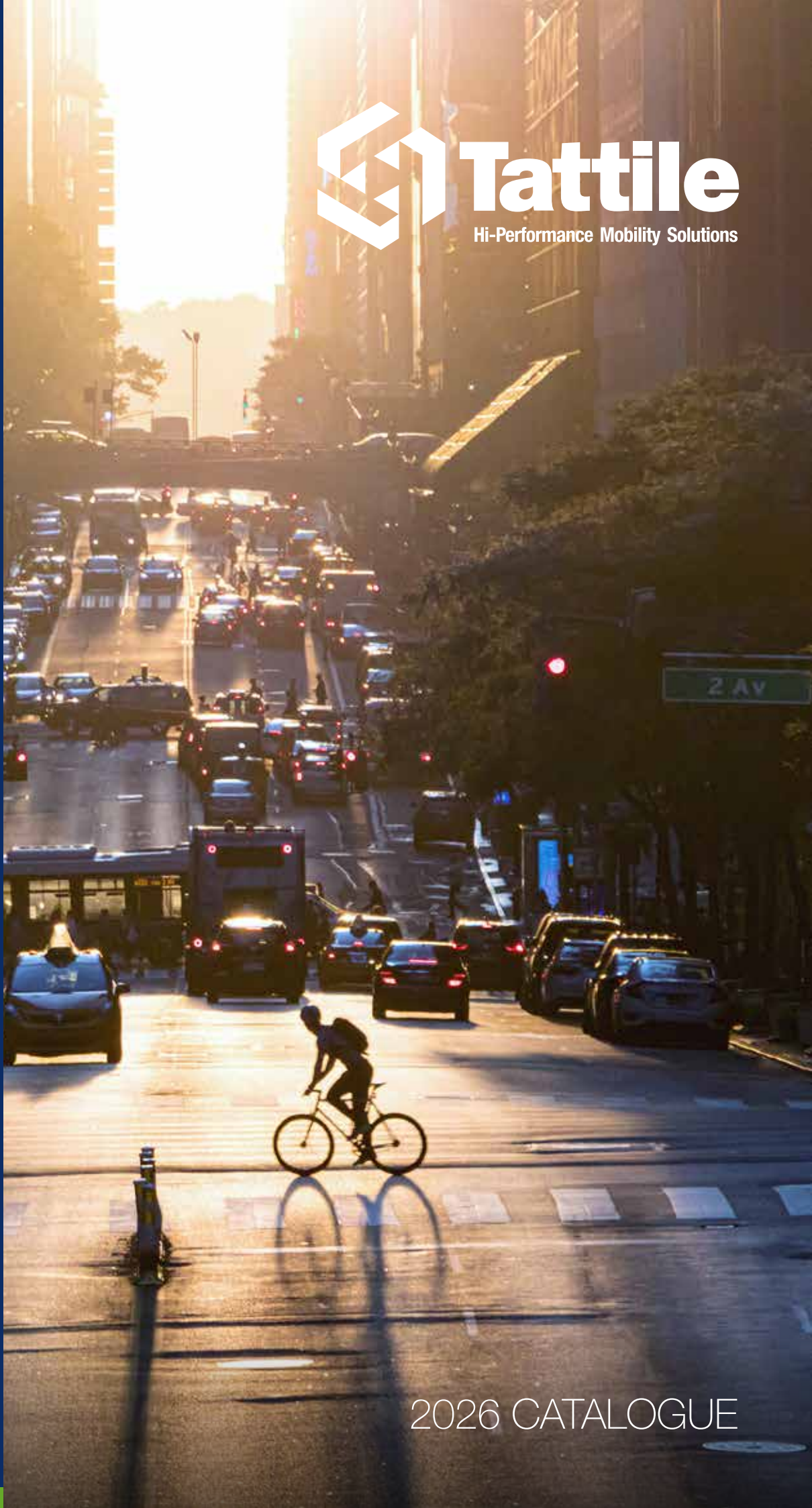
ITS & Smart City



Tattile
Hi-Performance Mobility Solutions

Who we are

- Founded in **1988**
- **120** employees, 50% in **R&D**
- Expert in **Mobility** applications
- **Our mission**:
  to provide the best technology to our partners (System Integrators)

Innovation

- 12% of turnover invested in R&D
- 38.68% revenues generated by less than 2 years old products

Integration

- HW & SW natively integrated to burst mutual potentialities

Hi-Performance solutions

Performance fanatics chasing every 0.1% of improvement

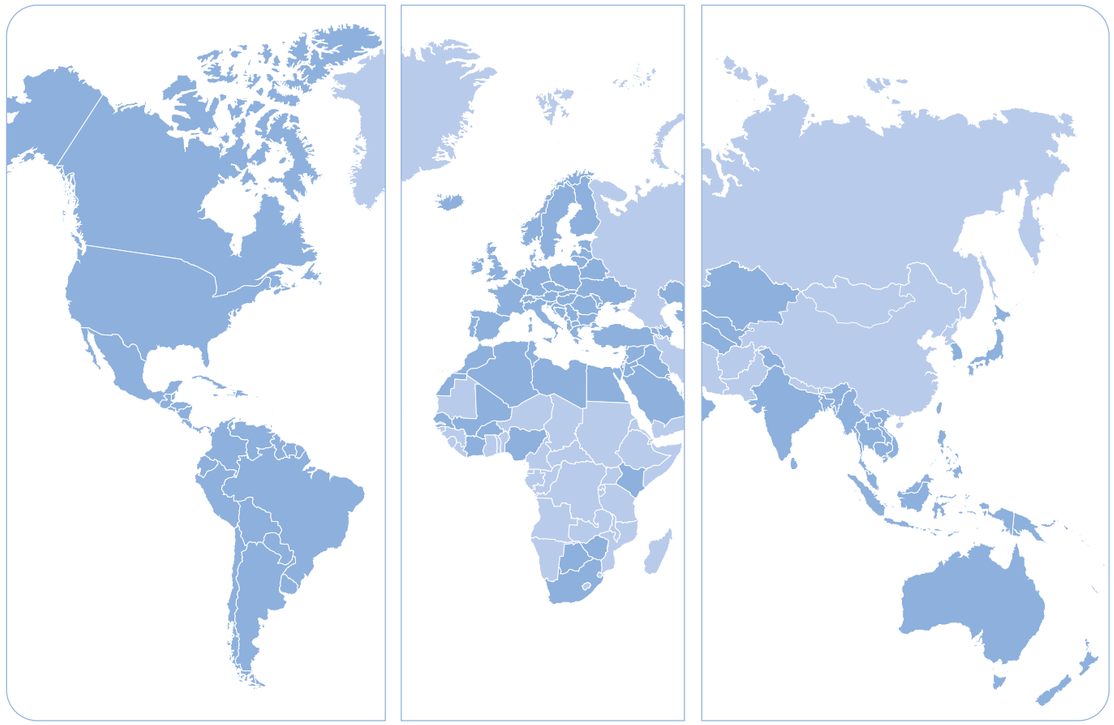
Support

- Dedicated teams are working hand in hand with our partners in all the project's phases, such as requirement recollection, PoC, after-sales, and more

Reliable

- Our product portfolio is 100% developed and manufactured in Italy by our team and 100% tested before delivery

Where we are



+110.000 devices in operation

Stock listed company

6.500 employees

Part of **TKH Group**

+75 countries covered by Stark OCR

€ 1.7 billion revenues in 2024

Technologies

Smart SOFTWARE

Embedded
Cloud & Server software

- AI based
- Cybersecure + IEC62443

Smart CAMERAS

Onboard
AI Video Analysis

- Stand-alone intelligent camera (embedded)
- AI accelerator

Smart LASER & RADAR

Onboard
AI Laser Analysis

- Stand-alone intelligent LIDAR
- AI based
- Non-intrusive device

Every Tattile's solution is based on StarK Platform

Tattile develops 100% of its software and hardware internally.

50% of the entire Tattile team works in **R&D**.
It is a group of 58 young and enterprising engineers who dedicate themselves daily to finding and developing innovative solutions for the ITS world.
AI is our mantra, enabling us to deliver high performance in every application.

Where we come from, where we are going

1988
Tattile's foundation year. Based in Brescia, Italy, the original team consisted of 4 visionary engineers (one of them is still working at Tattile).

2005
Tutor: the first innovative average speed enforcement system deployed on Italian highways.

2010
Vega 2HD: double head B&W camera, with embedded processing capacity, working at 75 FPS, with an innovative auto trigger system included.

2015
ANPR Mobile camera: with embedded image processing capacity, working at 100 FPS, especially developed for worldwide police applications.

2016
Smart & Basic families launch: new modular platform with outstanding embedded processing capacity.

2018
Tattile becomes member of stock listed company TKH, a step forward in the consolidation process.

2021
Axle Counter: the fully optical system, running on the edge, dedicated to axles detection and counting, 99% accuracy without external trigger, specially developed for free flow applications.

2022
Vega11 and Vega33 cameras launch: high-end cameras conceived to host top-performing AI algorithms and Neural Networks.

2023
Stark software equips an high range of cameras.
From Basic MK2 to the brand new Smart+, the most powerful Tattile ANPR camera.

2024
Tattile acquires Comark, a company specializing in laser-based volumetric vehicle measurement, and classification for traffic applications like tolling, and free flow tolling applications.

2025
Tattile introduces the new Stark OCR Cloud, a server-based AI algorithm designed to enhance the performance of the embedded solution.

2026
The new Stark Fusion and Stark Controller software mark Tattile's transformation from a product supplier to a solutions provider.

Verticals

TOLLING

- Free Flow
- Stop&Go Tolling
- Congestion Charge

ENFORCEMENT

- Speed Enforcement
- Traffic Light Enforcement
- LEZ & LTZ
- Bus Lane
- WIM (Weight-In-Motion)
- Parking Enforcement

ITS

- Vehicle Monitoring
- Patrolling
- Over Height
- Access Control

SMART CITY

- Traffic Analytics
- Bike Counter
- Over Height

ITS & Smart City

In modern Intelligent Transport Systems, combining Automatic Number Plate Recognition (ANPR) cameras with LiDAR sensors enables precise traffic monitoring, enhancing safety, and urban mobility efficiency.

Tattile solutions integrate ANPR cameras with LiDAR technologies to provide advanced detection, classification, and flow analysis for vehicles, bicycles, and pedestrians in smart city applications.

By integrating sensors, cameras, and software, Tattile can provide solutions for various ITS & Smart city applications such as:

- **Vehicle Monitoring**
- **Patrolling**
- **Over Height**
- **Parking & Access Control**
- **Traffic Analytics**
- **Bike Counter**

Advantages of Tattile's solution

- **Lower CAPEX** thanks to on-edge processing, eliminating the need for external servers
- **OPEX reduction** achieved through zero-maintenance of Tattile's devices
- **No road works needed for in-ground devices**, as Tattile's solutions can detect vehicles using integrated sensors and data analysis.
- The **native integration** among various devices and technologies enhances performance and simplifies user implementation

Vehicle Monitoring

In the Vehicle Monitoring application, cameras and sensors detect, collect, and analyze data from all vehicles and traffic on both roads and highways. Continuous traffic monitoring therefore allows for the identification and tracking of any suspicious vehicles and/or the identification of safety-critical or illegal situations.

Tattile's ANPR cameras provide excellent vehicle and plate recognition, while its advanced LiDAR technology ensures accurate vehicle classification. These innovations help city and local authorities monitor and identify vehicles more effectively, improving law enforcement and security efforts.

Advantages of Tattile solutions in Vehicle Monitoring applications:

- **Non-invasive solution**: transit detection and vehicle classification without road work
- **Embedded OCR**: onboard processing eliminates the need for external devices
- **Embedded BCCM**: vehicle classification through internal image analysis
- **Control list**: management directly onboard
- **Event filtering**: customizable conditions for filtering

Vehicle Monitoring - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 85	3	320/198	GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	32
Smart+ 55	2	320/198	GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	32
Vega 53	2	250/155	GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	33
Vega 11	1	180/111	CONTEXT IMAGE MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	34
Basic MK2	1	150/93	VARIFOCAL	35

LASER

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE DIRECTION IDENTIFICATION COUNTING	37

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW platform 100% configurable according to application and needs	OUTPUT CONFIGURATION CONTAINER CYBER SECURITY MULTILANGUAGE TRIGGER FUSION	20
Stark Controller	Software for the centralized management of all devices	TRANSIT VIEWER TRANSIT DATA LAKE REMOTE DEVICE UPDATE & CONFIGURATION	28
Stark Fusion	For merging data from different sensors (cameras, laser, radar, etc.)	MERGING OF CAMERA AND SENSORS METADATA	29
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL EMBEDDED OCR	26
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	30

Patrolling

Technology-assisted patrols use advanced surveillance systems, like Automatic Number Plate Recognition (ANPR) cameras mounted on vehicles. This technology allows police officers to check license plates while on the move enhancing public safety, and improving law enforcement efficiency.

Mobile+ cameras mounted on vehicles offer several benefits, such as high accuracy in reading license plates, more installation options, and the ability to collect real-time data without needing extra processing units or physical links to the onboard computer or tablet.

By recognizing license plates, these cameras generate a comprehensive transit data set that allows police forces to monitor multiple vehicles in real time, enhancing law enforcement efficiency.

Advantages of Tattile Mobile+ in patrolling applications:

- **All-in-one compact solution** (no external PC needed)
- **Control list**: management directly onboard
- **Embedded BCCM**: vehicle classification with internal image analysis
- **Embedded OCR**: onboard processing eliminates the need for external devices
- **Wi-Fi onboard**: no physical connection required between the camera and the laptop or tablet inside the vehicle
- **Quick installation and easy to transfer** between vehicles
- **Resistant to harsh conditions**: built to endure a wide temperature range and vibrations

Patrolling - Solutions

ANPR CAMERAS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Mobile+	2	200/124	GPS LTE NVR SSD CONTAINER STREAMING ON CONTEXT CHANNEL	36

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW platform 100% configurable according to application and needs	OUTPUT CONFIGURATION CYBER SECURITY CONTAINER TRIGGER FUSION MULTILANGUAGE	20
Stark Controller	Software for the centralized management of all devices	REMOTE DEVICE UPDATE & CONFIGURATION TRANSIT VIEWER TRANSIT DATA LAKE	28
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL EMBEDDED OCR	26
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	30

Access Control & Parking

Access control is a crucial aspect in many sectors because it enhances security by managing access to critical areas and improves efficiency and accuracy in parking fee collection.

ANPR cameras improve access control by automatically capturing images, recognizing license plates, and cross-referencing them with a database of authorized vehicles. When an unauthorized vehicle is identified, the system can refuse entry or activate an alarm, quickly notifying security personnel and strengthening security in restricted zones. Additionally, ANPR cameras produce transits containing all relevant vehicle metadata, including date, time, brand, class, color, model, direction (approaching or leaving), and estimated optical speed, all of which support efficient ticketing.

Advantages of Tattile solutions in access control and parking

- **Plug & Play**: simple installation and setup for automating access control and parking lots
- **Varifocal lenses**: easy to install at various heights and distances, with fast autofocus to ensure optimal license plate reading
- **Non-invasive solution**: detects transit and classifies vehicles without roadworks
- **Embedded OCR**: onboard processing eliminates the need for external devices
- **Control list**: verifies authorized vehicles onboard
- **Digital relay outputs**: manage automatic barriers at entrances and exits

Access Control & Parking - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Vega 53	2	250/155	GPS · LTE · NVR · MULTIPLE IMAGES · STREAMING ON CONTEXT CHANNEL	33
Vega 11	1	180/111	CONTEXT IMAGE · MULTIPLE IMAGES · STREAMING ON CONTEXT CHANNEL · VARIFOCAL	34
Basic MK2	1	150/93	VARIFOCAL	35

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE · DIRECTION IDENTIFICATION · COUNTING	37

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW platform 100% configurable according to application and needs	OUTPUT CONFIGURATION · CONTAINER · CYBER SECURITY · MULTILANGUAGE · TRIGGER FUSION	20
Stark Controller	Software for the centralized management of all devices	TRANSIT VIEWER · TRANSIT DATA LAKE · REMOTE DEVICE UPDATE & CONFIGURATION	28
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL EMBEDDED OCR	26
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGES	30

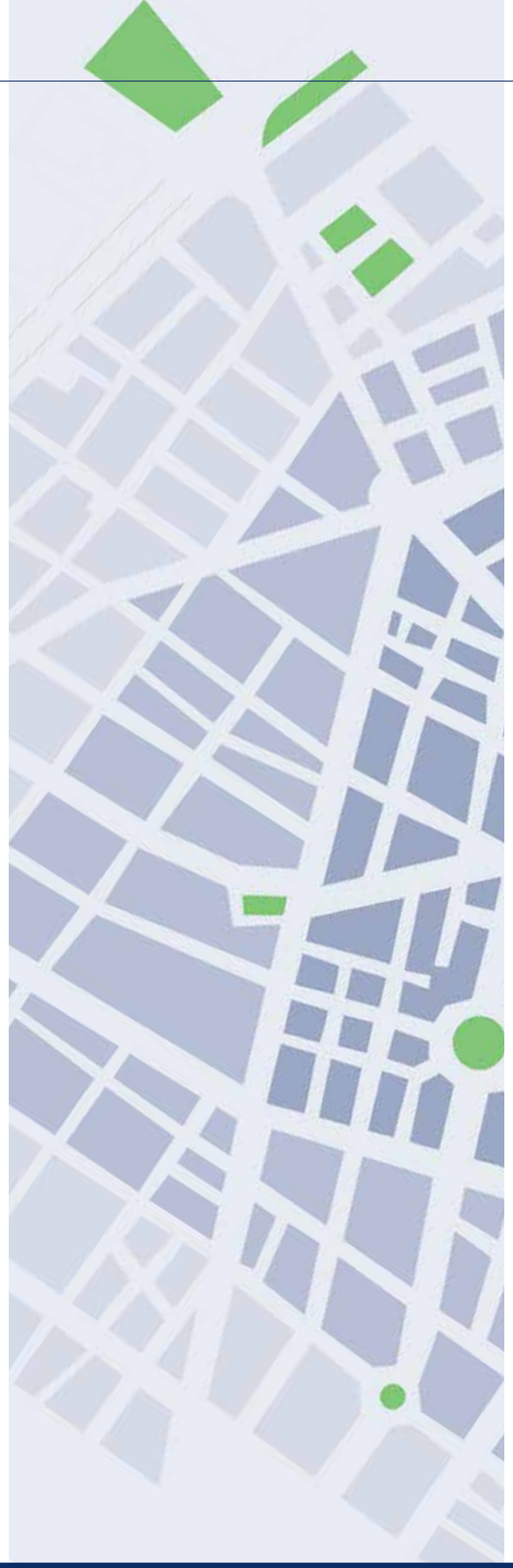
Traffic Analytics

City authorities can gain a detailed understanding of mobility patterns and traffic conditions in real time by collecting and analyzing data from various sensors, including ANPR cameras, laser sensors, and other connected devices. Using advanced data analytics and AI-powered platforms, traffic analysis enables monitoring vehicle flow and identifying congestion hotspots.

Tattile's ANPR cameras provide excellent vehicle and plate recognition accuracy, while the advanced LiDAR technology ensures precise vehicle classification. These innovations help city and local authorities effectively monitor and identify vehicles, design efficient transport strategies, reduce congestion, and minimize environmental impact.

Advantages of Tattile solutions in Traffic analytics applications:

- **Non-invasive solution**: transit detection and vehicle classification without road works
- **Embedded OCR**: onboard processing eliminates the need for external devices
- **Embedded BCCM**: vehicle classification using internal image analysis
- **Control list**: management directly on board
- **Event filtering**: customizable conditions
- **Accurate counting and classification** with Lidar technology



Traffic Analytics - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 85	3	320/198	SSD GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	32
Smart+ 55	2	320/198	SSD GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	32
Vega 53	2	250/155	SSD GPS LTE NVR MULTIPLE IMAGES STREAMING ON CONTEXT CHANNEL	33
Vega 11	1	180/111	MULTIPLE IMAGES CONTEXT IMAGE STREAMING ON CONTEXT CHANNEL	34
Basic MK2	1	150/93	VARIFOCAL	35

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	COUNTING CLASSIFICATION BASED ON VEHICLE/SHAPE DIRECTION IDENTIFICATION	37

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW platform 100% configurable according to application and needs	OUTPUT CONFIGURATION CONTAINER CYBER SECURITY MULTILANGUAGE DATALOOKUP (MATCH LISTS CALENDARS	20
Stark Controller	Software for the centralized management of all devices	TRANSIT VIEWER TRANSIT DATA LAKE REMOTE DEVICE UPDATE & CONFIGURATION	28
Stark Fusion	For merging data from different sensors (cameras, laser, radar, etc.)	TO COMBINE CAMERA AND LASER METADATA	29
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL OCR	26
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	30

Over Height

Over Height detection systems are designed to prevent collisions between tall vehicles, such as trucks, buses, or oversized loads, and infrastructure elements like bridges, tunnels, or underpasses. By measuring a vehicle's height, the system provides early warnings to drivers whenever it detects an obstacle that could obstruct safe passage.

Tattile, with Comark RAM111 solution, provides Over Height Vehicle Detection (OHVD) systems designed to alert drivers about maximum height limits to prevent collisions with infrastructure. Using precise laser technology, the system can accurately detect over height vehicles and communicate with external devices to warn drivers of potential hazards.

Advantages of Tattile in Over Height vehicle detection application:

- **Easy installation**: mounted on the roadside without the need to align the transmitter and receiver
- **Precise detection**: high detection frequency (up to 1 KHz) and a narrow angle for small objects
- **Day & night operation** thanks to laser technology
- **Multi-lane detection** with dual laser beams across up to 3 lanes
- **Communication** with external devices to alert drivers of potential hazards

Over Height - Solutions

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
RAM111	3	150/93	OVER HEIGHT ALARM DIRECTION DETECTION	38

Bike Counter

City governments now require detailed data and clear graphs to understand pedestrian and cyclist behavior. Bicycle counters help meet this demand and offer additional benefits. These sensors count the number of pedestrians and cyclists passing by and send the data to a system, enabling statistics about transit to be displayed on a dedicated screen.

Comark Bike Counter units work effectively in all weather conditions, accurately counting large groups of cyclists or pedestrians and distinguishing them individually. They can also clearly differentiate between pedestrians and cyclists, classifying them while maintaining total anonymity and privacy by detecting the silhouette of the bike or person. Installation is quick and non-intrusive, as it does not require intervention on the road surface.

Advantages of Tattile in Bike Counter application:

- **Easy installation**: Installation on pole at the side of the bike lane, with no road work required
- **Group detection**: accurately identifies groups of cyclists and pedestrians, providing reliable data
- **Ensure Privacy**: designed to maximize anonymity by detecting only the silhouette of the vehicle or person
- **High Accuracy**: delivers exceptional performance in counting, classification, and direction detection
- **Low Maintenance**: the laser system needs minimal upkeep, ensuring long-term reliability

Bike Counter - Solutions

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Bike counter	2	40/24	TRANSIT COUNTING · DIRECTION DETECTION · GROUP DETECTION · CLASSIFICATION: BIKE, PEDESTRIAN	39
Bike counter display	2	40/24	CONFIGURABLE GRAPHIC LAYOUT ON DISPLAY · 2 ROWS ON BOTH SIDES	39
Bike counter totem	2	40/24	CONFIGURABLE GRAPHIC LAYOUT ON DISPLAY · 2 OR 4 ROWS ON BOTH SIDES	39

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW platform 100% configurable according to application and needs	OUTPUT CONFIGURATION · CONTAINER · CYBER SECURITY · MULTILANGUAGE · DATALOOKUP (MATCH LISTS · CALENDARS	20
Stark Controller	Software for the centralized management of all devices	TRANSIT VIEWER · REMOTE DEVICE UPDATE & CONFIGURATION	28

Software

INDEX

The core of all Tattile's products

› One time integration / learning

› Cross-device functionalities

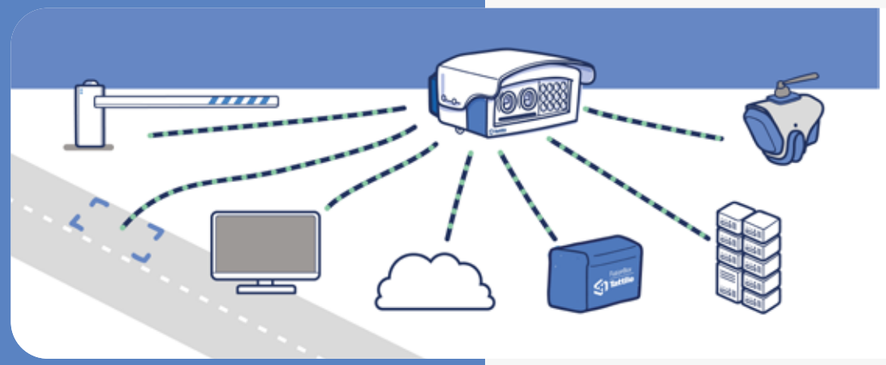
› **AI algorithm** to get the maximum performance ever

› Flexible and **easy customization** thanks to the modern user interface

› **Easy to integrate** thanks to the standard protocols' support

› Designed to meet future needs: **12+ releases** per year included in the Stark Up license plan

Stark Platform



Integration

› Trigger: external – automatic – combined

› **REST API**, no SDK needed

› S**tandard protocols** FTP/S, HTTP/S, TCP

› Container

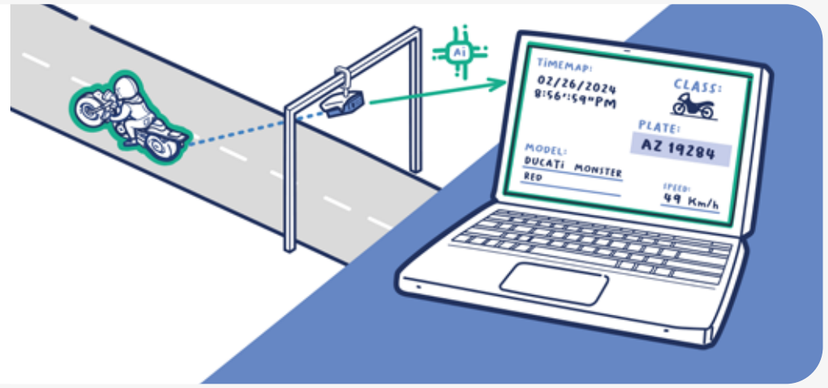
AI Engine

› **Object detector**

› OCR

› Classifier

› Designed to exploit the potential of the hardware accelerators



Security

› **Security vault** to customize and store securely host, credentials, certificates, etc.

› **Security Assistant** (dashboard, etc.) **+ Audit compliant** (privacy, configuration trace + rollback, etc.)

› **Encryption engine** to encrypt and sign messages, images, logs, and other data

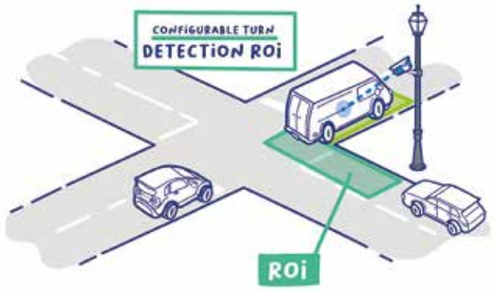
› **Authentication & authorization** (users, groups, grants, etc.)

› **IEC62443, ISO27001, NIS2** compliant

The core of all Tattile's products

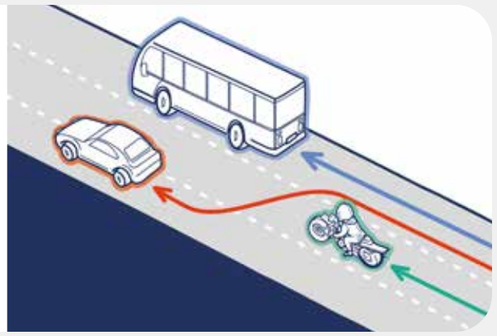
ROI configuration

Region of interest ROI can be set up directly through the camera's web interface. This feature allows for detection of illegal turns and stops, vehicle tracking, and license plate reading as vehicles cross designated areas.



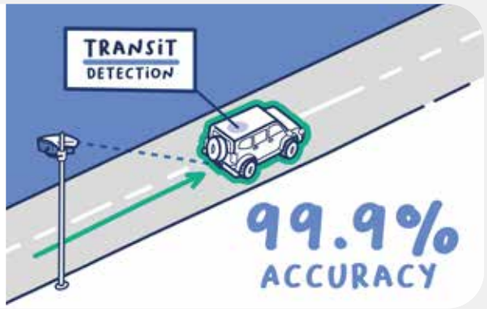
AI Transit detection

- **Object detector**
- Easy transit reconciliation
- Precise location of all vehicles and plates in the scene

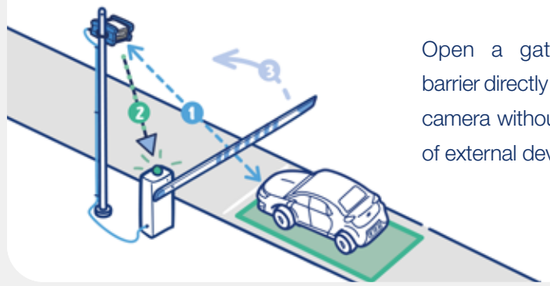


Autotrigger

The camera generates a transit with up to **99.9% accuracy** without any external trigger source.



Digital Output management

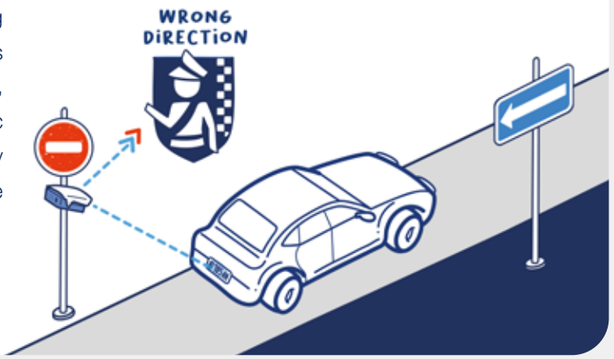


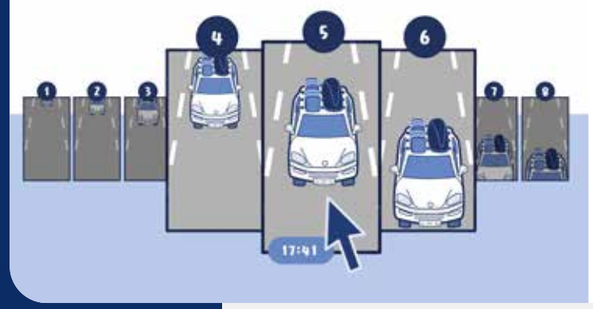
Open a gate or a barrier directly from the camera without needs of external device.

Stark Platform for ITS & Smart City

Filtering and Customizable output configuration

The Stark platform offers precise event control through its Event Filtering feature. It filters and routes events based on customizable conditions, sending only relevant events to specific outputs. This reduces unnecessary data and enables faster, more effective decision-making.



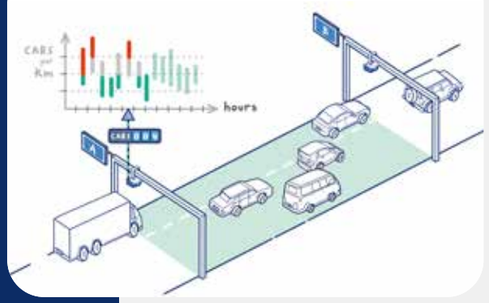


Multiple images

The multiple images feature enables capturing up to **eight separate images** of the same event across both OCR and context channels. Customizable frame selection allows continuous monitoring of a vehicle throughout its journey on the roadway.

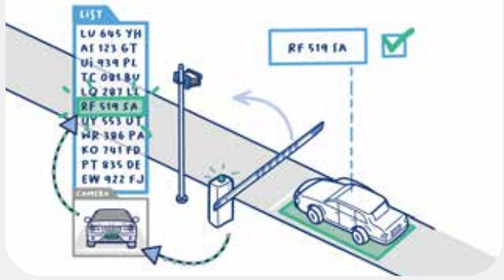
Road occupancy

The road occupancy feature generates precise, data-driven traffic insights from the vehicle transits captured in the camera's field of view.



List and calendars Management

Advanced internal vehicle list management and smart event scheduling through configurable calendars, ensuring efficient and automated control.



Stark Platform for Smart City

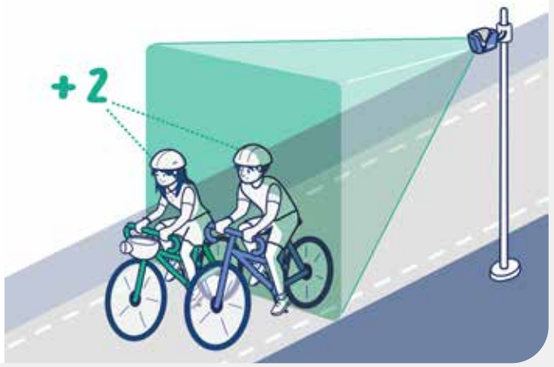
The core of all Tattile's products

Non-intrusive System

Bike Counter can be installed on a pole beside the bike lane, allowing for integration into existing structures without the need for road work on the asphalt.

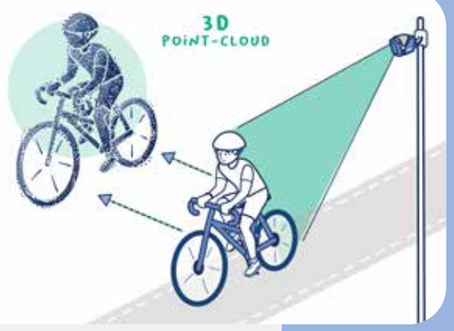
Group Detection

The use of laser technology ensures accurate detection of groups of cyclists and pedestrians, providing reliable data.
The LASER is the only technology that allows it!



Ensure Privacy

The system is designed to ensure maximum anonymity, detecting the silhouette of the vehicle or person.
Full respect for privacy

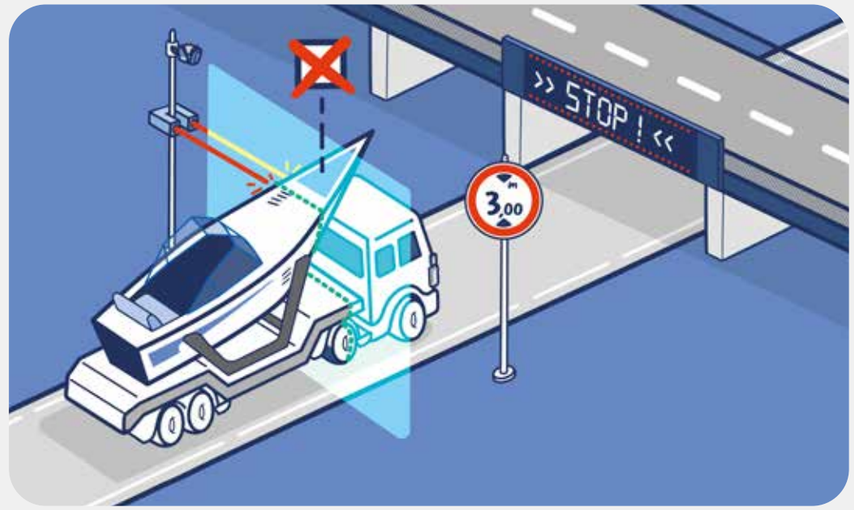


Stark Platform for Over Height

The core of all Tattile's products

Laser scanner and a double-beam laser

The laser scanner accurately measures height and detects vehicle presence, while the double beam laser can detect small objects even at a distance of 20 meters.

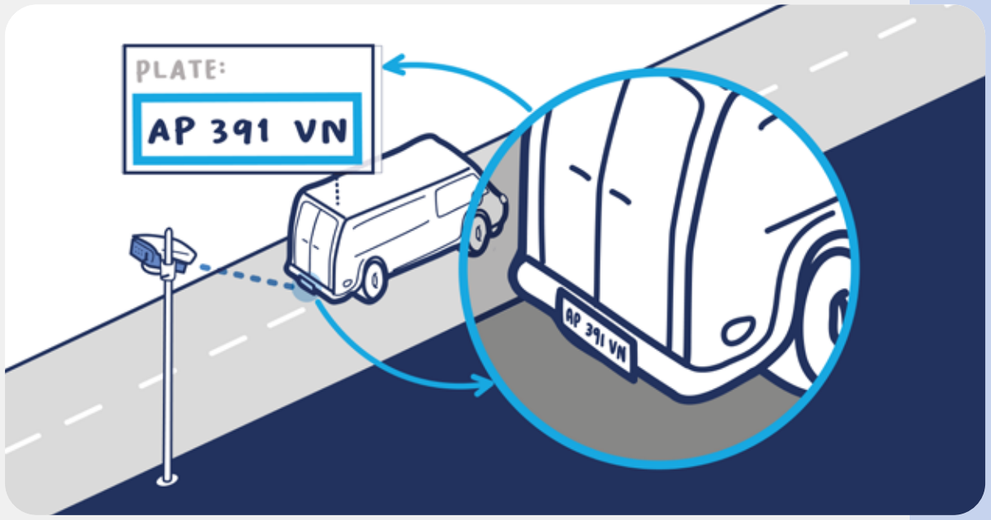


Transforms laser data into real-time insights

The internal CPU elaborates data in real time combining the data of both lasers. The algorithms are designed to detect small objects above the allowed height, triggering the alarm only when a vehicle is detected. This helps to avoid false alarms.

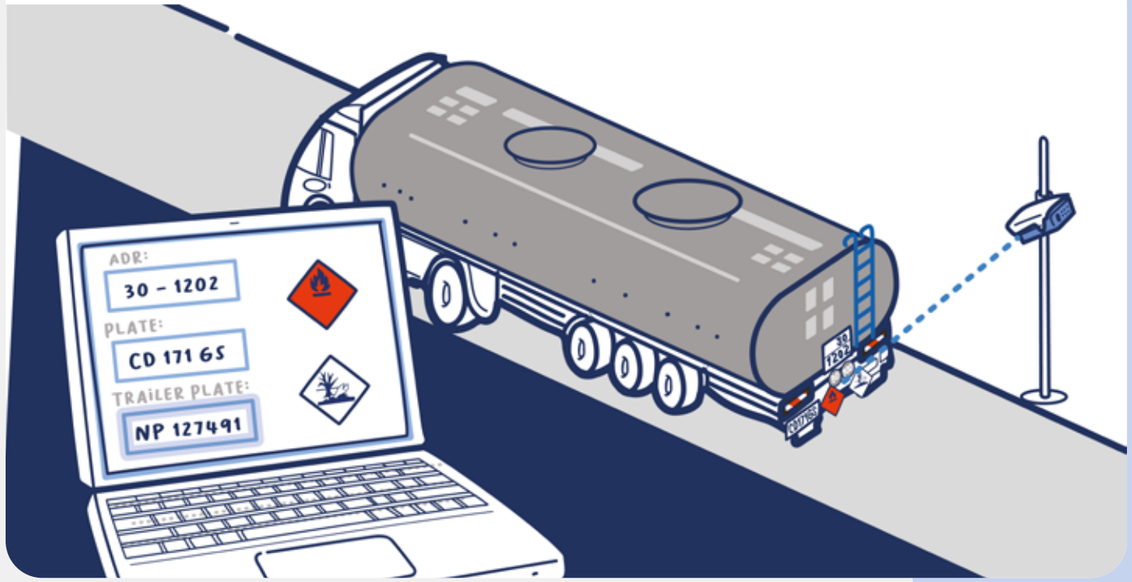
No need for a separate transmitter and receiver

Unlike systems that use photocells with separate transmitters and receivers, RAM series offers easy installation as it is positioned alongside the road and does not require collimation of transmitter and receiver.



Stark OCR

- Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities
- **AI-based** for unseen performances
- Totally developed internally
- Full control of the development process → continuous improvement
- Perfect combination between HW and SW
- Plate metadata recognition (region, country, plate type & color)
- ADR & Hazardous material recognition



Stark OCR Embedded

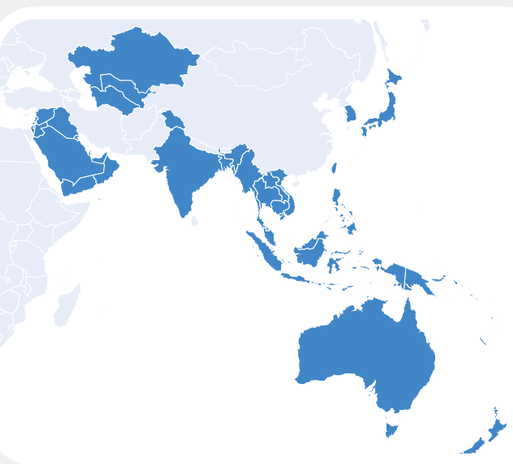
Stark OCR

- World OCR algorithm covering more than 75 countries
- Performances: Up to **97.1%** in plate recognition and **99.1%** in country recognition
- Image processing in less than 200 ms
- Trained on datasets (500 K) collected from Tattile's Cameras

EU

NA

LATAM



APAC

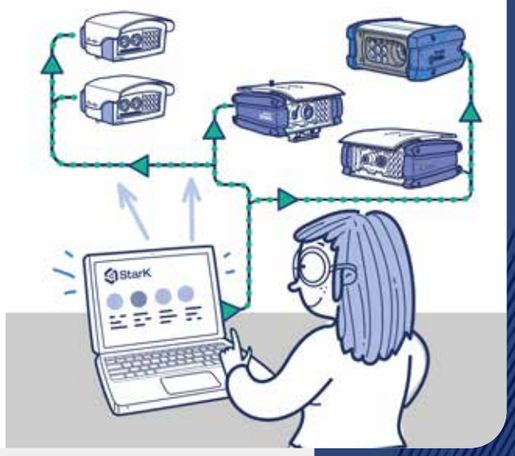
Stark Controller

Software for the centralized management of all devices

› **Centralized configuration Deploy**, also for a group of devices

› **Centralized update** management

› **Monitoring and diagnostics** of all devices, including a complete history trace.



Data lake - Centralized Data Management

› Receiving and saving data on the **central DB**

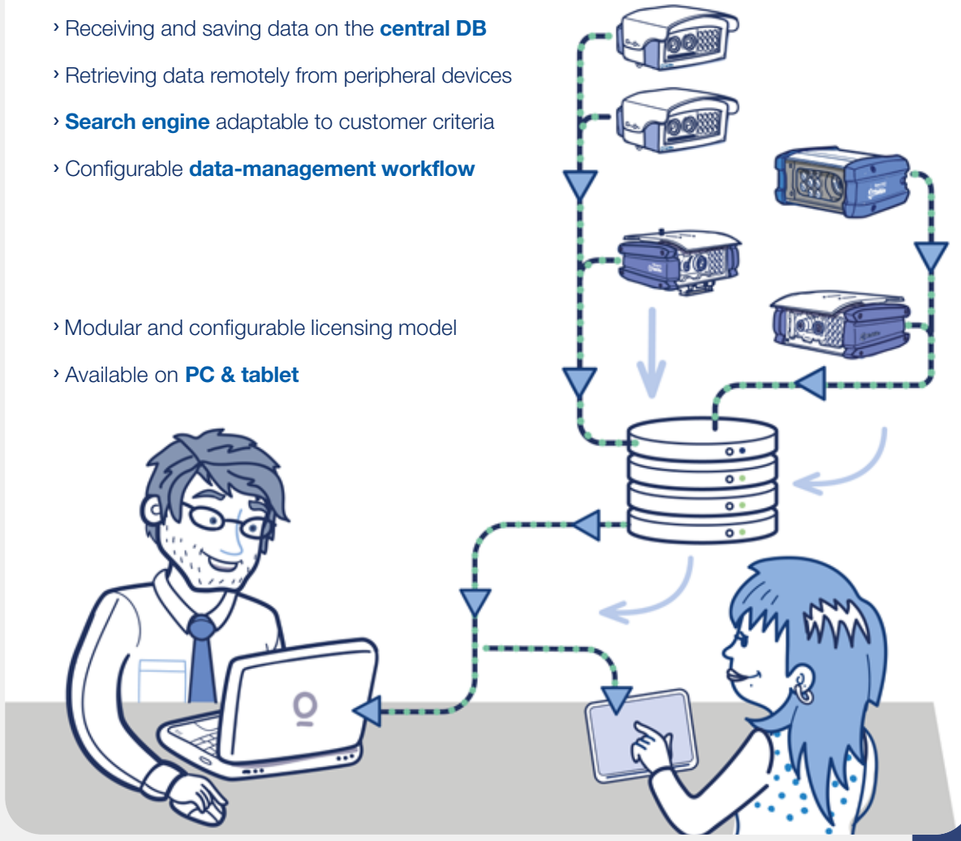
› Retrieving data remotely from peripheral devices

› **Search engine** adaptable to customer criteria

› Configurable **data-management workflow**

› Modular and configurable licensing model

› Available on **PC & tablet**



software

Stark Fusion

Software for multi-device data aggregation

› Smart SW, **dedicated to system integrators**, to merge data coming from **different sensors** (such as ANPR cameras, loops, lidar, WIM)

› **Deep level integration**: using real-time data, it offers more information, in addition to providing higher accuracy

› **Configuration module**: a user-friendly application to place the different sensors in the installation site layout

› **Engine module**: receives the information from different sensors + user configuration

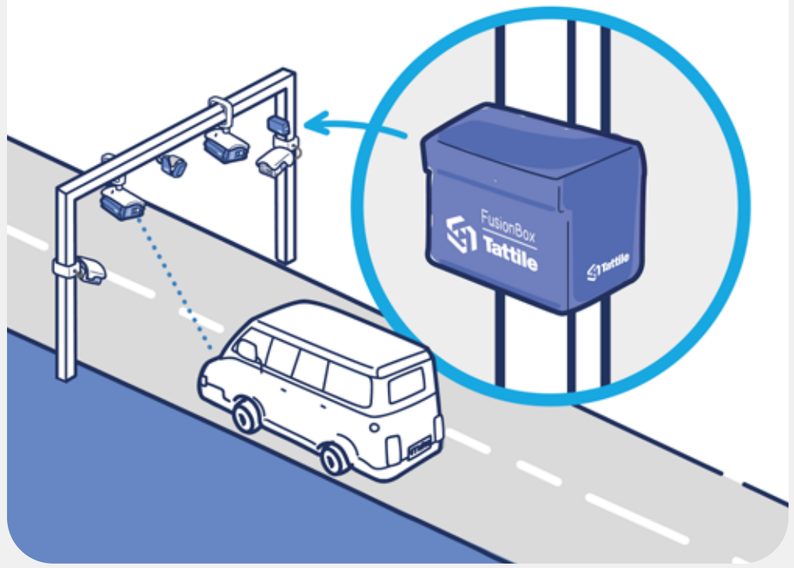
› **Aggregation module**: information is aggregated for each single transit

Fusion Box

› **All-in-one computational unit** designed to exploit Stark Fusion at the maximum level

› To **minimize latency**, Fusion Box can be installed directly on the gantry or next to the devices

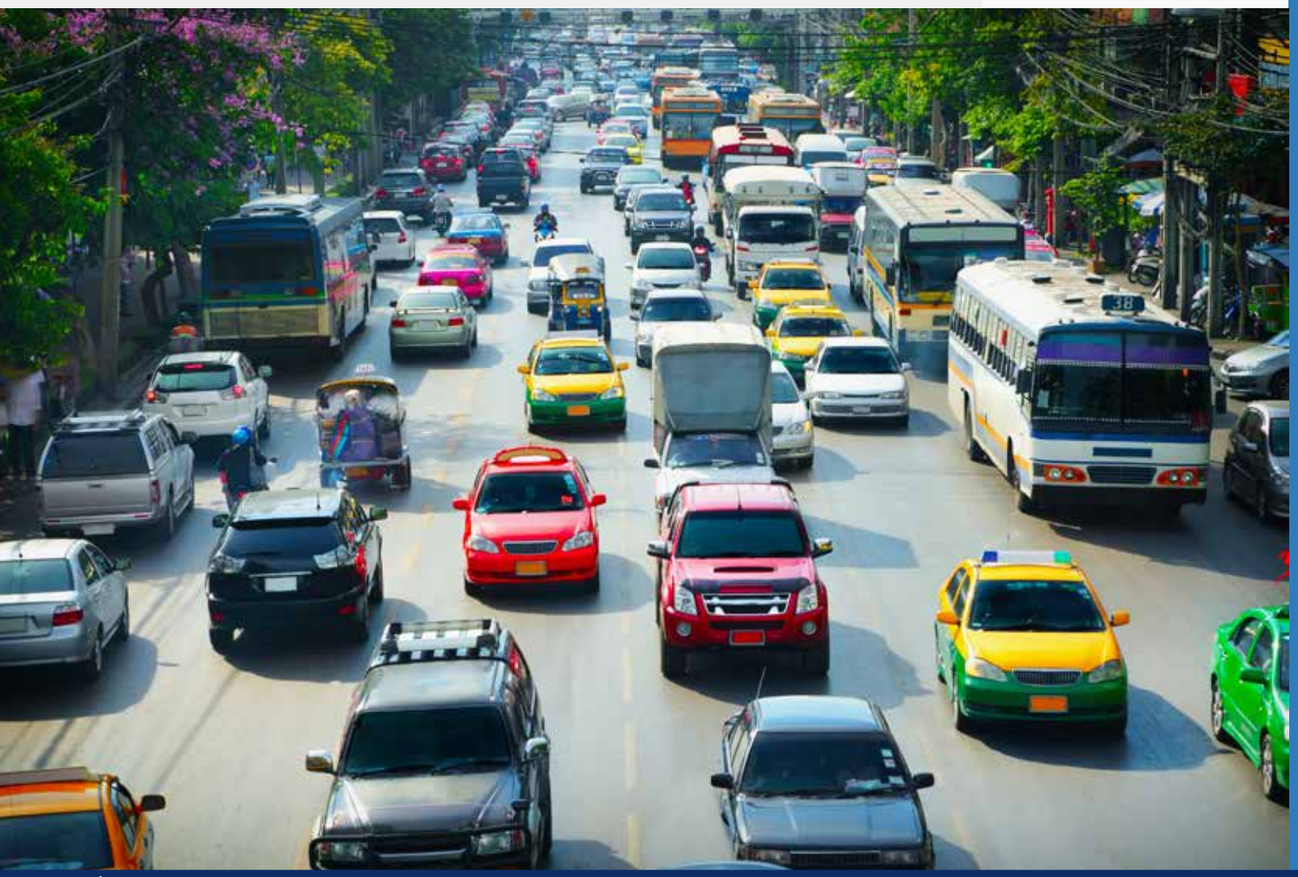
› It is possible to connect several devices



Stark BCCM Embedded & Cloud

- Stark BCCM is the application to detect **additional vehicle features** useful to generate a digital fingerprint
- **On-edge & on-cloud** vehicle Make, Model, Class, and Color recognition algorithm
- Optional add-on for Tattile and third-party cameras with **no need for external software** or processing hardware
- The camera provides all the vehicle data in a **fully customizable message** format and protocol
- Vehicle classification in multiple vehicle classes is operative during the day and during the night
- **+12 releases** per year

Make	Model	Class	Color
+243 different makers	+2.000 different models	7 different classes	10 different colors



Hardware

INDEX

Smart+

Scalable hardware for increasing workloads

VEHICLE MONITORING
TRAFFIC ANALYTICS

With its **AI neural accelerator**, Smart+ achieves extraordinary performance in demanding multi-vehicle and multi-lane applications, providing additional acceleration, and using, at the same time, multiple algorithms.

It can detect vehicles **up to 320 km/h** (198 mph) with a detection accuracy level up to 99.5%.

Smart+ is equipped with new high-quality sensor (up to 8 Mpx on the OCR channel), providing better image quality, and coverage up to **3 lanes**.

The **local buffering** system and optional local storage let the system work even in case of disruption of data connection, providing safe temporary storage and automatic retrieval of stored data.

LTE, GPS, and SSD available as options.

As an option, it is provided with a customized length, ready-to-use cable (no connector assembly required).

SMART+		
	SMART+ 55	SMART+ 85
Software Platform	Stark	
AI accelerators	1 hardware accelerator	
Lanes	2	3
Max vehicle speed	320 kmh / 198 mph	
Transit detection	Up to 99.5%	
Plate reading	Up to 98%	
Second level OCR	optional - natively integrated with Stark OCR Cloud	
Vehicle classification	optional	
Vehicle make	optional	
Vehicle model	optional	
Vehicle color	optional	
Video streaming	Color video streaming H264/H265 via RTSP streaming	
AES256	Yes	

Vega53

Flexibility & Performances for different applications

VEHICLE MONITORING
TRAFFIC ANALYTICS

Vega53 camera is a specialized system that meets the demands of one-lane free flow tolling, traffic monitoring, and security. It can cover up to two lanes and detect vehicles travelling at high speed.

The camera has a high-power integrated infrared illuminator to support demanding performances such as multiple countries' plate recognition with optimal reading performances even in high complexity scenarios (reflective, non-reflective, coloured plates with multiple charset support).

Vega53 has a **5 Mpx** sensor on the OCR channel and 3 Mpx sensor on the context channel, suitable to cover up to 2 lanes.

Vega53 camera has not only ANPR (ALPR) functionality but also the capability to add vehicle color, brand, class and model identification.

Moreover, it can support HD video streaming for surveillance, eliminating the need for additional CCTV cameras.

SSD and Container feature are available as options.

VEGA 53	
Software Platform	Stark
AI accelerators	1 hardware accelerator
Lanes	2 lanes
Detection and OCR	Single Channel
Max vehicle speed	250 kmh / 155 mph
Transit detection	Up to 99 %
Plate reading	Up to 98 %
Second level OCR	optional - natively integrated with Stark OCR Cloud
Vehicle classification	optional
Vehicle make	optional
Vehicle model	optional
Vehicle color	optional
Video streaming	Color video streaming H264/H265 via RTSP streaming
AES256	Yes

Vega11

Low power consumption high reliability

VEHICLE MONITORING
TRAFFIC ANALYTICS
ACCESS CONTROL & PARKING

Vega11 is a **cost efficient solution** to simoultaneously provide context images and ANPR / ALPR information.

Vega11 is available also with high quality **varifocal lenses** covering, the most efficent solution to optimise inventory level, simplifying multiple lay-out installations.

The camera has a high-power integrated infrared illuminator to support demanding performances such as multiple countries plate recognition with optimal reading performances even in high complexity scenarios (reflective, non-reflective, with multiple charset support).

Thanks to its design, together with the IP68-grade, high temperature range, and expandable local storage, the camera can operate in remote and harsh environmental conditions.

POE+ to simplify installation.

Videostreaming for the context video.

VEGA11	
Software Platform	Stark
AI accelerators	1 hardware accelerator
Lanes	1
Detection and OCR	Single Channel
Max vehicle speed	180 kmh / 93 mph
Transit detection	Up to 99 %
Plate reading	Up to 98 %
Second level OCR	optional - natively integrated with Stark OCR Cloud
Vehicle classification	optional
Vehicle make	optional
Vehicle model	optional
Vehicle color	optional
Video streaming	Color video streaming H264/H265 via RTSP streaming
AES256	Yes

Basic MK2 Varifocal

From 3 to 15 meters auto focus and continuous calibration

ACCESS CONTROL & PARKING
VEHICLE MONITORING
TRAFFIC ANALYTICS

High-quality **Varifocal lense** with reading range **from 3 to 15 m**, the optimal solution to optimize stock inventory.

One click configuration process with easy focus procedure.

Continuous autofocus calibration to ensure the best reading performances also in case of adverse conditions.

Basic MK2 line features a Powerover-Ethernet (**POE+**) interface for minimising the installation and maintenance time.

Extra compact size to reduce the installation impact.

Basic MK2 can support multiple layout, maximising flexibility.

Basic MK2 automatically stores the images in the local storage in case of a lack of data connection. Once the network is restored, Basic MK2 will release the stored images avoiding losing transits.

BASIC MK2	
Software Platform	Stark
AI accelerators	1 hardware accelerator
Lanes	1
Detection and OCR	Single Channel
Max vehicle speed	150 kmh / 93 mph
Transit detection	Up to 99 %
Plate reading	Up to 98 %
Second level OCR	optional - natively integrated with Stark OCR Cloud
AES256	Yes

Mobile+

Dual AI sensors for unseen detection & reading performance

PATROLLING

Next-gen detection and reading powered by integrated AI. This all-in-one solution eliminates the need for an external PC, delivering fast and reliable image processing directly onboard.

Two 5 Mpx sensors allow superior reading and detection performance.

The compact size allows for flexible rooftop installation (also under the light bar).

BCCM algorithm is available on board. The camera captures the license plate, make, model, color, and class.

GPS is available for accurate localization. Optional LTE connectivity is available and easily accessible to the user.

SSD available as an option to extend Mobile+ storage capacity.

Optional WiFi and **Bluetooth** features ensure seamless connectivity.

Stark Controller is natively integrated for an easy interface with the vehicle's onboard tablet & PC.

Mobile+ is provided with a 3m (9.8 ft) ready-to-use cable (no connector assembly required). The power supply cable comes fully preassembled, ensuring an effortless setup experience.

MOBILE+	
Software Platform	Stark
AI accelerators	2 hardware accelerators
Lanes	2
Max differential speed	200 kmh / 124 mph
Transit detection	Up to 99 %
Plate reading	Up to 98 %
Second level OCR	optional - natively integrated with Stark OCR Cloud
Vehicle classification	optional
Vehicle make	optional
Vehicle model	optional
Vehicle color	optional
Video streaming	Color video streaming H264/H265 via RTSP streaming
AES256	Yes

Comark+ Laser

New generation Laser "Fog proof"

VEHICLE MONITORING
TRAFFIC ANALYTICS
ACCESS CONTROL & PARKING

Comark+ Laser is a **high precision laser** for analysis suitable for transit detection, trigger, classification, and precise measurement purposes.

The revolutionary technology **«fog-proof engine»** avoids interferences in harsh weather conditions.

Compact size and **all-in-one solution, no external PC required**.

Internal AI point cloud processing **100 Hz, 210°**.

LTE (optional) is easily accessible.

Available with **RADAR** as option for **3D classification**.

Dual Comark+ Laser kit available (two lasers + specific bracket) for tolling applications.

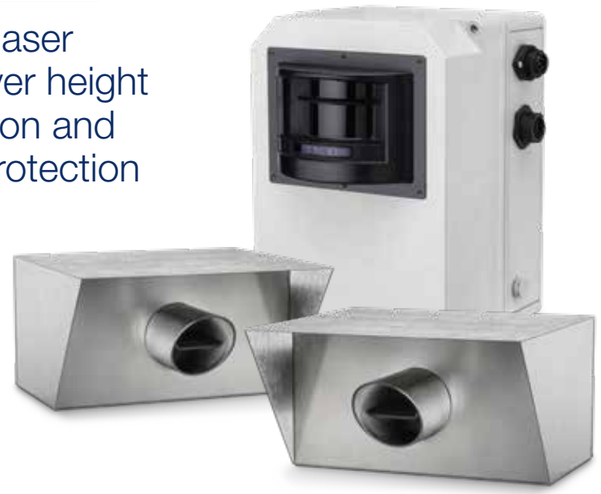
As an option, it is provided with a customized length, ready-to-use cable (no connector assembly required).

COMARK+ LASER	
Software Platform	Stark
AI accelerators	1 hardware accelerator
Radar	optional
Lanes	2
Max vehicle speed	250 kmh / 155 mph
Transit detection	Up to 99.5 %
Vehicle classification	TLS 8+1
Raw point cloud	YES
AES256	YES
Fog filter processor	1 dedicated hardware

RAM111

High-precision laser detection for over height vehicle prevention and infrastructure protection

OVER HEIGHT



RAM111 is the highest-level sensor for over height vehicle detection, based on a laser scanner and a double-beam laser.

RAM111 emits light, which is reflected to be recognized by the receiver, filtering out environmental light noise.

The laser scanner is very accurate in measuring the height and detecting the presence of a vehicle.

The double-beam laser operates at a high frequency and has a narrow angle, enabling it to detect small objects even from a distance of 20 meters.

The internal CPU processes laser data in real time, enhancing accuracy and minimizing false alarms.

Road side pole installation, no need for a separate transmitter and receiver.

Cover up to 3 lanes.

Possibility of integration with VMS (Variable Message Signs) to alert the driver in case of an over height vehicle.

RAM111	
Hardware platform	Laser scanner + 2 single beam lasers
Laser class	Class 1
Lanes	2
Max speed	150 kmh
Maximum object width	50-100 mm
Alarm	Relay, D/O, software

Bike Counter

Advanced group detection and total privacy: the non-intrusive solution for urban mobility

BIKE COUNTER

Comark Bike Counter is a high-precision laser solution for detecting and counting cyclists and pedestrians, ideal for monitoring urban mobility and assessing green infrastructure impact.

Accurately counts and differentiates bikes and pedestrians, with **direction detection** for a clear overview of traffic flows.

Non-intrusive solution requiring no road works, minimizing installation time and costs.

Optional **LTE connectivity** for seamless remote data management.

Provides raw data for third-party systems or connects directly to the **Tattile software interface** for an all-in-one monitoring solution.

Laser technology uniquely enables precise identification and counting of individual cyclists and pedestrians, even within groups.

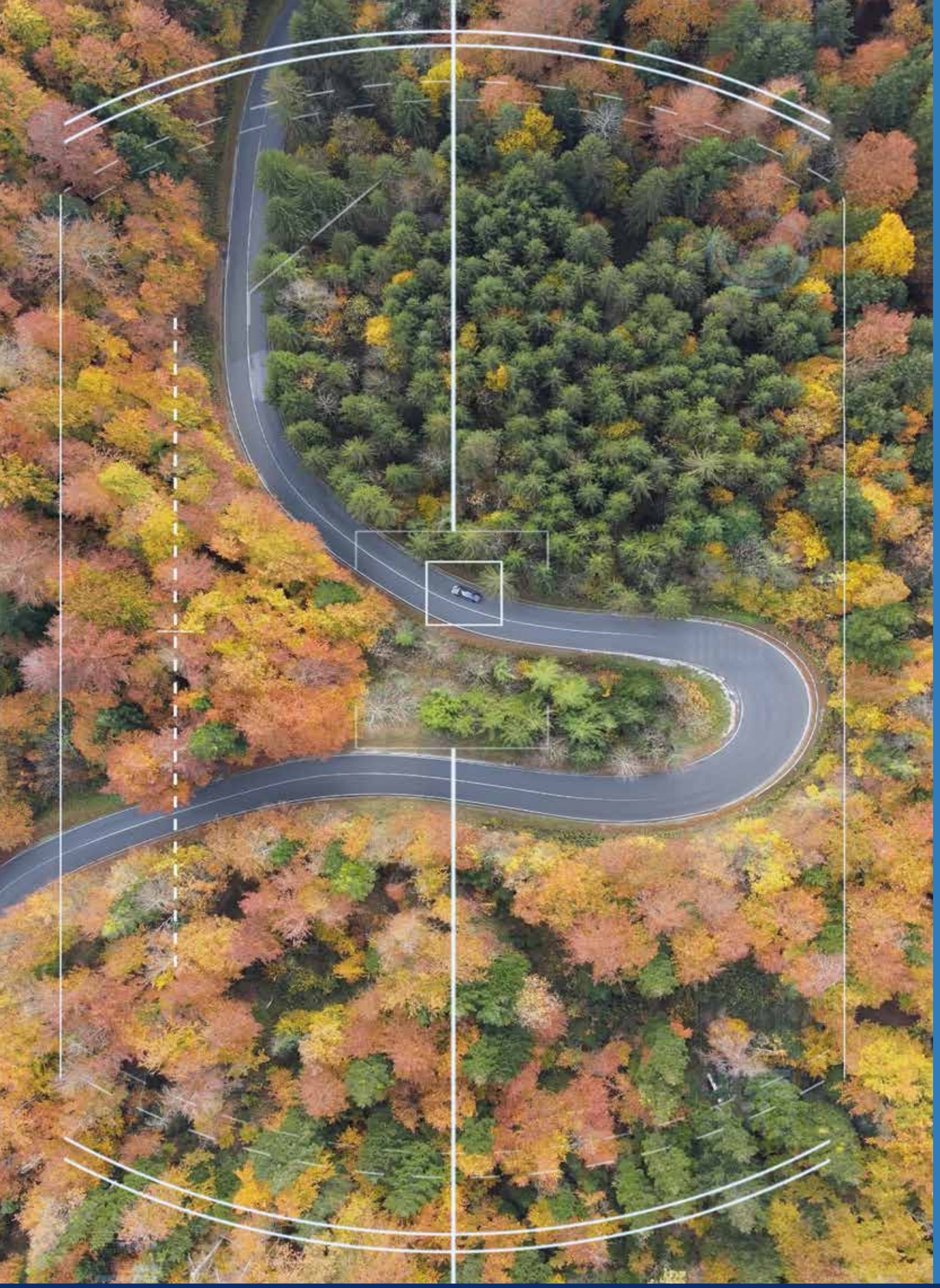
Ensures **full privacy and anonymity**, detecting only outlines without collecting personal data, fully compliant with privacy regulations.

Designed for harsh environments, ensuring reliable operation with minimal maintenance.

Available in three hardware configurations:

- **Laser with Stand-alone Totem:** high-visibility, all-in-one solution for permanent bike path installations.
- **Display + Laser:** real-time feedback to citizens, encouraging sustainable mobility.
- **Laser Only:** compact, discreet sensor for integration into existing street furniture.

BIKE COUNTER	
Hardware platform	Laser scanner
Customizable Display	optional
Customizable Totem	optional
Classes	Bike, pedestrian, e-scooter
Lanes	2
Direction	Yes
Transit detection	Up to 98 %
Classification	Up to 96 %



Team

Support

INDEX

Project Management

A dedicated team to design the best-fitting solution for each project

From day 1 to go-live

› Project Managers oversee the entire project from start to deployment, managing all project's stages

Requirements collection

› They support customers in turning their needs into a strong and effective project

Solution design & validation

› They design and validate a tailor-made solution to fulfill the project's requirements

PoC & Go-Live

› Project Managers fully support the customer during Proof of Concept and Go-Live phase

Remote & on-field system support

A dedicated team of skilled engineers to provide 360° technical support to our partner

On-field support

› Help customers obtain the maximum performance, optimizing the device configuration and installation

Remote support

› First-level tehcnical support for systems in operation

Specialized team

› Highly skilled technicians thanks to the continuous knowledge sharing with Tattile's engineering Team

Quick response

› Innovative ticketing system for optimized and fast support

Our support in a nutshell

Annual Support Requests (nr)	**1.828**
AVG Request / Month (nr)	**152**
1st Response within 48h	**99.5%**
AVG Closing Time (in days)	**8.2**

Tattile ACADEMY

The Academy is the first user-friendly and innovative point of reference for all customer learning needs.

The **FAQ** section offers solutions to frequently asked questions concerning our devices and their configurations.

Academy courses provide various **certification** levels, enabling participants to develop expertise gradually and earn recognized qualifications.

The Academy provides a first level of training, which serves as a foundation or introductory course. After completing this initial training, participants have the opportunity to engage in more **advanced and personalized training** sessions.

The Academy is the **unique point of reference** to contact our support team.

academy.tattile.com

FAQ

Training on line

Technical manuals

Tailor made Training

Current Locations

art: www.cristinaferretti.com

CITS.26.01

Tattile Srl

Headquarter
Via Gaetano Donizetti, 1
25030 Mairano (Brescia) Italy
Tel. +39 030 97000
Fax. +39 030 97001

Operational Office
Via Galileo Galilei, 5
533010 Tavagnacco (Udine) Italy

North America
Commercial Office
125 Commerce Court, Unit 11
06410 Cheshire, CT - USA

infomobility@tattile.com
www.tattile.com