mechanical and electronics elements at manufacturing facilities at Pecs and Budapest facilities in Hungary

- ISO 9001-2015, ISO 14001-2015 Certification

- Comprehensive development & testing process

- Hardware & Embedded software skills (wireless microcontroller, wireless protocol, IoT web development, Android & IOS apps)

- Full in-house design and development from prototypes to certification process

CERTIFICATE

OF MEMBERSHIP

This Certifies that

OpenPark Technologies Kft

is an **Associate Member** of the OSPT Alliance

09 October 2024

DATE

MIKE STROCK, GENERAL SECRETARY

MEMBERSHIP IS VALID FROM THE DATE SIGNED

2024

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Technologies Kft
stvan ter 7-8
051

Ioustafa,

d to inform you that the OSPT Alliance Board of Directors has approved your application to become an
Member of the association as of 09 October 2024.

ciate Member, you are eligible to participate in OSPT Alliance's working groups (when pre-confirmed
d). Your organization's active involvement is essential to shaping the direction of the CIPURSE™
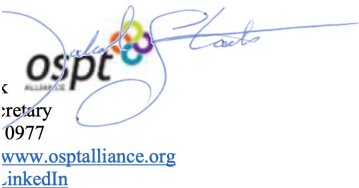n and advancing our work.

on receive login details to the OSPT Alliance Membership website which will give you access to:
list of OSPT Alliance members and contact details
OSPT Alliance website as an Associate Member

to arrange a conference call at your earliest convenience to answer any questions you may have about
nce and discuss ways we can support you in your market.

formation, you also have access to the *software* version of our Software Development Kit to be tested on
upplied by you. Please contact me should you require access to download the *software* SDK. We also
rdware SDK which contains CIPURSE cards and a reader to test the CIPURSE functionalities. Note:
cess to the *software* or *hardware* SDK you will need to sign a Software License Agreement or SLA.
e price for the *hardware* SDK is 300€ for Associate Members.

nce is proud to welcome OpenPark Technologies as an Associate Member, and we look forward to
from your organization's strength, vision, and partnership in helping make CIPURSE a worldwide
n.

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0977
www.osptalliance.org
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12 av du Maquis, 26100 Romans-Isère, France

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OpenPark Industry Solutions

Gated communities Access and visitor management

Business and commercial buildings Access

Public commercial parking lots and street parking

Public transport and automatic fare collection

Sea ports and container terminals automation

Airport gate automation

Highway tolling, traffic counting and violation system

OpenPark System Modules

Parking and Access Control

Cloud solution or on-premise solution to manage all parking activities, access control for vehicles and pedestrians.

Parking Information and Guidance

Parking sensors and parking counters can collect & publish parking availability to the to mobile apps and display on LED signs.

Venue and Ticket Management

Ticket management for facilities, stadium, cinema and Temporary passes access whether subscription based or single visit or number of visits.

E-payments and wallets

OpenPark mobile app can accept credit cards globally and local e-payment partners integrated in several markets.

Automatic Fare Collection – Ticket vending Machines

Ticket office

Transportation Ticket sales management through different channels including manual cashier, Automatic Ticket Vending Machines or web portal and mobile app.

Ticket validators and gates

Reliable turnstile and speed gates with integrated ticket validator and access controller as well as on-bus validator with closed or open loop payment..
.

Highway and tunnel management

Highway tolling and e-payments

Instant vehicle registration and fee calculation based on different criteria for tolling gates or free-flow tolling with e-wallet integration.

Speed section control

The license plate of each passing vehicle is registered with time stamp and allows the administration to capture average speed between 2 monitored points and detect over speed violations.

Traffic counting and statistics

AI Video processing allows OpenPark edge devices to capture the number of passing vehicles and classify them for better traffic planning.
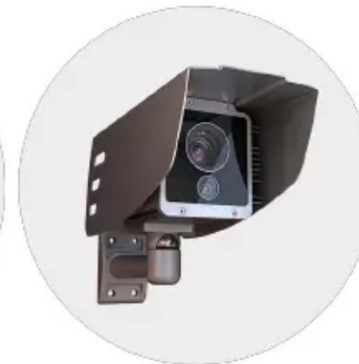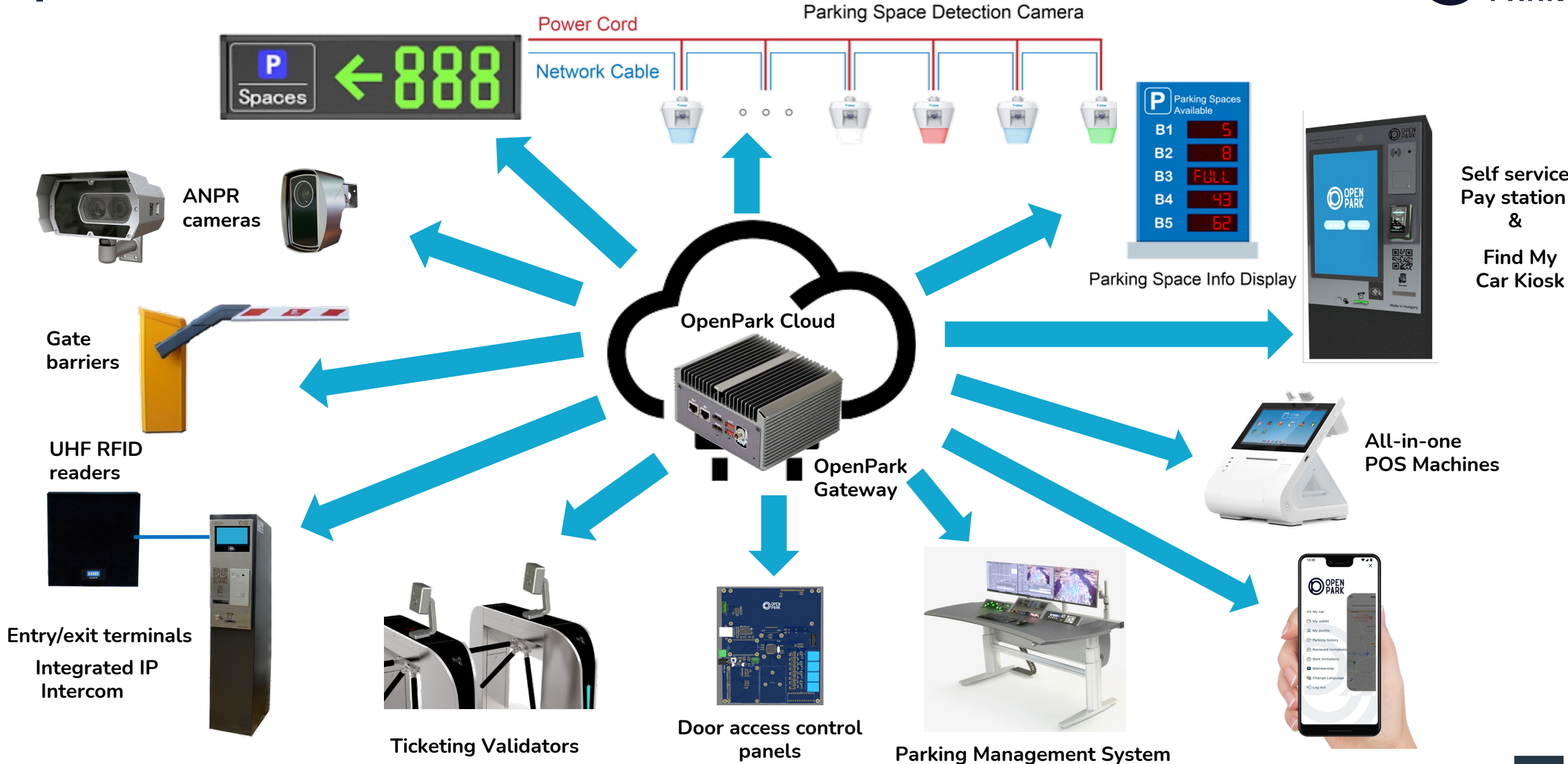
Gate monitoring and Access Control

Cloud or on-premise solution to manage all port gate activities, access control for vehicles and trucks, integration with several data capture solution such as LPR, RFID, WIM, UVSS...

Front and rear LPR cameras, container recognition cameras, under vehicle surveillance cameras, are all feeding data to our management software and help manage truck parking areas.

OpenPark control architecture

Power Cord

Parking Space Detection Camera

Network Cable

P Spaces ←888

ANPR cameras

Gate barriers

UHF RFID readers

Entry/exit terminals

Integrated IP Intercom

Ticketing Validators

OpenPark Cloud

OpenPark Gateway

Door access control panels

Parking Management System

P Parking Spaces Available
B1 5
B2 8
B3 FULL
B4 43
B5 62

Parking Space Info Display

Self service Pay station & Find My Car Kiosk

All-in-one POS Machines

Gate Automation scenarios for vehicles and pedestrians

- Printed ticket entry
- Tolling at entrance
- Mobile App entry
- Contact-less card entry
- QR code pass entry
- Intercom entry
- LPR camera entry
- Long range RFID tag entry
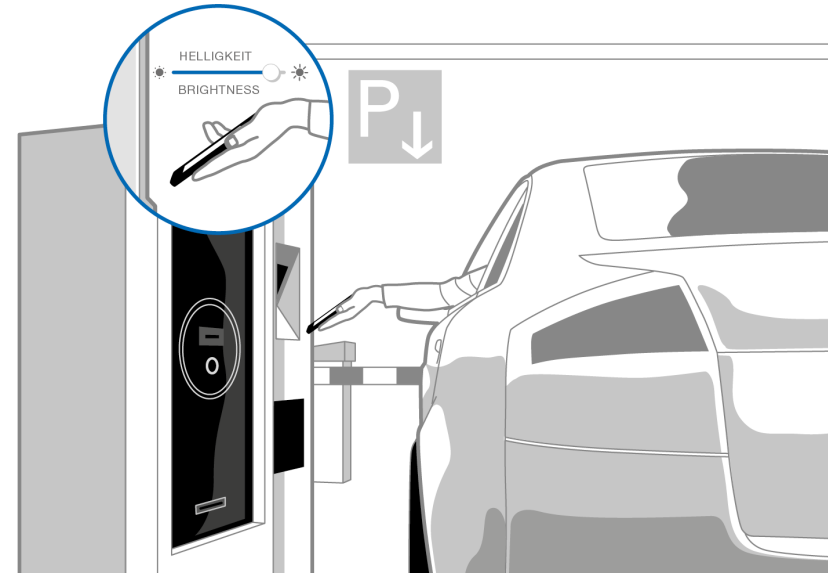
OpenPark Cloud
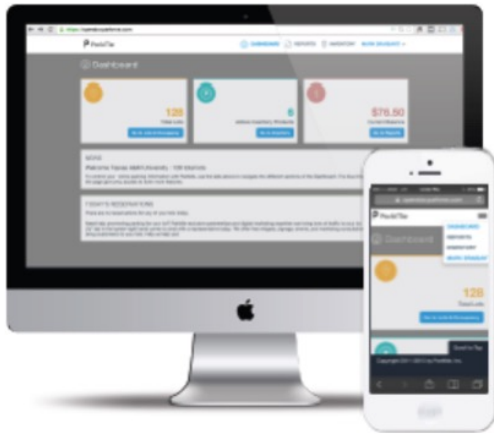
Accept Mobile Payment

Add Parking Locations

Sell Reservations

Add Pictures of Locations

Update Parking Info

Reporting & Analytics

- OpenPark hosted Cloud Parking / Ticketing Solution
- Web dashboard and mobile app
- Can monitor space utilization and electronic payments real time

Open IOT integration of other traffic control and infrastructure systems and other Smart city applications

Third party integration

Third party IOT platforms (MQTT – Comulocity – Software AG, RapiMQ)

Video Management Systems and Access control (OPC-UA)

ERP systems interation (REST API implemented with SAP and Infor)

Payment gateways integration (Google Pay- Apple Pay- Revolut Bank, Simple Pay)

Parking Management Server

OpenPark Parking and Access control server modules:

- Multi-tenant Multi-company management
- Asset Management for each company
- MQ Broker
- Remote authentication and configuration for all connected devices
- Customer database management
- License plate recognition
- Access control based on different credentials (RFID / QR code)
- Payment cashier interface with POS credit card integration
- Financial reporting
- API integration for third party mobile apps and IOT dashboards
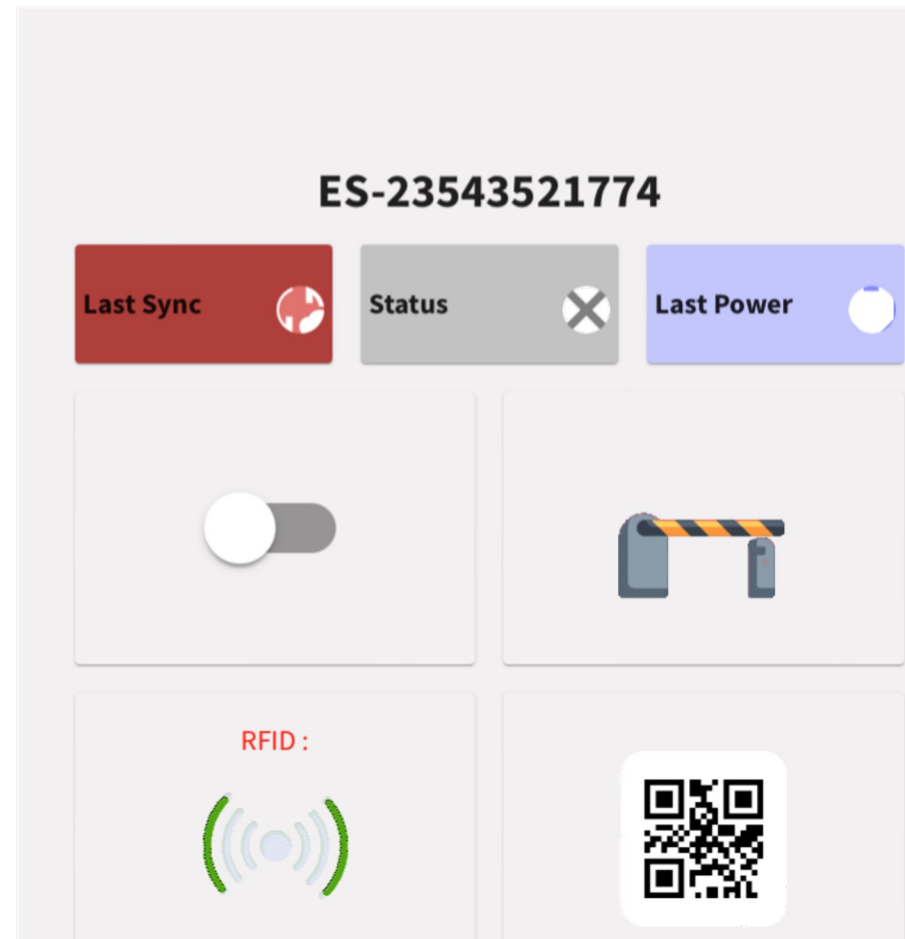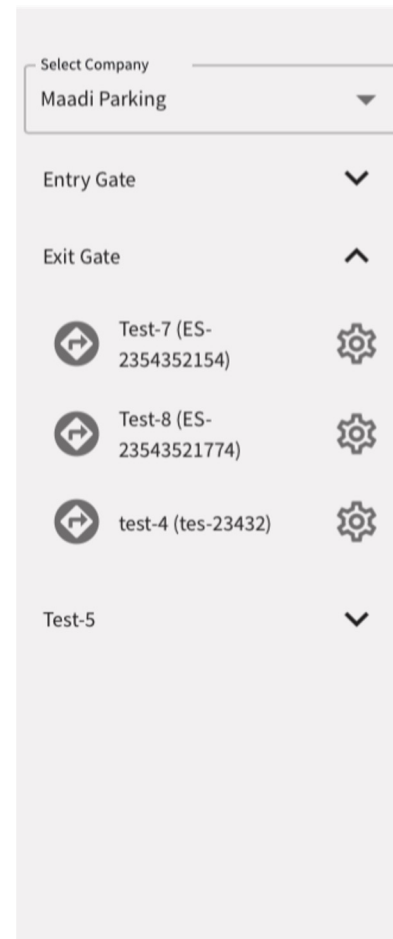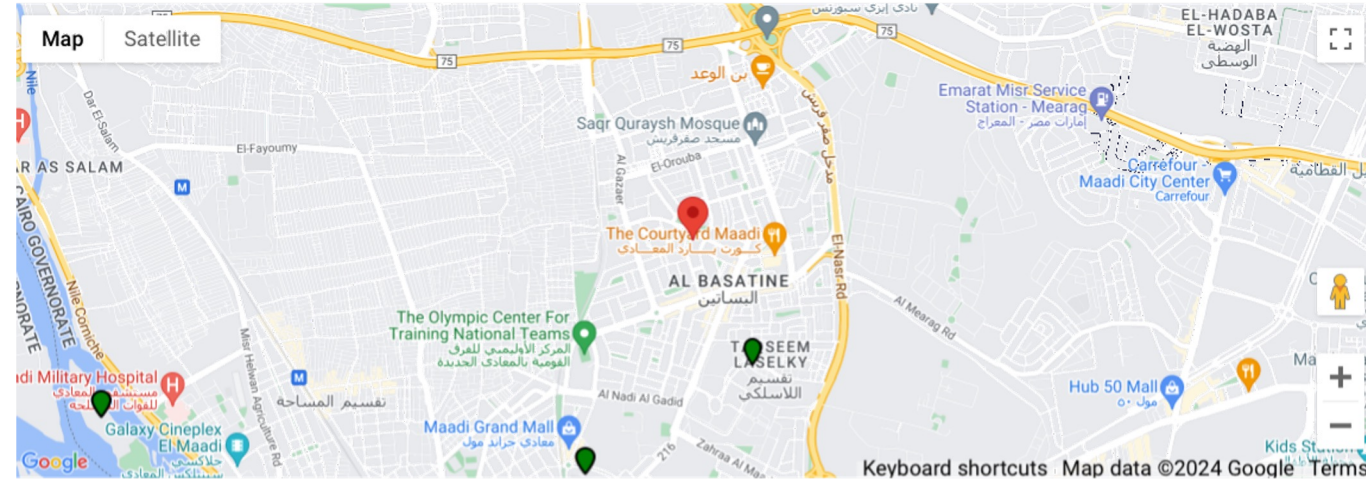
AFC Management Server

OpenPark AFC server modules and includes the same administration interface for multi-company and credentials plus the following:
- Multi-operator management system
- Real-time fare transaction management
- Fare policy definition and management
- Management of different subscription plans and single and multiple tickets
- Reporting and analytics dashboard
- CRM module for contact centre support

Smart Card Management
- Profile management for CIPURSE cards based on OSPT alliance standards
- Secure key management for SAM modules and card personalization
- Secure wallet management
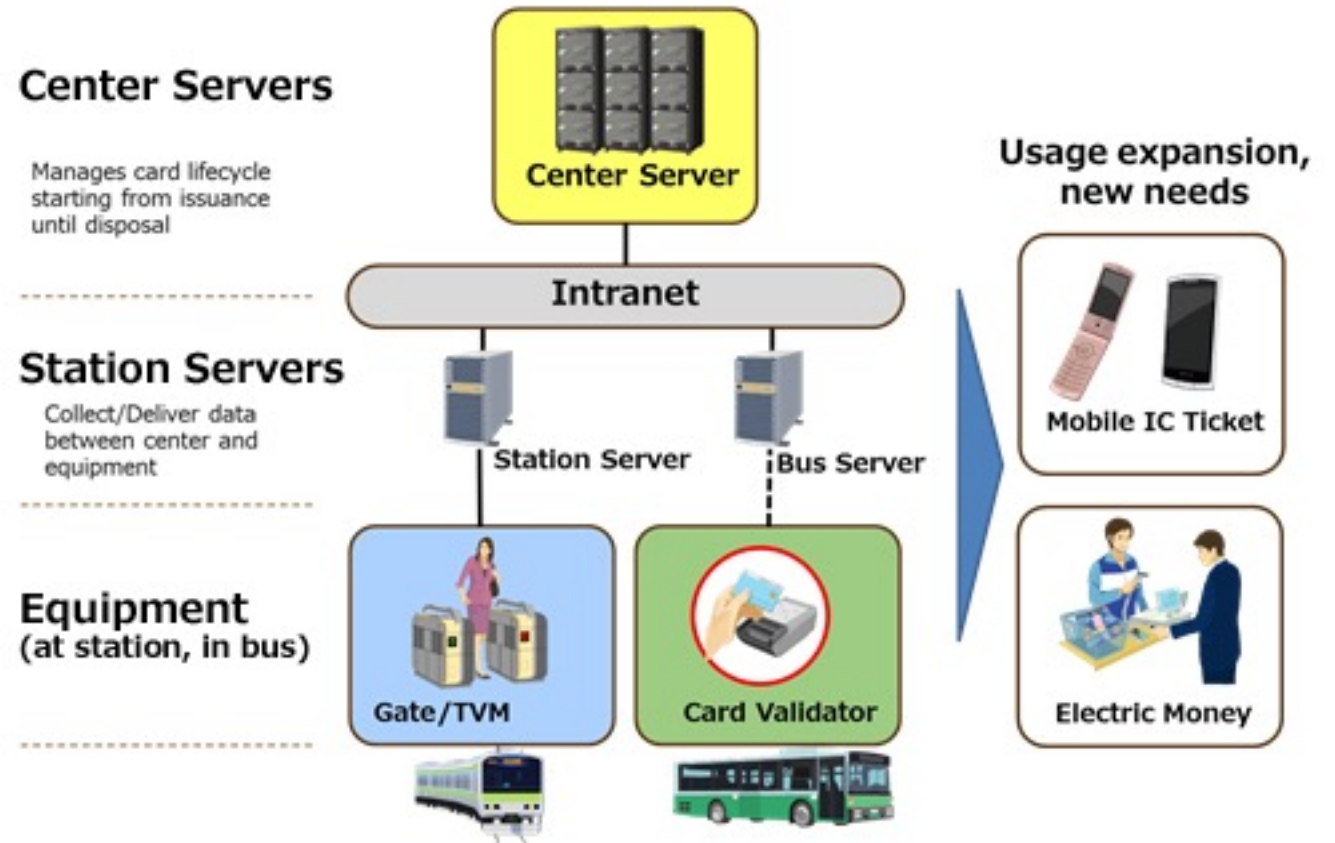
SMART PARKING KEY BENEFITS

No cash needed for car owner and no cash handling

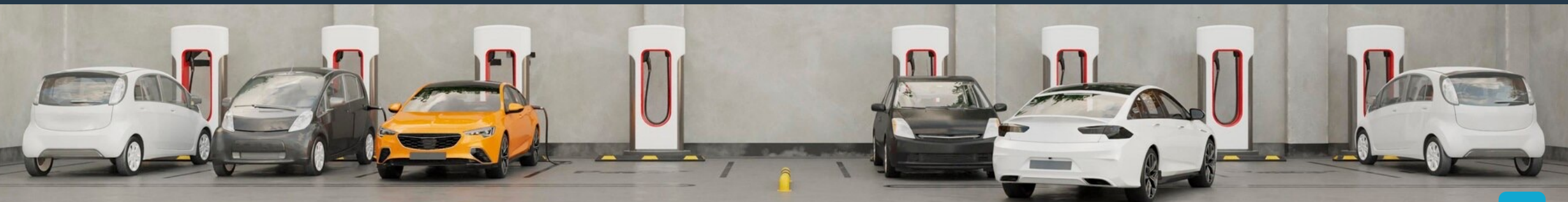**E-chargers** can easily be integrated with same parking wallet account

Easy mobile app with Google map navigation to free spot

Dynamic pricing according to the day of the week, hours or holidays

Real time update with verification images from the street / parking lot to the cloud

OpenPark products

Parking Access Control

Smart Gate terminals

Smart Gate Barriers

License plate recognition cameras

Pedestrian Access Control
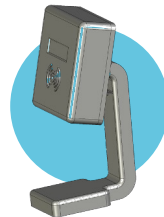
Smart Access control readers

Ticket validators and turnstile gates
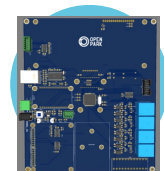
Smart IP Access Control Panels

Parking Guiding Systems

Parking space detection LoraWAN

Inegrated ultrasonic parking space detector-indicator

LED Information displays

Parking Guidance products

PGS-LED displays

OpenPark zone controllers
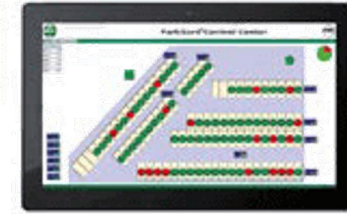
iPark parking guidance management system
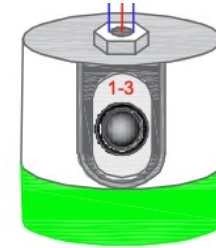
Parking sensors

- Parking availability to be provided through Open API for desktop and mobile users.

- Front mount dual RJ-45 sensor saves a lot on the installation cost and infrastructure

- **OpenPark Gateway integrate with IOT platform directly**
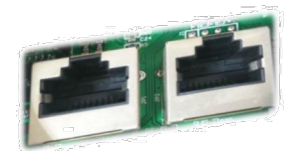
Parking Guidance ultrasonic system

Ethernet
OpenPark API

Ehernet

CAN Bus

Central
Controller

Zone
controller
(Zone-1)

Zone
controller
(Zone-n)

CAN Bus and AC Power
Up to 25 controllers and up to
2000 meters
Over 2 x pair 1.5mm control
cable

Utrasonic sensor-1

RS-485

RS-485 over UTP Cat-6 cables with DC power

Zone-1 line-1 from 1 to 25 sensors

Utrasonic sensor-25

Utrasonic sensor-1

RS-485

RS-485 over UTP Cat-6 cables with DC power

Zone-1 line-2 from 1 to 25 sensors

Utrasonic sensor-25

Utrasonic sensor-1

RS-485

RS-485 over UTP Cat-6 cables with DC power

Zone-n line-1 from 1 to 25 sensors

Utrasonic sensor-25

Utrasonic sensor-1

RS-485

RS-485 over UTP Cat-6 cables with DC power

Zone-n line-2 from 1 to 25 sensors

Utrasonic sensor-25

P
Spaces
←888

OPEN PARK

Parking Guidance video system

OPEN PARK

P Spaces ←888

Video sensor-1

RS-485 over UTP Cat-6 cables with DC power

Video sensor-10

RS-485

Zone-1 line-1 from 1 to 10 sensors

Ethernet OpenPark API

Ehernet

Ethernet / fiber

Video Zone controller (Zone-1)

RS-485

Video sensor-1

RS-485 over UTP Cat-6 cables with DC power

Video sensor-10

Zone-1 line-2 from 1 to 10 sensors

Ethernet / Fiber and AC Power

Video sensor-1

RS-485 over UTP Cat-6 cables with DC power

Video sensor-10

RS-485

Zone-n line-1 from 1 to 10 sensors

Video Zone controller (Zone-n)

RS-485

Video sensor-1

RS-485 over UTP Cat-6 cables with DC power

Video sensor-10

Zone-n line-2 from 1 to 10 sensors
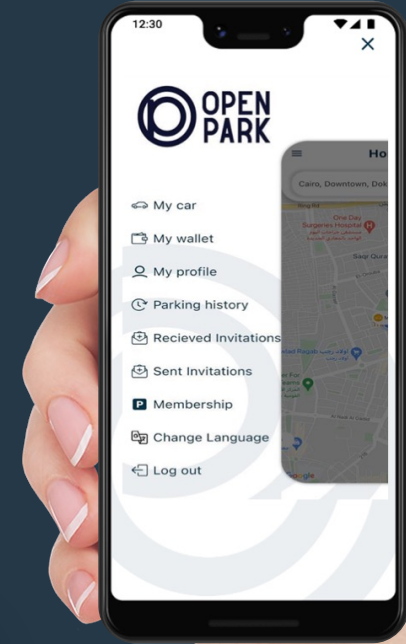
OpenPark Mobile App

OpenPark Mobile companion

Register first time with mobile number to receive an OTP SMS then stay logged in.
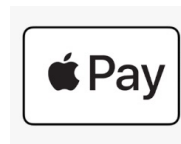
Main menu includes profile update, last parking location, search for parking space, memberships, invitations & more.

Search parking space, book a ticket., request services as defined on admin system.

Navigate in App on or Google Map.

Payment terminals

Payment terminals

- Automatic self-service payment for credit card acceptance
- Find my car interface (requires video based PGS system)
- Manual cashier terminal with QR code reader, receipt printer, NFC card reader and cash drawer
- Lost ticket function on both terminals
- Integrated peripherals:
    - QR code ticket scanner
    - Ticket card printer
    - Receipt printer
    - NFC card reader
    - SIP intercom
    - Credit card acceptance

Entry and Exit Control

- **Integrated Access Terminal**
- Mifare RFID (13.5MHz), DESFire EV-2, EV2, EV3, CIPURSE cards
- QR code scanning.
- SIP Intercom
- Remote open by operator
- Online and offline operation
- Ethernet port, Wi-Fi, RS-232, RS-485
- Integrated loop detector
- Wiegand and OSDP for external RFID readers

- Battery backup for real-time clock.
- Operating temp -10 deg C to 70 deg C
- IP65 outdoor protected housing
- For ticket dispenser models:
  - Ticket printer ISO card size thermal tickets (fanfold)
  - Ticket bay for up to 5000 tickets
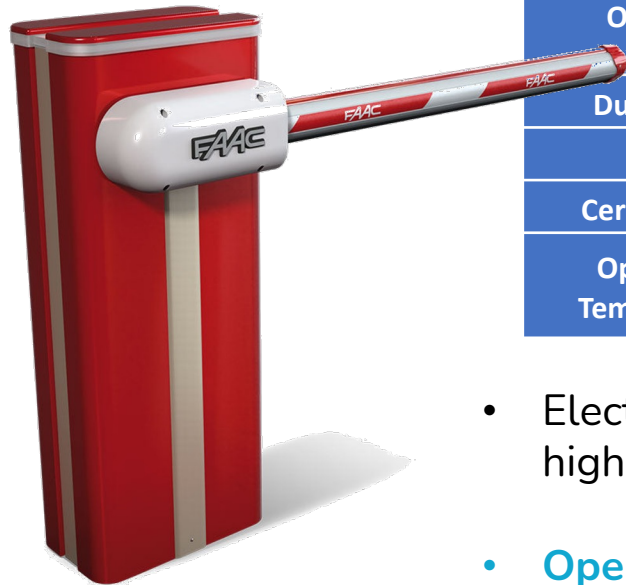 - Ticket bay sensor

Entry and Exit barriers

Item	FAAC 680B	Magnetic Access Pro
Motor	Hydraulic	MHTM™ drive
Boom Specification	2 – 8 m	3.5 m up to 6 m
Protection	IP44	IP54
Opening	1,5 s (up to 2m) – 6 s (up to 8m)	1.3 s (up to 3.5m), 4 s (up to 6m for Access Pro L)
Duty Cycle	100%	100%
MTBF	2 million Cycle	10 million Cycle
Certification	comply	comply
Operating Temperature	-20°C – +55°C	−30 to +55 °C

- Electromechanical or Hydraulic Arm Barrier designed for high flow traffic

- **OpenPark Smart controller IoT enabled**
- **Integrate with IOT platform directly**

Single spot VIP barriers

- Colour: Yellow Arm + Black/Red Base (custom colour is acceptable)
- Control Type: Remote Controlled (≤50 meters), Bluetooth through App control
- Battery Type: Rechargeable Battery
- Battery Working Time on one charge: 6-8 Month
- Material: Quality Steel + UV Resistant Powder Coating
- Rising Height: 380mm
- Dimension: 490x470x500mm
- Weight: 8KGS
- Protection Grade: IP67
- Feature: 3 Points Blocking, Strongest Protection to Parking Space

OpenPark Smart controller IoT enabled to integrate with IOT platform directly

LoraWAN Parking sensors

Magnetic sensor
Model OP-WMS-01

Power supply	5 years battery
Operating Temperature	-40 to 85 C
Protection level	IP68
Detection range	90 cm
Response time	6 seconds
Communication	Bluetooth
Dimensions	173mm diameter, 35mm height

Ticketing and pedestrian access

- Robust, tamper-proof validators
- Support EMV transactions for future expansion
- Ruggedized for outdoor/indoor operations
- Ticket validator Specifications:
- ARM high performance CPU
- Onboard 32GB storage for off-line operation
- Integrated RFID read/write module.
- 4 SAM slots and 512K bytes data FLASH, full fill payment system usage
- SAM slots: 4, T=0 & T=1 9600, 19200, 38400, 55800, 57600, 115200bps
- PCD model: NXP CL RC663
- Working frequency: 13.56MHz
- Standards: ISO14443A, ISO14443B, ISO15693, ISO7816
- Anti collision ability: Full function anti collision; process multi-cards; or to operate single card only.

Thank you

OPEN PARK

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