Parquery

More Space and Time with AI

Smart Parking Monitoring

How to convey images to Parquery's servers?

Parquery's technology

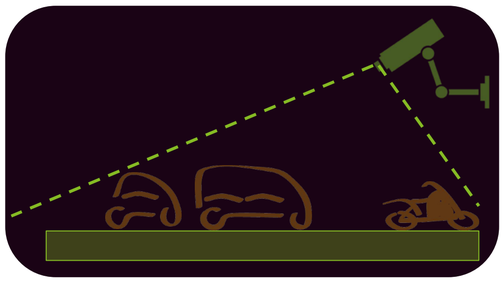
Parquery's AI technology

Customers send pictures from **any camera.**

Parquery has built innovative **computer vision algorithms** to detect any object on images.

Real-time knowledge on **parking availability** and **parking duration.**

Ideal camera positioning



Example of ideal positioning

In order to cover the **total number** of parking spots, the ideal camera positioning is the following:

- **The higher, the better** (on buildings or installed on lamp posts)
- **Frontal orientation**, lengthwise
- **Downward orientation** (“the more ground” visible on the image enables us to analyze more vehicles)

Procedure to analyse pictures from cameras

➢ **Parquery can provide customers with real-time and accurate results on parking availability via a two-steps operation:**
- Step 1: Calibration Phase on Parquery's cloud servers.
- Step 2: Production phase: Real-time provision of results at the updated frequency requested by the customer, via servers hosted either on Parquery's cloud servers or in the customer's premises.

➢ **Step 1: Calibration Phase**
- As soon as cameras convey images to the Parquery's cloud server, analysis can automatically begin, with at least 95% guaranteed accuracy.
- Conveying images to Parquery's server can be done by different options, as explained in the following pages.
- Parquery requires 3 to 4 weeks after the beginning of the project to guarantee 99% accuracy on results. During this period, Parquery will train and optimize its software on the specific environment of the customer's car park (obstructed situations, angles, edge effects…).

➢ **Step 2: Production Phase**
- As soon as the calibration phase is over, Parquery either configures its cloud servers or configures the customer's on-site server remotely.
- The analysis runs entirely either on Parquery's cloud servers or on the customer's on-site server.

Procedure to convey pictures to servers

➢ **How to convey images to the server?**
- During the Calibration Phase (Step 1), the server is Parquery's cloud servers.
- During the Production Phase (Step 2), the server is hosted either on Parquery's cloud servers or on on-site servers in the customer's premises.

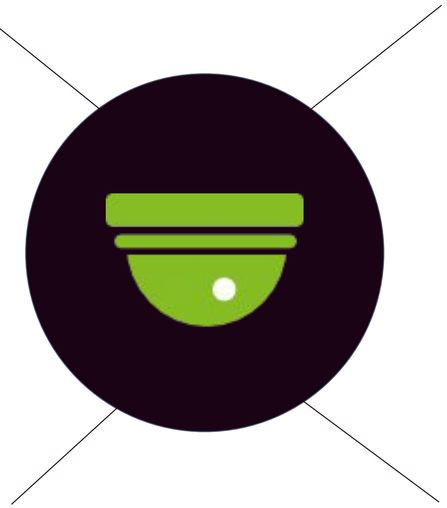
➢ **Option 1: Image upload via ftp server (images pushed on the server)**.
- The customer gives Parquery specifications about the image resolution and the requested analysis update rate (e.g. 1 image sent and analyzed every minute).
- Parquery provides the customer with an IP address, a port, a username and a password for each camera.

➢ **Option 2: Parquery calibrates the server to have access to cameras with secured credentials**
- Parquery's server fetches the snapshots directly from the camera: either downloading snaphots via a camera-specific API or extracting snapshots from an RTSP stream.
- The customer provides Parquery an IP address for each camera.
- If the camera is accessible from the internet, username, password, camera model and ideal frequency (e.g. 1 frame per minute) has to be provided by the customer.
- If the camera is not accessible from the internet, connection has to be made through VPN.

Technical specifications - Summary

1 MPixels
(at least 30 pixels per vehicle)

Standard electric connection (220V)



Field of view:
120 ° or greater

Internet connexion
WiFI / Ethernet / 3G / 4G

Ideal technical camera recommendations

Possibilities to convey images - Summary

- **Camera upload via ftp server (push).**
  The server can be hosted either on Parquery's infrastructure or by the customer.
- **Access to camera with credentials (pull).**
  Parquery fetches the snapshots directly on the camera via a camera-specific API.
- **Access to camera stream (RTSP) with credentials (pull).**
  Parquery extract snapshots at a predefined frequency from the camera RTSP stream.

Three possibilities to convey images

Technical specifications - Cameras

- Parquery uses **any image** from **any camera** to provide real-time information to customers.
- When no camera is already installed, any standard cameras can be installed, provided there is an internet connection (ethernet, Wifi, 3G/4G…).
- Examples of models we have used are (list not exhaustive):

Wifi Camera

Foscam FI9900P

Foscam FI9900P characteristics link

Cost: 130 Eur.

Fisheye Camera

Hikvision DS-2CD294F

Hikvision DS-2CD2942F characteristics link

Cost: 200 Eur.

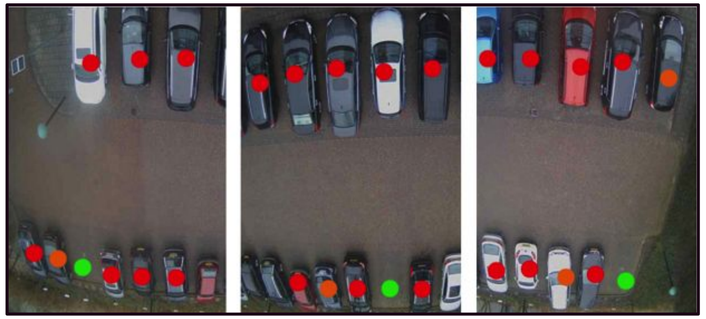
3G Camera

Wenhua Tech WH_5M0WGS_G

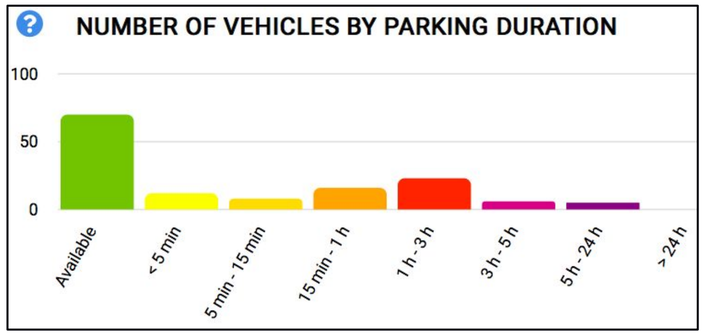
Wenhua Tech WH_5M0WGS_G characteristics link

Cost: 250 Eur. (shipping included).

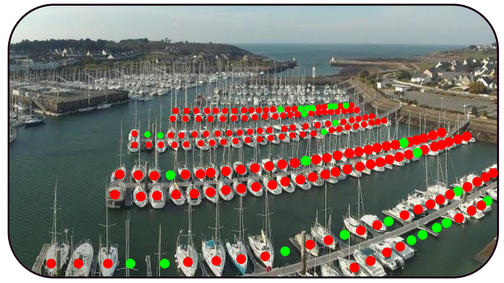
Parquery: One technology enables many applications



Smart Parking: Real-Time Results

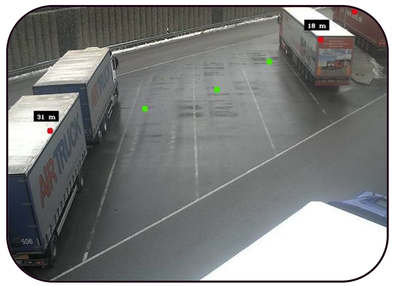


Smart Parking: Structured Analytics



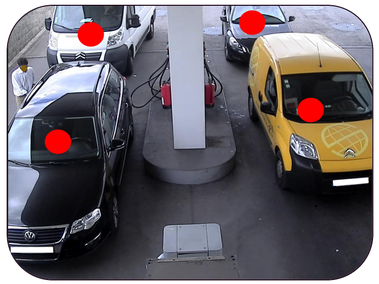
Boat parking in marinas

Plane Arrival / Departure

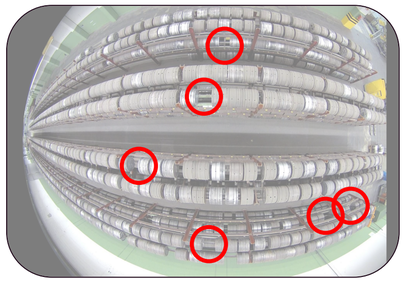


Highways

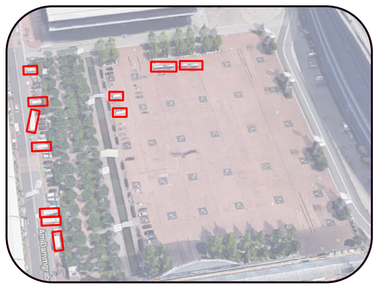
Train depots



Petrol Stations



Shelf optimization



Any Object Detection

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