Good Practise

Rotterdam: Enforcement with scan vehicles

Objectives

In 2015 the city of Rotterdam decided to introduce the use of scan vehicles for the enforcement of parking taxes. Rotterdam was the second city in the Netherlands to introduce this after Amsterdam. Meanwhile a lot of cities in the Netherlands have followed.

The objective of this measure was to make the enforcement much more efficient. Until that moment enforcement was carried out by enforcers manually checking every number plate.

In this document the set up of the system will be described, with the focus on the preparation a city has to go through before using this technology.

Description

The technology roughly consists of four important pillars: The scan technology (a completely equipped scan vehicle (car or scooter), a parking rights database, a geographical database and an enforcement database (database with fines). As there are multiple providers of scan vehicles and these can be acquired as turn-key solutions, this will not be covered in this document.

Parking rights database: As the parking rights will be checked automatically, it is necessary that the parking rights are stored digitally. This needs to cover al possible parking rights available in the city (parking permits, permits for visitors, paid parking at parking machines on street and paid parking using mobile parking providers). When starting the digital enforcement in Rotterdam several databases of a multiple commercial parties were used. Meanwhile a National Parking Register (NPR) has been put in place in the Netherlands, which makes the enforcement much easier, as only one database has to be checked for the on street paid parking. When such a database is not yet available in your country you will need to make a connection to all databases available to the parking public. The parking permits for residents and companies in Rotterdam are being stored in a database of the municipality, therefore an extra connection is made between the scan vehicle and the permits database. (described as Parksaver in the diagram at the end of this document)

Geographical database: As the decision to issue a fine on a car can be a matter of only a couple of centimetres, the geographical information that is being used should at least have a precision of 50 centimetres. In the Netherlands each municipality is obliged to have a key registration of the topographical data of the area it covers. This registration meets the needed precision as this is always 10 centimetres or less and is also always up-to-date. Therefor this registration is ideal for the scan process. This registration is enriched with information about the parking zones, parking times and parking tariffs.

When a car is scanned, the geographical database (GPD in the scheme below) is checked by using the coordinates provided by the scan vehicle.

Enforcement Database: When the scan-vehicle determines that the scanned car does not have a (valid) parking right for the location where it is parked, a parking fine is automatically issued and sent to the enforcement Database (HAS in the scheme below). From this database all the parking fines are automatically sent to the address where the car is registered. All fines are also saved, in case a complaint is made. In the file of each parking fine the systems save the number of the number plate, the coordinates where the car is scanned, three pictures of the number plate and the precision of positioning of the scan-vehicle.

Besides the system parts already described there are a number of additional systems which have been connected to make the enforcement easier and more reliable:

RDW database: this is a Dutch database with vehicle information. This provides the enforcer with brand, type and colour of the car, to make it easier to localise it in the street.

Location database: this database adds an address to the fine based on the location provided by the scan vehicle.

ISA: this is the scan application which connects all the databases and systems.

Impact & outcomes

In Rotterdam the grade of payment (number of parked cars for which the parking taxes have been payed divided by the total number of cars) has increased from 50%[1] in 2014 to 87% in 2018. The aim for 2019 is to increase this number to 88%.

At this moment seven scan vehicles are in operation in Rotterdam and an eight scan vehicle will be added in Q3 of 2019. Its expected that this will increase the grade of payment even more.

Future developments

1. *Until now all scan vehicles are followed by enforcers on scooters who have to confirm the issued fine. When somebody is sitting in the car, is loading or unloading the car or has just payed the parking tax at the moment the scan vehicle passed, the enforcer can withdraw the fine. In Q3 of 2019 a pilot will start doing this follow-up based from out of the office based on panoramic images made by the scan vehicle. A further increase of the efficiency is expected by this development.*

2. *In Q3 of 2019 a pilot will be executed for the planning of the scan vehicles using all the available data from the scan vehicle, combined with the grade of payment, the*

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[1] This number is an estimate because there was little data available at the time.

parking capacity of certain districts and the occupancy rate of this districts. Its expected that this measure will also help to increase the grade of payment.
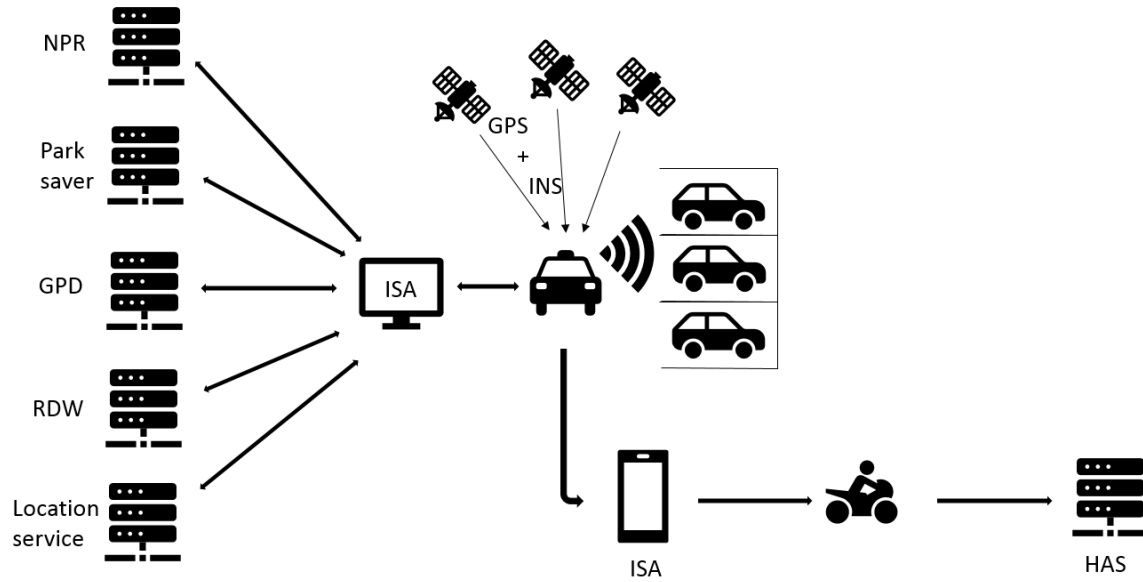
Further information available from:

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