

M³ CARPOOLING SOLUTION

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EVERYTHING YOU NEED TO KNOW

We talk about carpooling when car journeys are shared so that more than one person travels in the same car. This allows you to share travel costs with other people, which of course benefits your wallet. If a significant number of people were to take part in carpooling, that would help to solve the problem of traffic congestion in many places, therefore the increase of air pollution and general CO2 emissions.



HOV-lanes

Thanks to all the previously mentioned advantages, carpooling is increasingly being promoted by governments all over the world. This has manifested itself in the emergence of HOV-lanes.

HOV stands for "High Occupancy Vehicle". Some countries have already introduced the use of HOV-lanes. This is generally a dedicated driving lane where only High Occupancy Vehicles are allowed to drive, such as a bus, or a car with 3 or 4 occupants.

A car often has a capacity of 4 full seats. But in the vast majority of all cars there is only 1 person, the driver. As a result, the majority of cars may not be allowed to use HOV-lanes, which means that you will often reach your destination much faster via a HOV-lane than by using the normal driving lanes (traffic jams, etc.).

How does it work?

You can imagine that the correct use of an HOV-lanes requires some sort of **control mechanism**. Just look at how many people use the emergency lane during a traffic jam in order to be able to drive a few metres further during traffic congestion.

Thanks to ANPR cameras, it is possible to count quite accurately how many occupants are in a particular car. To start with, we need **2 ANPR cameras** that can read both the number plate on the front and the number plate on the back of the car. Of course, we also need to know how many people are actually in the car.

How does this work?

Imagine the correct use of HOV-lanes requires some sort of control mechanism. It is now possible to accurately detect how many occupants might be in a particular car. To be able to provide accurate data, **2 ANPR cameras** are deployed to read both the front number plate but also from the back of the car. To be able to ascertain how many people are in the car, we need **2 VOR cameras** to be placed between the 2 ANPR cameras (VOR = Vehicle occupancy recognition) *See *image*. The VOR cameras are aimed at windscreen and passenger windows. The 4 cameras send all the relevant data to a back-office system which converts this data into valuable traffic information.

One has to indicate in advance with which number plate and with how many occupants a vehicle will use the HOV-lane. This makes it perfectly possible to check whether or not a certain vehicle is allowed to drive on the HOV-lane.

Polarized filter

The driver or occupants of a car are very often difficult to see through the windscreen, due to sunlight reflecting on the windscreen, rain, hail. ... Fortunately, this can easily be solved by placing a polarized filter on the camera. This filter **automatically removes any reflection** on the car glass (see example below).

How is a passenger being detected?

The Macq QCAM 5P cameras are equipped with **Artificial Intelligence**. To clarify: artificial intelligence is termed artificial intelligence when an artifact displays a form of intelligence. This allows the camera to identify faces as objects and thus count the number of occupants in a car. It is important to know that **only individuals can be detected** here, and not who that particular person is or his or her identity.

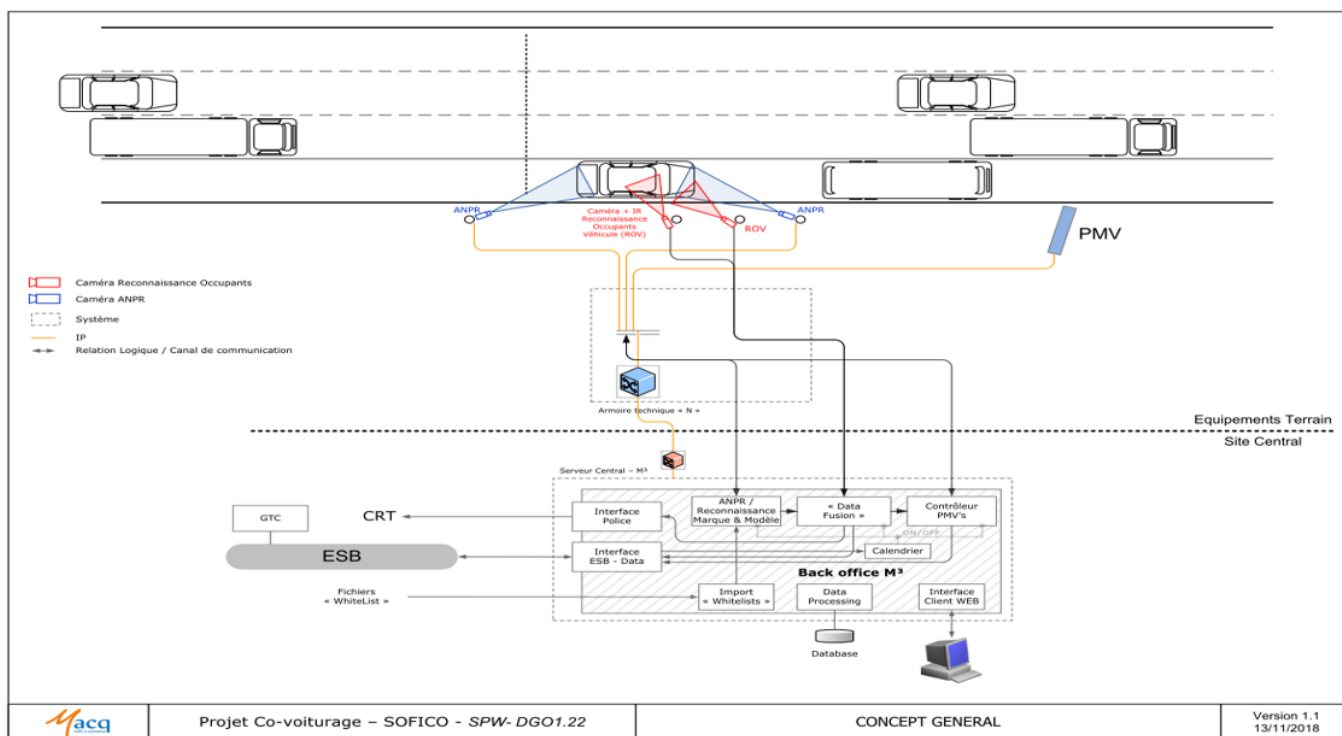


Image taken **without polarized filter**



Image taken **with polarized filter**





Where and why do we deploy the M³ platform (Macq Mobility Manager)?

The M³ platform is a powerful software interface package providing **ultimate innovative traffic management tools** for Smart Cities, Highways and National Police. All data retrieved via ANPR cameras or other various equipment in the field help to provide all sorts of important information to be able to perform efficient traffic management. M³ contains and offers **a wide range of applications** as shown below :

POLICE



Average speed



Blacklist Management



Ghost Driver



Railway Crossing



Illicit Traffic



Overtaking



Red Light



Dangerous Goods



Instant Speed



Vehicle Height



Vehicle Tracking

CITIES, ROAD & HIGHWAY



Restricted Traffic Zone



VMS



Mobility Portal



Carpooling

ANALYTICS & STATISTICS



Traffic Intensity Map



Travel Time



Traffic Accident Map



Counting Vehicles



Speed Control Zones Map



Origin Destination

SCHOOL



Kiss& Ride



Pedestrian Warning System



Average speed



Restricted Traffic Zone



VMS

ENVIRONMENT



Low Emission Zone

Visit our website
www.macq.eu

Contact us

Injaas De Mul
+32 (0) 491 710 350
injaas.demul@macq.eu

MACQ S.A./N.V.
Rue de l'Aéronef 2
1140 Brussels, Belgium
+32 (0)2 610 15 00
www.macq.eu