



DATE
July 20, 2022

TIME
10 a.m. EST



Make decisions in real-time from TRAFFIC FLOW

with NumberOk and FF Data Factory

www.armour.gr

PROFILE COMPANY FF CROUP



17 years

in Security
Business

12 years

own LPR
Technology

7

years

LPR on the
Edge

HQ in
Prague,
Czechia

PROFILE COMPANY FF CROUP

Server-based
LPR & MMCR
applications

numberok
VEHICLE RECOGNITION AND CLASSIFICATION

NEW: plugin to VMS
and stand-alone data
backend

FF Data
FACTORY

Camera-embedded LPR & MMCR applications

azena
Redefining Video Analytics

NumberOk Edge
NumberOk Edge MMCR

MOBOTIX
BeyondHumanVision

FF LPR APP
FF LPR MMCR APP

AXIS
COMMUNICATIONS

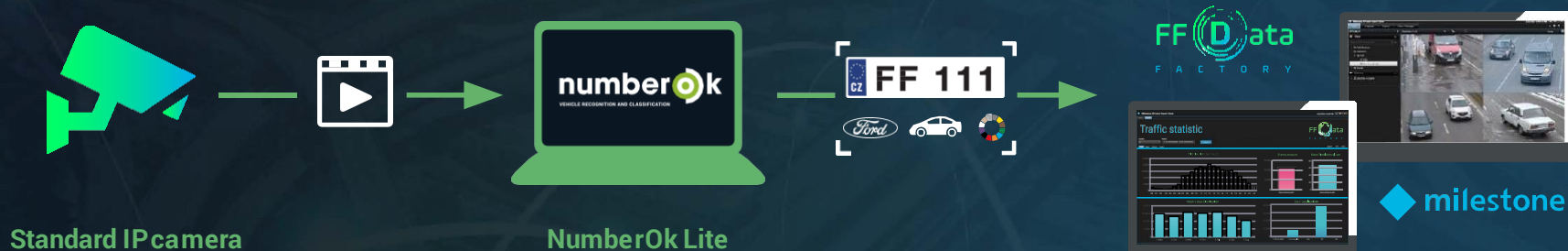
AXIS LPV (kit)
CaMMRa
CaMMRa LITE

Hanwha
Techwin

NumberOk Edge*
Serverless ANPR
RoadAI



FF DATA FACTORY + MILESTONE PLUG-IN + NUMBEROK LITE



FF Data Factory receives ANPR, vehicle classification data from universal sensor NumberOK Lite MMCR and collect it in one Central database connected with Milestone XProtect.

You can get video confirmation of every recognition event in FF Data Factory from Milestone X Protect.



FF DATA FACTORY WITH THE UNIVERSAL NUMBEROK LITE SENSOR



Standalone smart platform for managing large traffic flow data received from NumberOk Lite sensors



Innovative and analytic FFGroup Data platform provides a huge amount of vehicle meta-data to individual customers' dashboards using NumberOk Lite as a vehicle data sensor

- End-user interface
- Big traffic data from any IP camera via NumberOk Lite
- Smart search engine
- Photo evidence for investigation
- Centralized list management
- Alarms on listed vehicles
- VMS connection for video*
- Customized dashboard*

*2nd release

The screenshot displays the FF Data back-end interface, which is used for managing and searching vehicle data. It features a search bar at the top with filters for 'Date/Time', 'Camera Name', 'Plate', 'Photo', 'Country', 'Type', 'Brand', 'Model', and 'Color'. Below the search bar is a table of search results. The table has columns for 'Date/Time', 'Camera Name', 'Plate', 'Photo', 'Country', 'Type', 'Brand', 'Model', and 'Color'. The results show three entries for vehicles captured by an 'axis' camera on 02.11.2021. The first entry is a dark grey Audi A8 (Plate KA8471CT) with a model of '80,100'. The second entry is a dark grey Audi A8 (Plate KA8471CT) with a model of 'q series'. The third entry is a dark grey Audi A8 (Plate CB233AP) with a model of 'a series'. Below the table, there is a section for 'View mode' and 'FROM TO' filters. The 'View mode' section shows a grid of vehicle photos. The 'FROM TO' section shows a date range of '01.11.2021, 09:33:35' to '01.11.2021, 09:33:35'. The 'View mode' section also includes a 'SEARCH' button. The 'FROM TO' section includes a 'SEARCH' button. The 'View mode' section also includes a 'SEARCH' button. The 'FROM TO' section includes a 'SEARCH' button.

Date/Time	Camera Name	Plate	Photo	Country	Type	Brand	Model	Color
02.11.2021, 14:10:31	axis	KA8471CT		UKR		Audi	80,100	Dark Grey
02.11.2021, 14:10:19	axis	KA8471CT		UKR		Audi	q series	Dark Grey
02.11.2021, 11:42:57	axis	CB233AP		UKR		Audi	a series	Dark Grey

The interface also includes a detailed view of a vehicle, showing its 'Date/Time', 'Brand', 'Model', 'Type', 'Color', and 'Photo'. The detailed view shows a white Audi A8 (Plate KA8471CT) with a model of 'a series' and a color of 'White'. The detailed view also includes a 'SEARCH' button.

MAIN FEATURES:

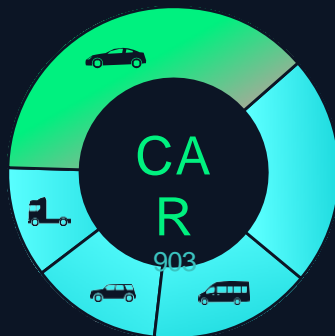
■ Powerful database:

- ✓ up to 200 million of events
- ✓ up to 300 events per second
- ✓ up to 100 connected cameras per server

■ Logic constructor for every project tasks (Meta-data navigation for business insights)

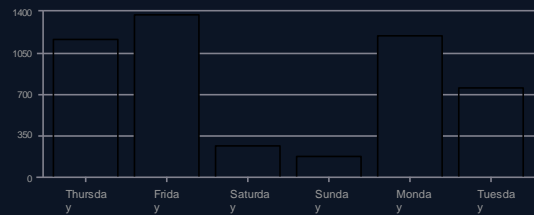
■ Milestone Xprotect plugin (will be soon)

Statistic by vehicle types



CAR	903	
LCV	531	
VAN	374	
SUV	307	
TRUCK	250	

Daily vehicles statistics



Statistics by top vehicle makes and models



CASE 1

CONTROL OF VIOLATORS IN A PARTICULAR REGION

numberok
VEHICLE RECOGNITION AND CLASSIFICATION



Police server



The violator list interface shows a table of license plates. The license plate 'FF 333' is highlighted with a red box. The interface includes a search icon, a 'Violator list' title, and a list of license plates with corresponding status bars.

Violator list	
FF 789	
FF 777	
FF 333	
FF 999	
FF 123	
FF 888	

CASE 1

CONTROL OF VIOLATORS IN A PARTICULAR REGION

Clients

Police, City Councils.

Problem solving:

Quick search for criminal and civil offence vehicles.

How the solution works:

FF DATA Factory quickly collects from NumberOk, stores and analyzes huge amount of vehicle data (ANPR/MMCR). Allows the police to search fast and easy for wanted vehicles according to the allowed/denied lists. Based on the results system can notify police operator about wanted vehicles. The results can be easily exported.

Technical solutions provided by FF Group:

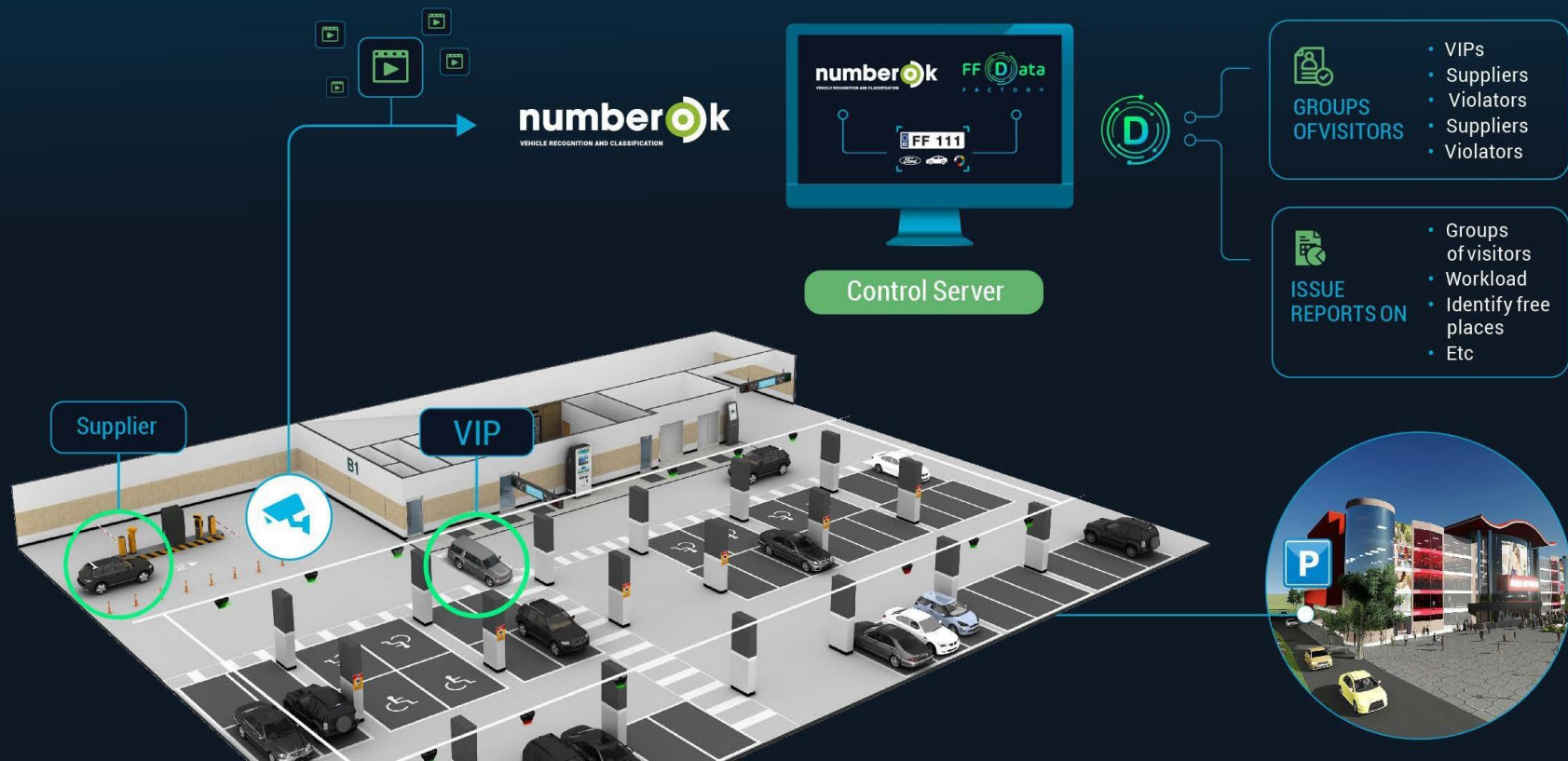
- Any IP-camera installed at entry / exit of the city or town (on the highways), key-point intersections.
- FF DATA Factory and NumberOk install on the police server.
- NumberOk detects vehicle number plate, make, model, type, color, date, time.
- FF DATA Factory platform compares recognition results from NumberOk with violators lists in the Data Factory.

Key Benefits of the Solution:

- Quick forensic search of wanted vehicles.
- Export results for further investigation

CASE 2

USEFULL PARKING STATISTICS



CASE 2

USEFULL PARKING STATISTICS

Clients

Parking lots, parking network,
Shopping center parking lots.

Problem solving:

Real-time identifying vehicles group with alert to operator, generating reports on workload, etc.

How the solution works:

Large parking networks or parking at large shopping malls requires great flexibility and speed in management, which demands a large amount of data. FFData Factory, receiving vehicle data from NumebrOk, works quickly with lists and issues pop-ups for different groups of visitors –VIPs, suppliers, violators, etc. It can then also issue reports on workload, etc.

Technical solutions provided by FF Group:

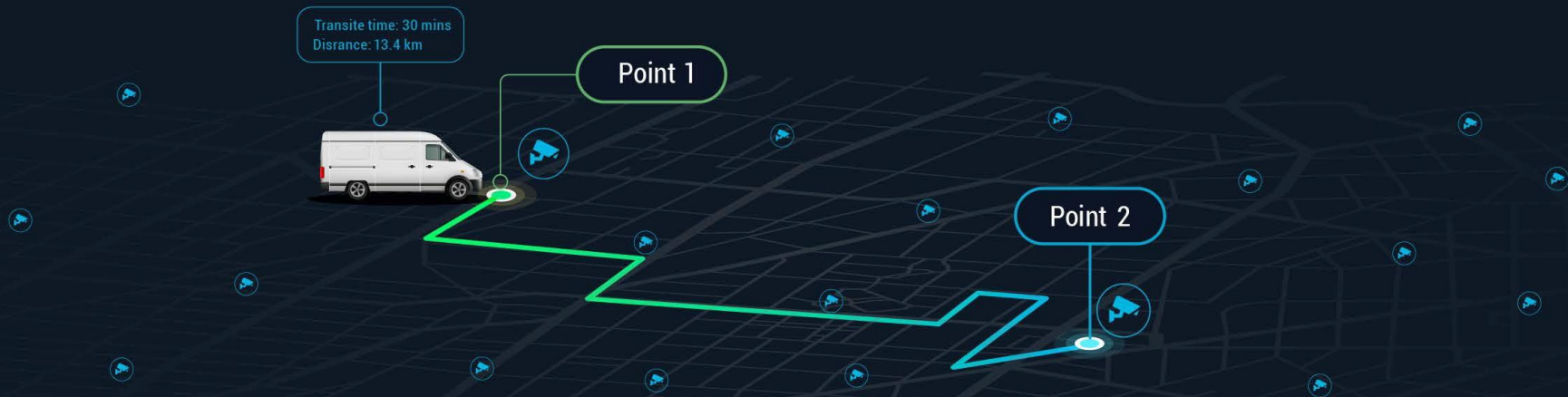
- Any IP-camera installed at entry / exit of the parking and its key-point intersections.
- FF DATA Factory and NumberOk install on the Central Server of parking lots.
- NumberOk detects vehicle number plate, make, model, type, date, time.
- FF DATA Factory platform compare vehicle data from NumberOk with group lists, generate reports by different filters.

Key Benefits of the Solution:

- Quick real-time identifying vehicles group according to the list.
- General statistic report.
- Useful statistics for marketing: popular/unpopular periods for visiting of parking.

CASE 3

CALCULATION OF TRANSIT TIME



CASE 3

CALCULATION OF TRANSIT TIME

Clients

Public transport companies, City Councils.

Problem solving:

Public transport companies often want to inform drivers about the traffic situation in the city. It is important to inform drivers how long it takes to get from one point of the city to another, how intensive the traffic is in the city, and how long it will take to drive through the entire area.

How the solution works:

FFData Factory works here as a calculator of these transit times based on vehicle data. This data is detected and generated by NumberOk from up to 100 any IP-cameras located in the city and its key points .

Technical solutions provided by FF Group:

- Any IP-camera installed at entry / exit of the city or town, key-point intersections.
- FF DATA Factory and NumberOk install on the Public transport server.
- NumberOk detects vehicle number plate, make, model, type, color, date, time.
- FF DATA Factory platform measures transit time according the traffic flow (vehicles data from NumberOk).

Key Benefits of the Solution:

- Real-time statistics providing the overview information about traffic in city.
- Analytic data for calculating transit time.



**NumberOk Lite
MMCR is the best
universal sensor
for recognizing all
vehicle data**

**(LPR, make, model, type, and
color).**

**It can work with any IP
camera.**

Why Number Ok Lite?



>95% **High quality**
(more than 95%
accuracy rate)



Value-added MMCR
algorithm: Make,
Model, Color, Type
of vehicle
recognition



Camera versatile



High speed
up to 250 km/h,
up to 4 lanes



Fast installation,
no dongle needed
(USB)



Perpetual license



Multiple channel
from 1 to 36 chan-
nel per one server



Can work on
virtual machine



Free regular
LPR updates

Video Number Ok recognize all
vehicle parameters, 4 lanes 4 K
camera

numberok
VEHICLE RECOGNITION AND CLASSIFICATION

