

# RFID LICENSE PLATE



INTELLIGENT VEHICLE IDENTIFICATION SYSTEM

**PORTA**  
**SABER**  
Business Development

# Porta Saber

PORTA SABER is a Portuguese company incorporated in November 2008.

PORTA SABER is part of a group / partnership of companies spread around the world, sectors of activity and business areas. We are present directly or through representative offices in Portugal, Azerbaijan, Turkey, Moldova, Albania, Finland and Kurdistan.

With over twenty years of experience within its ranks PORTA SABER has a vast experience in managing small and large projects both in the private and public sectors. The cumulative experience of our teams enables PORTA SABER to manage efficiently the dynamics of the relationships between all the parties involved in the projects.

Our understating of the requirement and constraints of the different parties involved in the projects give PORTA SABER teams the necessary tools to overcome the most unexpected barriers that will arise in project.

## Porta Saber and IVIS

In 2010, the Azerbaijan Traffic Police challenged Porta Saber to find a system that would prevent License Plate cloning, ensure its authenticity and that could improve the way on which the Traffic Polices works. IVIS does this but it also brings other benefits in the areas of security, infrastructure financing and police enforcement.

It was a big challenge but we took it on and in 2011we started the implementation of IVIS in Azerbaijan.

IVIS is a stable and proved system that keeps on being developed and improved. Porta Sasber keeps on working on all its aspects to make sure that all its elements keep up with the new demands and are integrated in an effective and efficient way.

Presently IVIS is the only Passive RFID license plate system that is deployed and used in the real world, no other company has the experience of deploying and running such integrated system in the real world.

PORTA SABER divisions:

**BUSINESS DEVELOPMENT:** Its main goal is to identify new business opportunities.

**TRAFFIC SYSTEMS:** Responsible for developing al products related to the traffic an motoring, like the IVIS, Vehicle Registration Documents, Drivers Licenses, etc.

**RFID SYSTEMS:** Resulted of need to get knowledge in RFID, due to the IVIS. This division has since developed into a RFID producer and systems integrator.

**SECURITY SYSTEMS:** Manages projects relating to the security and identification of people and goods.

**REAL ESTATE:** Manages Porta Saber developments and real estate assets.



IVIS gives the authorities the capability to:

automatically and blindly identify any vehicle on the road at any time of the day or night and in any weather conditions and

at the same time gather information on those movements allowing for a more effective application of the road rules and improving security.

## IVIS Overview

IVIS is an integrated system that offer a complete solution and not just part of the solution not only IVIS offers the RFID device to be read it also offers the Reading Devices, the Central Management System and Database and the communications between the several elements.

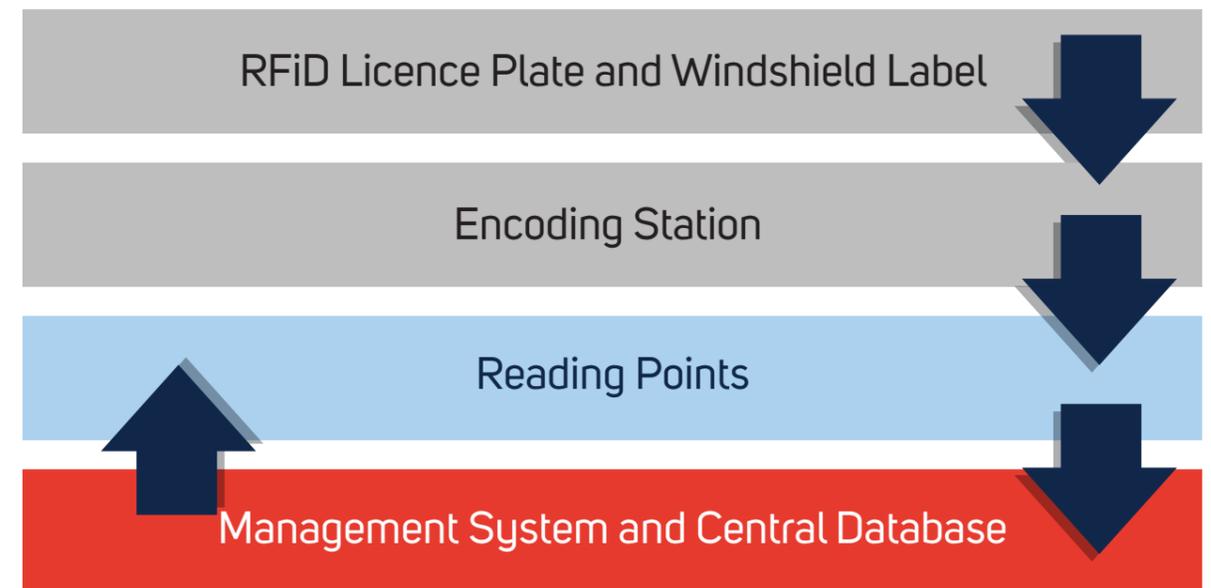
IVIS is a Complete and Integrated Solution that was thought and developed to work as a unit that can also integrate other relevant systems and databases.

IVIS is a fairly simple system to understand, composed

by three main elements. Passive RFID Labels and RFID enabled License Plates. A grid or network of Reading Points.

An integrated management system that oversees the all system and it's integration with other traffic and motoring related system.

These elements work and communicate between each other and with other external related systems like Insurance databases, police check points etc.



# The IVIS Elements

There are very few components in IVIS.

There are four core elements to the IVIS system:

- Encoding Station
- RFID Enabled Vehicles
- Reading Points
- Management System with Central Database

These elements guarantee that the system works smoothly, is lean, efficient and secure.

To the core elements it is possible to plug in other external elements. These external elements can become an integral part of the system, or they can stay external to the system maintaining a link and interacting with the system.

Police Check Points for example are elements that can be fully integrated into IVIS. Insured Vehicles databases or other similar databases can be linked with IVIS but will remain an independent system outside of IVIS.

Depending on the size of the Reading Points network the Management System and the Central Database can be centralised or decentralised, it is possible to create regional control centres that will hold a regional management system and a regional database that will be linked with the National

System and Database.

Reading Points are critical to the system in distributing the information.

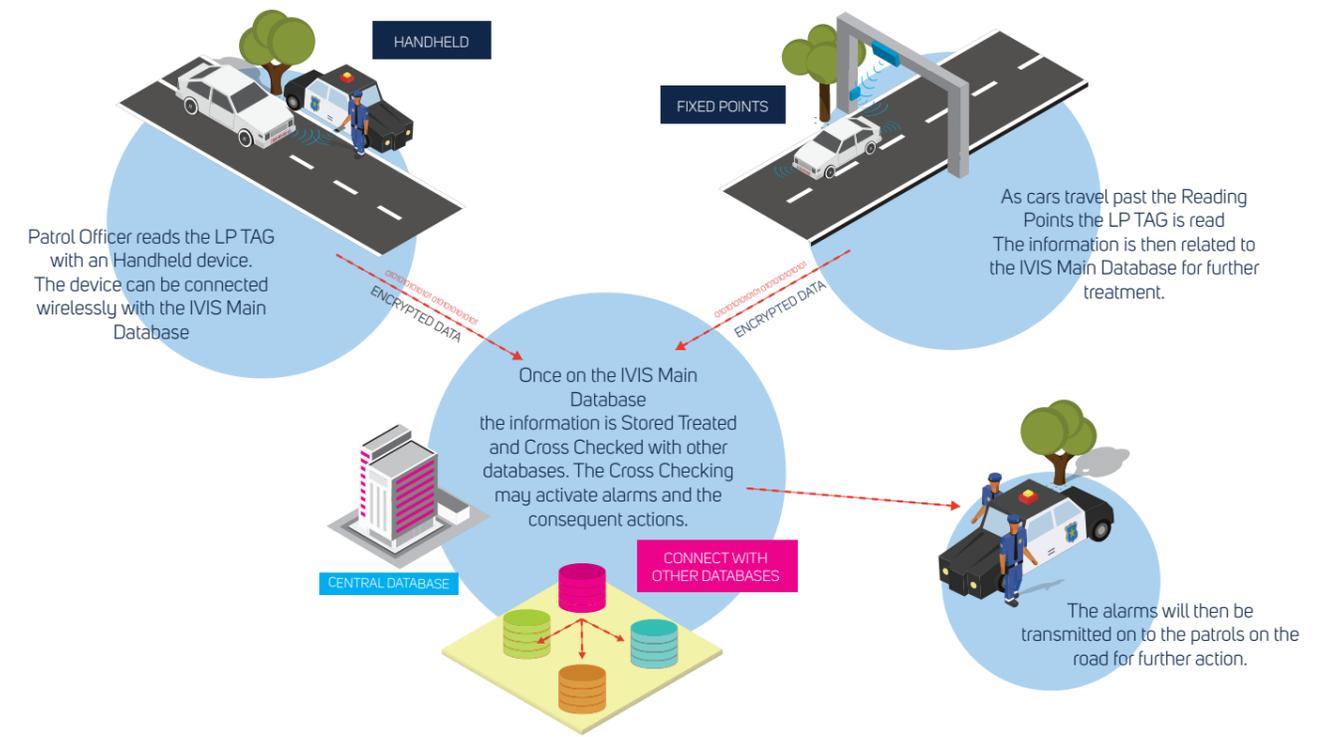
There are several types of Reading Points:

- FIXED placed on the road side or over the road,
- PORTABLE that can easily be moved from place to place,
- MOBILE these are placed on vehicles and gather readings when the vehicle is in movement
- HANDHELD that can easily be carried by on foot policeman's.

All the above reading points can be integrated with their own camera or with existing camera systems.

Some of these can be intelligent and broadcast alarms in situations where the proximity of the authorities is an advantage for example in check points or can work independently of the Management System like the Handheld Reading Points that can perform tasks using the RFID capability without requiring a permanent connection to the Management System for example issuing parking fines.

# The IVIS System



IVIS works in a very simple way, RFID enabled vehicles (Windshield Label and/or RFID enabled License Plate) drive past the Reading Points.

Accessing the millions of records in the database is fast and easy through the utilisation of the Query and Report Building Tools.

The information read is treated by the Reading Point and sent to the Management System, communications can be done over Ethernet, WiFi or Mobile Data Connection.

The Report Building Tool will allow for the creation of custom reports that can be kept for future utilisation or can be of just one usage.

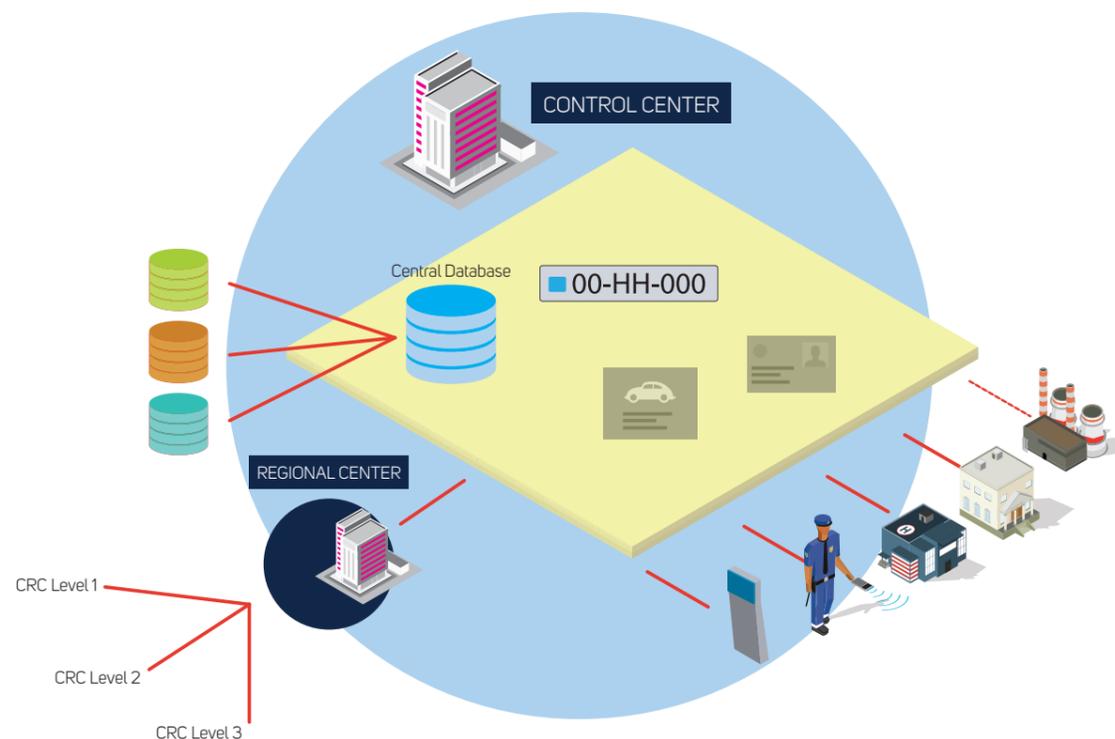
The information on the Windshield Label, the License Plate and all the communications are Encrypted. Decryption only occurs at the Management System, even the Alarms are sent encrypted to the check points, patrol cars or other receiving entities.

Another interesting Tool is the Traffic Management Tool that produces standard Traffic Management Reports, these reports can help the authorities to take more informed decisions in what concerns Traffic Management, it is also possible to create custom reports.

Once received data is then saved in the Central Database and checked against the different Alarm Lists and External Databases in order to raise Alarms if necessary. The Alarms are sent to the relevant authorities and different locations in order to be activated and the relevant actions executed.

The information gathered by the IVIS can be of use to other governmental authorities like the Ministry of Interior or the Ministry of Defence and even private entities like car parks to whom the usage of the system or part of it can be licensed.

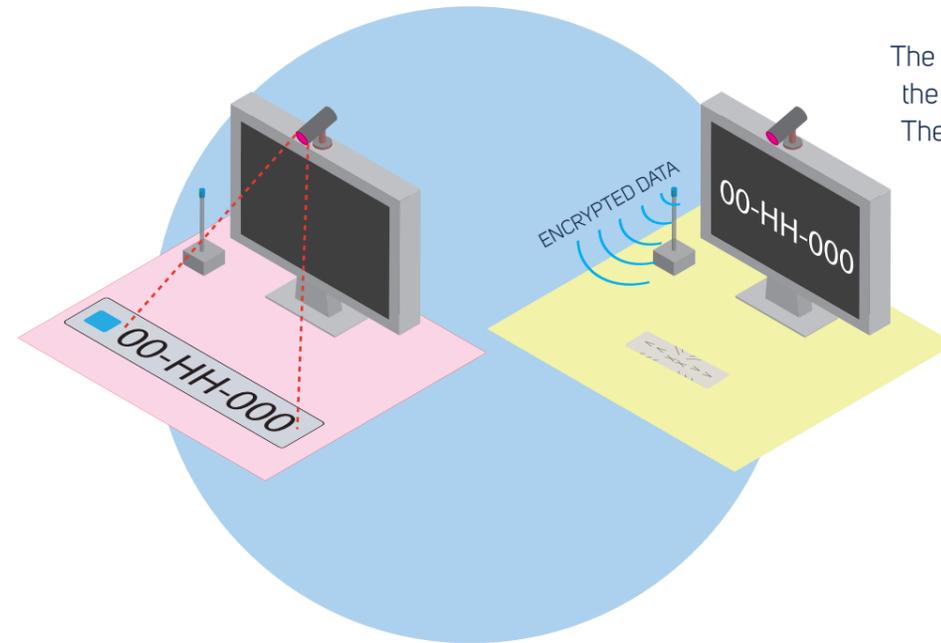
The information gathered in the Central Database can then be treated by the Management System in order to produce reports that can be relevant to different authorities.





### RFID LICENSE PLATE AND WINDSHIELD LABEL

RFID is UHF passive not requiring any battery for its operation;  
 RFID follows the ISO 180063 standard;  
 RFID elements are tamper proof becoming unusable when removed;  
 The RFID TAG to be placed on the LP can be placed in new or existing LP.

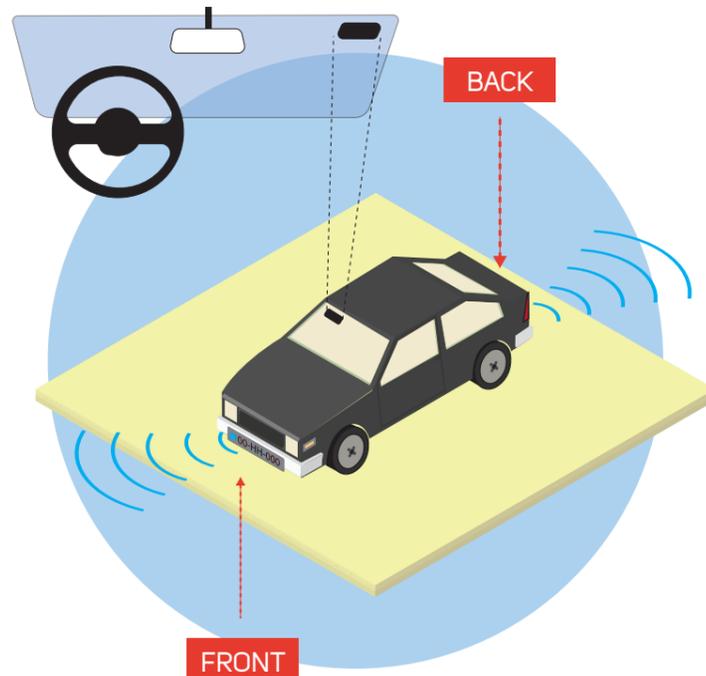


### RFID ENCODING STATION

Both the RFID LP and the Windshield label will be encoded with the encrypted LP details;  
 Other RFID reading devices will not be able to decrypt the information;  
 The less information on the RFID the more secure the system is;  
 The RFID device will only have the LP number.

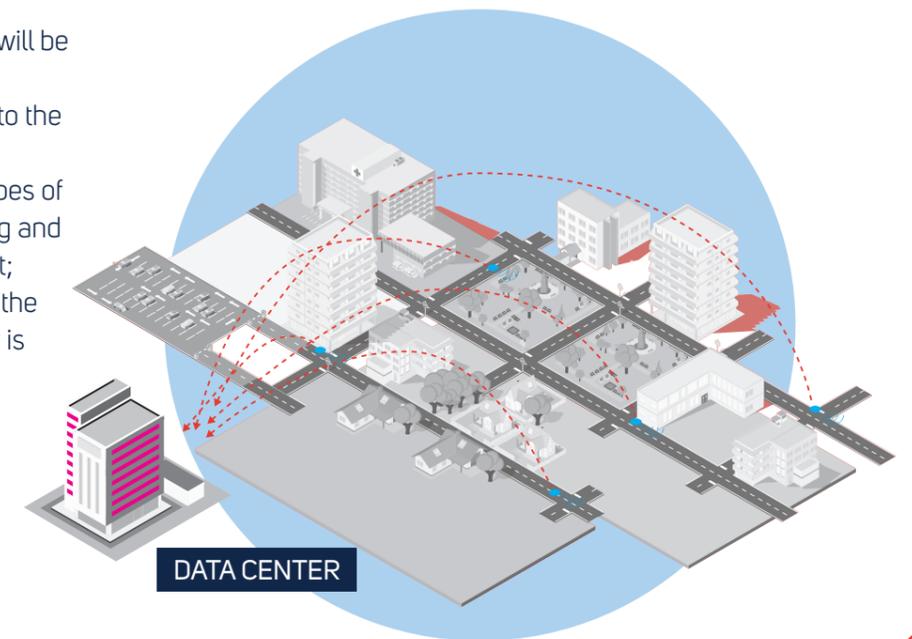
### APPLICATION ON THE VEHICLE

In order to have redundancy there are two License Plates and one Windshield label per vehicle;  
 If possible LP should be secured with special one way screws;  
 LP are always within a known area of the vehicle improving its readability.



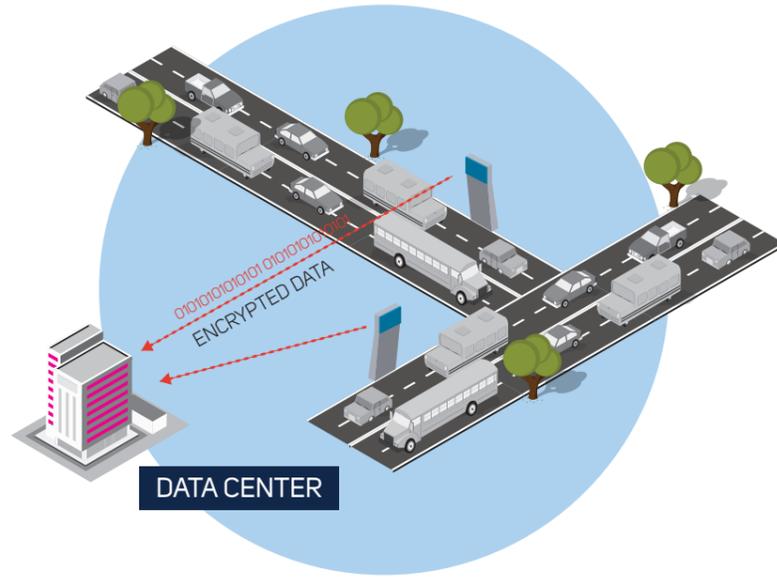
### READING POINTS NETWORK/GRID

A network of Reading Points will be created;  
 The information read is sent to the Management System;  
 The network has different types of RP making it an ever evolving and unpredictable grid layout;  
 The information flowing in the communications network is encrypted.



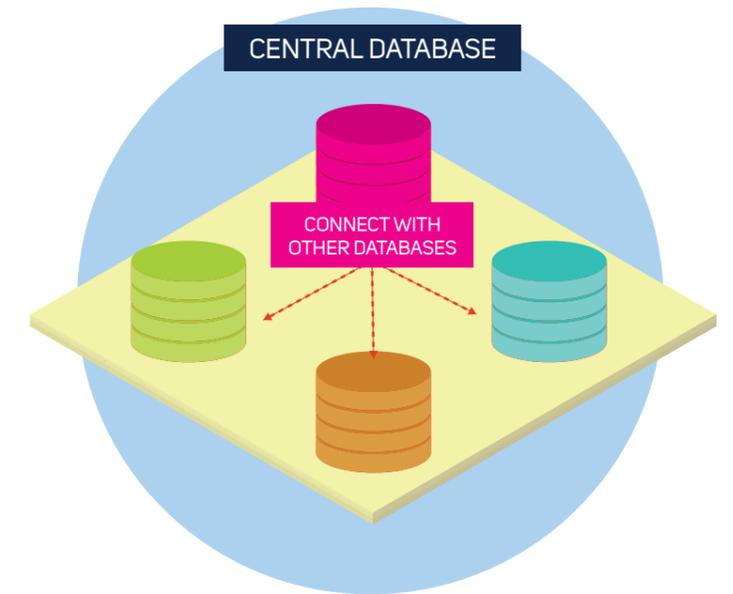
## READING POINTS – RP

Vehicles go past the RP the read information is sent to the Management System;  
 RP can communicate with the Management System or with linked Check Points;  
 There are several types of RP giving flexibility to the system;  
 RP can be Fixed, Portable, Mobile, Handheld.

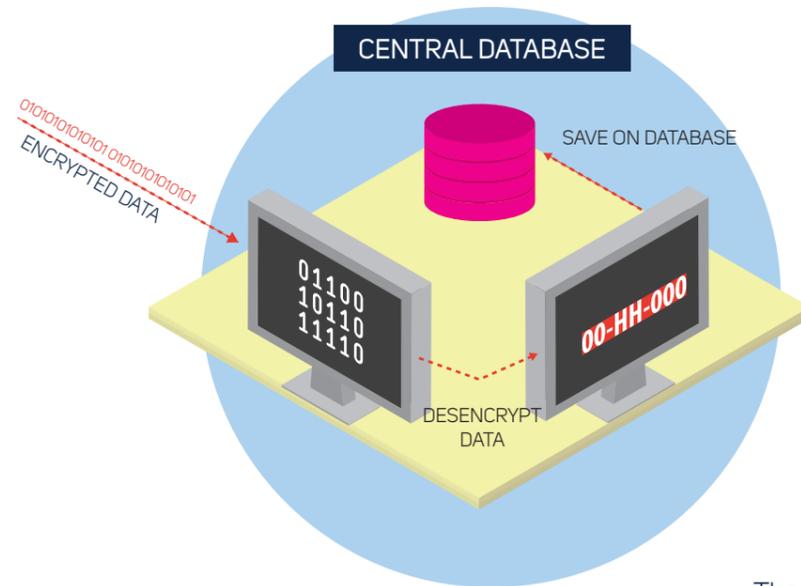


## EXTERNAL DATABASES INTEGRATION

Other relevant databases can be integrated in the system;  
 Alarms can be raised by checking against external databases;  
 External databases can be Insurance, Road Tax, Fines, Technical Inspection, etc.



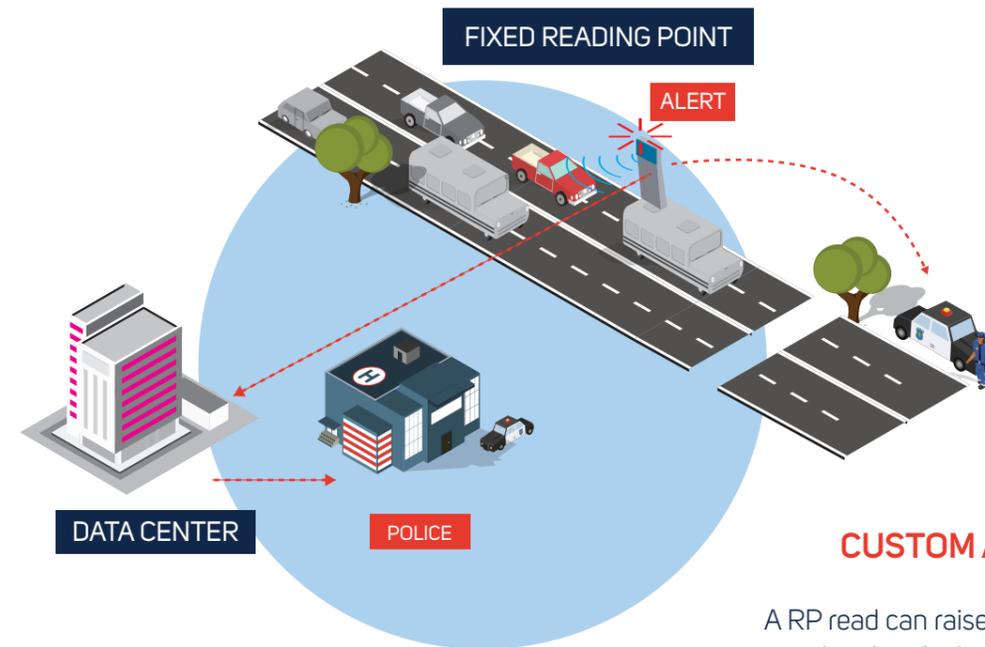
## CENTRAL DATABASE



## MANAGEMENT SYSTEM - MS

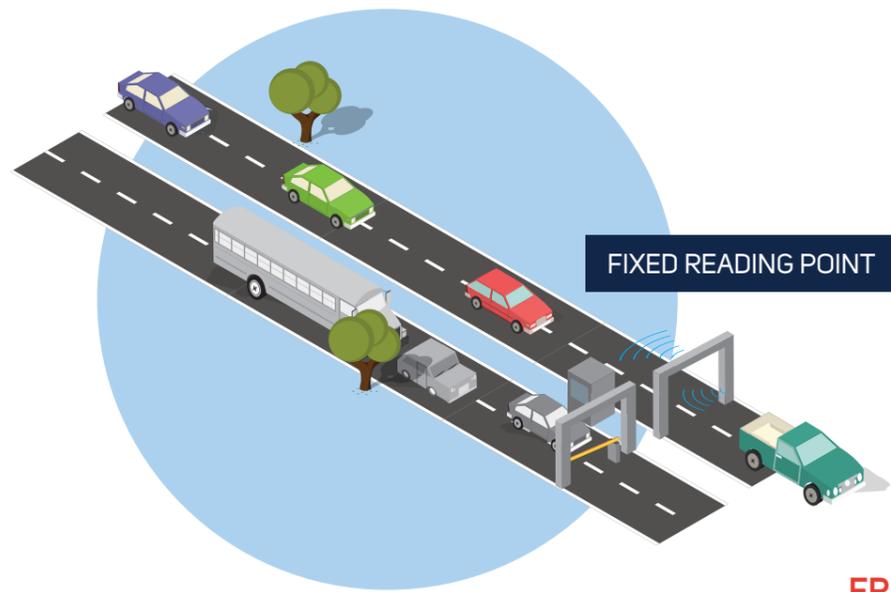
The information is only decrypted at the management system;  
 The management system is composed by:  
 Central Database;  
 Custom Alarm Lists and Reports;  
 Graphic Interfaces;  
 Alarms.

## FIXED READING POINT



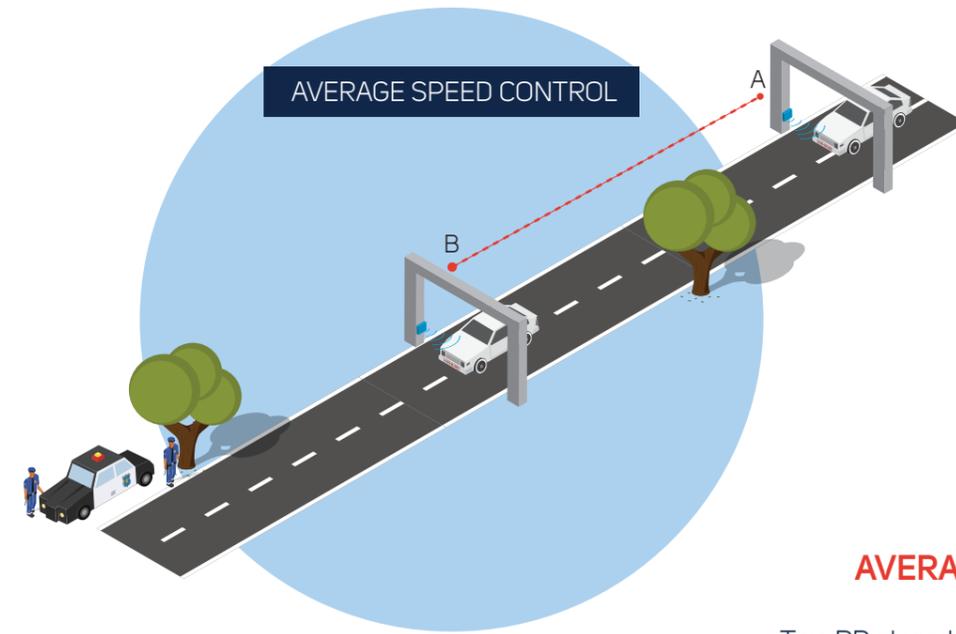
## CUSTOM ALARMS LISTS

A RP read can raise an Alarm. This Alarm can be identified at the RP or at the MS;  
 When at the RP the Alarm can be forwarded directly to a Check Point;  
 There can be several Custom Alarm Lists;  
 Custom Alarm Lists are created to a certain criteria or requirement.  
 The actions indicated in an Alarm can be specific to that Alarm or can be applied to groups or types of Alarm.



### FREE FLOW TOLLS

Reading Points can double up as free flow toll collection points;  
 The system can be integrated with a tolling payment system;  
 Free flow tolling systems avoid traffic congestion at the toll collection point.



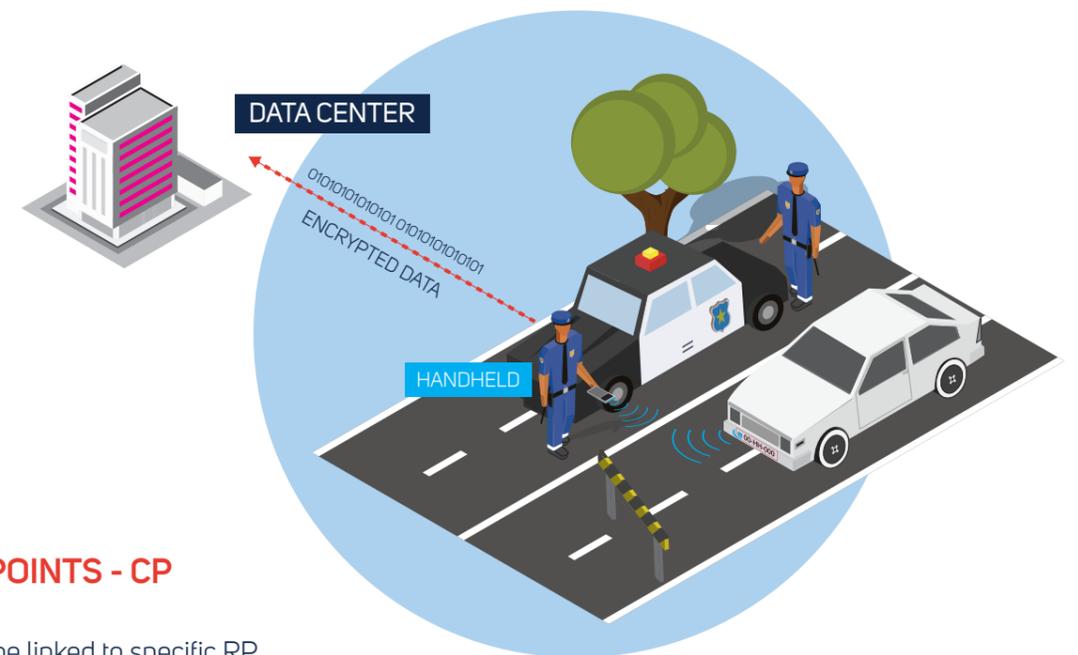
### AVERAGE SPEED CONTROL

Two RP placed at a determined distance allow for average speed control;  
 The Information sent to the MS can be automatically processed and the fine issued;  
 The RP can be linked with a non permanent check point for immediate action.



### HANDHELD READING POINT

These RP are easily carried by an on foot officer;  
 Can be connected to the Management System or have an on more independent role;  
 Allow to gather information and speed up processing, for example of accidents;  
 Can speed up parking tickets processing.



### CHECK POINTS - CP

Check Points can be linked to specific RP creating a parallel network with that RP;  
 This reduces Alarm response times;  
 Check Points can also receive alarms from the Management System;  
 Information send to the CP can be filtered depending on location or other criteria.

# Benefits

## Political

Increased Public Awareness of Police Work; Better Allocation of Resources and Budget; Increased Road Security and Safety.

## Law Enforcement

Highway Code Monitoring and Enforcement; Parking Control and management; Check for Compliance with Vehicle Registration, Insurance, Technical Inspection, etc.

## Operational

Greater Efficiency and Effectiveness; Accurate Information on Vehicles and Owners; Proactive Approach to Law Enforcement.

## Traffic Management

Vehicle Historical Movements; Management and Analytical Tool; Reporting Tool.

## Financial

Increased Revenues; Prevents License Plate Cloning; Tools and Congestion Charge Collection.

## Security

Vehicle Location and Historical Movements; Standard and Custom Alarm Lists; Foreign Vehicles Management and Monitoring.

# Return of investment

## FEES

Vehicle Registration  
Road Tax  
Technical Inspection  
Insurance  
Fines Collection  
System Licensing

## SAVINGS

Lower Operational Costs  
Efficiency  
Effectiveness  
Resource Allocation  
Proactivity

## SOCIAL

Public Perception  
Increased Security  
Increased Road Safety  
Clarity of Processes and Actions  
Fairer System

# Functionalty

Automatic Fine Issuing

Traffic Management

Standart & Custom Lists

Traffic Analysis

Vehicle Tracking

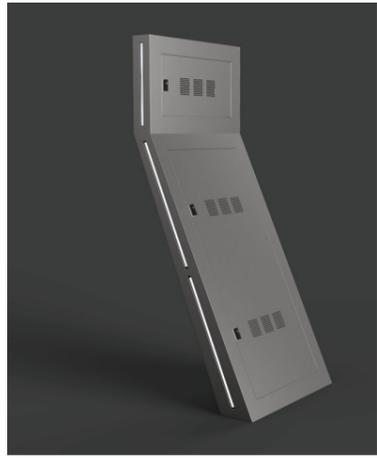
Reporting

Tool Charging

Speed Control

Accident Reporting

Acces Control



Increase Visibility of the Authorities Work



Better allocation of financial resources



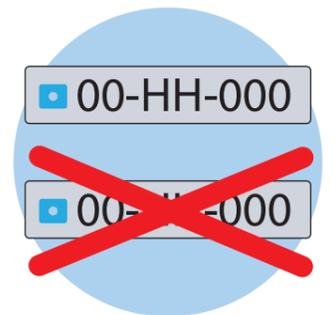
Increases Efficiency and Effectiveness



Improves peoples perception of the Police work



Increased Road safety and General Security



Stops License Plate Forgery and Cloning



Increased Highway Code Enforcement





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