

Enforcement



2026 CATALOGUE



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

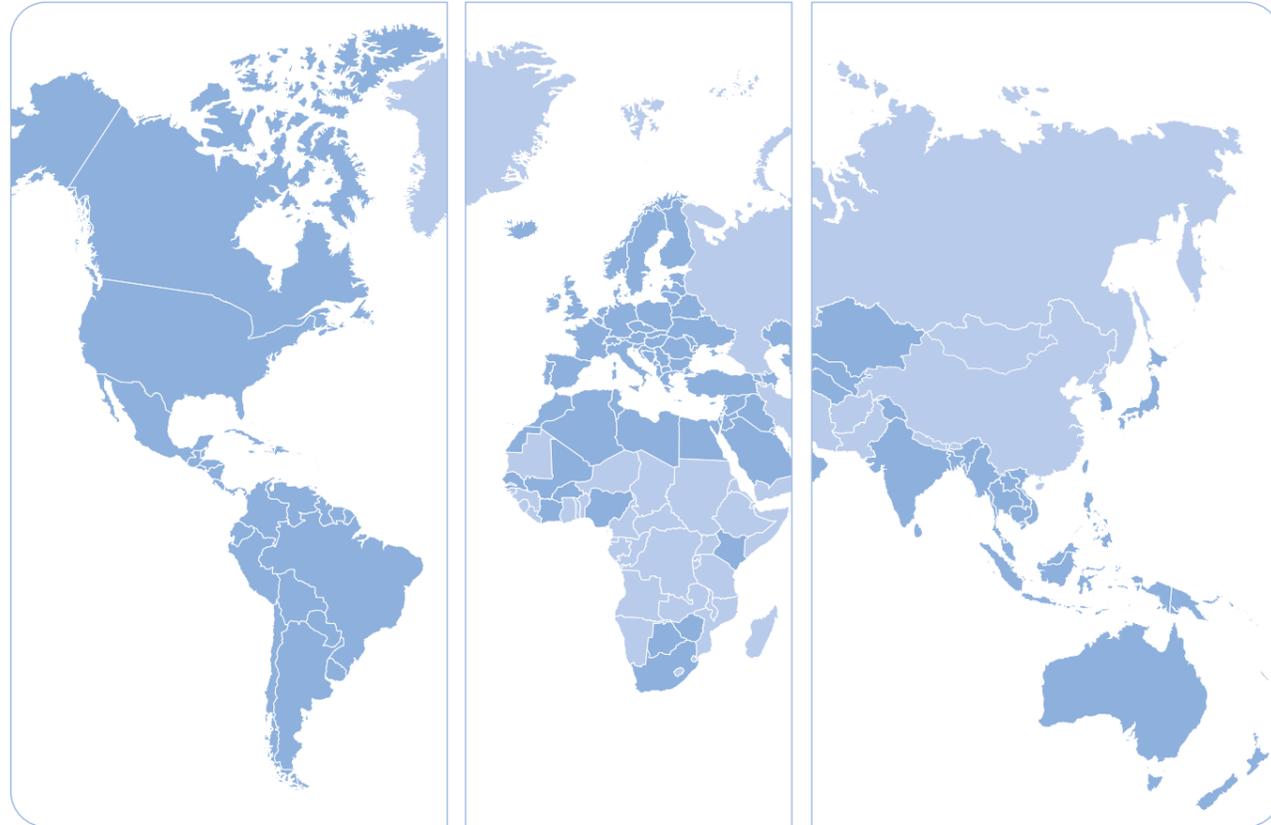
Performance fanatics chasing every 0.1% of improvement

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



Smart SOFTWARE	Smart CAMERAS	Smart LASER & RADAR
<p>Embedded Cloud & Server software</p> <ul style="list-style-type: none"> › AI based › Cybersecure + IEC62443 	<p>Onboard AI Video Analysis</p> <ul style="list-style-type: none"> › Stand-alone intelligent camera (embedded) › AI accelerator 	<p>Onboard AI Laser Analysis</p> <ul style="list-style-type: none"> › Stand-alone intelligent LIDAR › AI based › Non-intrusive device

▶ Every Tattile's solution is based on Stark Platform ◀

+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

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

<p>1988</p> <p>Tattile's foundation year. Based in Brescia, Italy, the original team consisted of 4 visionary engineers (one of them is still working at Tattile).</p>	<p>2005</p> <p>Tutor: the first innovative average speed enforcement system deployed on Italian highways.</p>	<p>2010</p> <p>Vega 2HD: double head B&W camera, with embedded processing capacity, working at 75 FPS, with an innovative auto trigger system included.</p>	<p>2015</p> <p>ANPR Mobile camera: with embedded image processing capacity, working at 100 FPS, especially developed for worldwide police applications.</p>	<p>2016</p> <p>Smart & Basic families launch: new modular platform with outstanding embedded processing capacity.</p>	<p>2018</p> <p>Tattile becomes member of stock listed company TKH, a step forward in the consolidation process.</p>	<p>2021</p> <p>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.</p>	<p>2022</p> <p>Vega11 and Vega33 cameras launch: high-end cameras conceived to host top-performing AI algorithms and Neural Networks.</p>	<p>2023</p> <p>Stark software equips an high range of cameras. From Basic MK2 to the brand new Smart+, the most powerful Tattile ANPR camera.</p>	<p>2024</p> <p>Tattile acquires Comark, a company specializing in laser-based volumetric vehicle measurement, and classification for traffic applications like tolling, and free flow tolling applications.</p>	<p>2025</p> <p>Tattile introduces the new Stark OCR Cloud, a server-based AI algorithm designed to enhance the performance of the embedded solution.</p>	<p>2026</p> <p>The new Stark Fusion and Stark Controller software mark Tattile's transformation from a product supplier to a solutions provider.</p>
---	--	--	--	--	--	--	--	--	--	---	---

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



In the Intelligent Transport Systems (ITS) sector, enforcement involves using advanced technologies to ensure adherence to traffic laws and enhance road safety.

Tattle offers comprehensive solutions that use AI cameras, laser technology, and software integration. These solutions include specific features for enforcement applications, such as image and video analysis, extensive violation images and videos, and easy system configuration and integration.

By integrating sensors, cameras, and software, Tattle can provide solutions for different enforcement applications:

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

Advantages of Tattle's solution

- › **Lower CAPEX** thanks to on-edge processing
- › **No road works needed for in-ground devices:** the Tattle devices can detect the violations by exploiting the integrated sensors and data analysis
- › **OPEX reduction** achieved through zero-maintenance Tattle devices
- › The **native integration** between various devices and technologies boosts the performance & facilitates the implementation by the user

Speed Enforcement

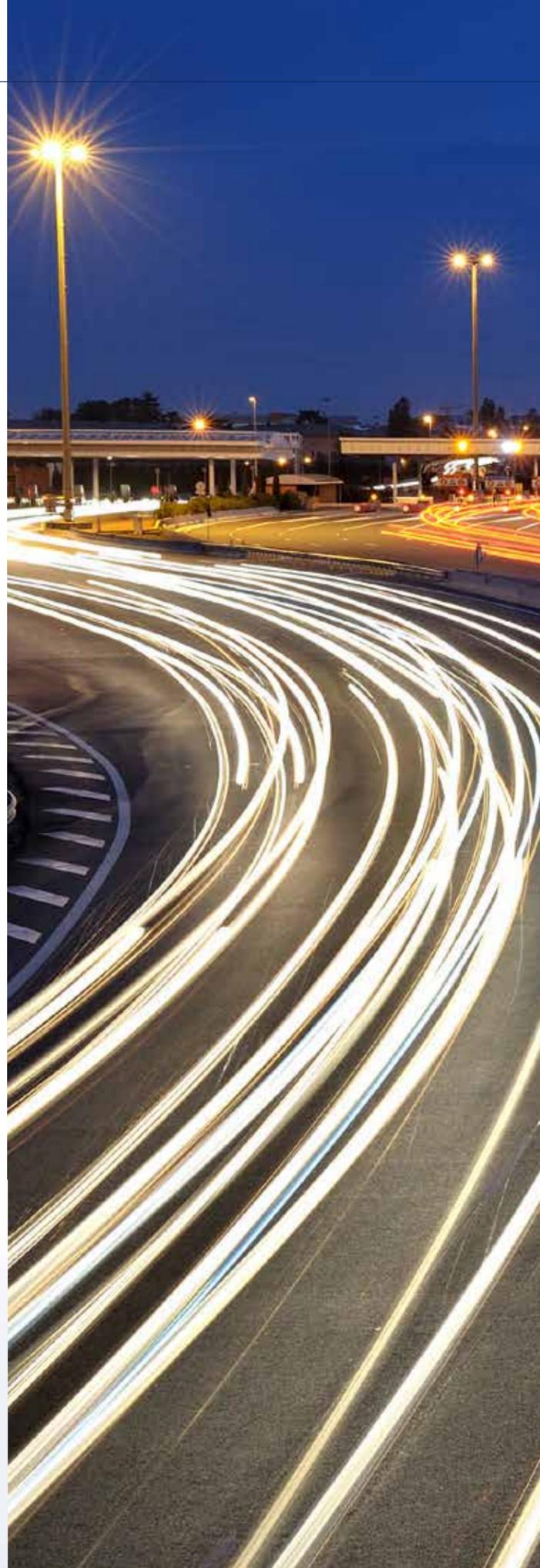
Smart+ Speed is the innovative enforcement camera designed to enhance road safety by accurately detecting speed violations.

With its top algorithms and cutting-edge processing power, this AI camera brings enforcement and security to a new level, setting new industry standards for accuracy, reliability, and efficiency.

Thanks to the Stark platform, it offers a fully configurable and modular platform with a user-friendly web interface in multiple languages. With an integrated multi-tracking radar, Smart+ Speed can monitor the vehicle speed covering up to three lanes simultaneously. The speed measurement accuracy is metrologically compliant up to 320 km/h (198 mph) with an error lower than 1%. This all-in-one solution offers an easy installation procedure for every installation scenario.

Smart+ Speed offers features specifically designed for speed enforcement

- › **Violation evidence package:** violation video and multiple violation images
- › **Advanced limits management:** configurable speed limit based on different vehicle classes and date/time
- › **Violation-data integrity:** signed and encrypted outputs



Speed Enforcement - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ Speed	3	320/198	CERTIFIED SPEED MEASUREMENT ADVANCED SPEED LIMITS CONFIGURATION VIOLATION VIDEO NVR VIOLATION MULTIPLE IMAGES	34

SENSOR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE/SHAPE COUNTING DIRECTION IDENTIFICATION SPEED MEASUREMENT	40

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW Platform	CONTAINER OUTPUT CONFIGURATION CYBER SECURITY CONFIGURABLE SPEED LIMIT	22
Stark Controller	Software for the centralized management of all devices	SPEED VIOLATION VIEWER TRANSIT VIEWER TRANSIT DATA LAKE CENTRALIZED DEVICE MANAGER 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
Stark Fusion	For merging data from different sensors	MERGING OF CAMERA AND LASER METADATA	29
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	32



Average Speed Enforcement

Average speed enforcement allows to enforce the vehicle overspeed along the monitored sections.



Tattile offers two innovative solutions:

Tasc

is a comprehensive, server-based average speed enforcement, and data collection system. The software architecture offers horizontal scalability to support an unlimited number of cameras and monitored sections. Tasc offers a web-based user interface to centrally manage and configure the system.

Stark P2P

is a serverless average speed solution that does not require additional hardware infrastructure, making it perfect for managing independent sections. Stark P2P operates within all the cameras installed in the section. The system is configurable through the cameras' web interface.

Tasc and Stark P2P offer features specifically designed for Average Speed enforcement

- › **Easy integration:** configurable integration with multiple back-office software
- › **Violation evidence package:** violation video and multiple violation images
- › **Advanced limits management:** configurable speed limit based on different vehicle classes and date/time
- › **Violation-data integrity:** device diagnostic collection for ensuring violation data integrity



Average Speed Enforcement - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 85	2	320/198	GPS LTE NVR DOUBLE INDEPENDENT CLOCKS STREAMING ON CONTEXT CHANNEL	36
Smart+ 55	1	320/198	GPS LTE NVR DOUBLE INDEPENDENT CLOCKS STREAMING ON CONTEXT CHANNEL	36
Vega53	1	250/155	GPS LTE NVR DOUBLE INDEPENDENT CLOCKS STREAMING ON CONTEXT CHANNEL	37

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE DIRECTION IDENTIFICATION COUNTING	40

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW Platform	OUTPUT CONFIGURATION CYBER SECURITY CONFIGURABLE DETECTION ROIS MULTILANGUAGE DATALOOKUP (MATCH LISTS)	22
Tasc	Scalable & server based average speed system	MULTITENANT WELMEC CERTIFIED SOLUTION CENTRAL SYSTEM TO MONITOR CAMERAS AUTOMATIC CAMERA ADOPTION UNLIMITED SECTIONS CERTIFIED AVERAGE SPEED COMPUTATION ADVANCED SPEED LIMITS CONFIGURATION	30
P2P	Serverless average speed solution	EMBEDDED SOLUTION CERTIFIED AVERAGE SPEED COMPUTATION ADVANCED SPEED LIMITS CONFIGURATION SERVERLESS WELMEC CERTIFIED SOLUTION	31
Stark Controller	Software for the centralized management of all devices	SPEED VIOLATION VIEWER TRANSIT VIEWER TRANSIT DATA LAKE CENTRALIZED DEVICE MANAGER 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
Stark Fusion	For merging data from different sensors	MERGING OF CAMERA AND LASER METADATA	29
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	32

Traffic Light Enforcement

Traffic light cameras monitor intersections for red-light violations, aiming to positively influence driver behavior, increase road safety, and reduce traffic accidents.

Smart+ Traffic Light **monitors every passing vehicle** and identifies red-light violations as well as authorized right and left turns.

It can identify the status of lamps using image analysis, without requiring physical wiring between the camera and the traffic light.

The camera can cover up to two lanes, also with independent traffic lights.

Smart+ Traffic Light is equipped with new high-quality sensors, ensuring superb image quality.



Smart+ Traffic Light offers features specifically designed for red light enforcement

- › **Non-invasive solution:** automatic wire-free lamp status detection
- › **Violation evidence package:** violation video and multiple violation images
- › **Violation-data integrity:** signed and encrypted outputs



Traffic Light Enforcement - Solutions

ANPR				
PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ Traffic Light	2	250/155	AI TRAFFIC LIGHT IDENTIFICATION VIOLATION CLASSIFICATION VIOLATION VIDEO NVR VIOLATION MULTIPLE IMAGES	35

SOFTWARE				
PRODUCT	Description	Features	Page	
Stark	Common SW Platform	DATALOOKUP (MATCH LISTS) LEFT AND RIGHT TURN CYBER SECURITY DETECTION TRAFFICLIGHTS LAMPS ON IMAGE DETECTION TRAFFICLIGHTS LAMPS BASED ON IO (IO EXPANDER)	22	
Stark Controller	Software for the centralized management of all devices	TRAFFIC LIGHT VIOLATION VIEWER TRANSIT VIEWER TRANSIT DATA LAKE CENTRALIZED DEVICE MANAGER REMOTE DEVICE UPDATE & CONFIGURATION	28	
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	32	

LEZ + LTZ Enforcement

Low-emission zones (LEZ) and limited traffic zones (LTZ) are specific areas where certain vehicles are restricted or banned. These policies aim to improve air quality, cut emissions, and ease congestion, especially in pedestrian-friendly or city centers.

Tattile's ANPR cameras provide exceptional accuracy for vehicle detection and license plate reading, while advanced LiDAR systems achieve precise classification of vehicles. These technologies work together to help city and municipal authorities manage permit access efficiently and promote environmentally friendly, sustainable control.

Advantages of Tattile solutions in LEZ & LTZ applications

- › **Plug&Play:** easy and efficient implementation and management of LEZ and LTZ
- › **Non-invasive solution:** transit detection and vehicle classification with zero road works
- › **Embedded OCR:** onboard processing turns into no need for external devices
- › **Embedded vehicle classification:** AI Laser technology for best-in-class classification performance
- › **Control list:** onboard authorized vehicles check



LEZ + LTZ Enforcement - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 85	3	320/198	GPS, LTE, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, CONTAINER, NVR	36
Smart+ 55	2	320/198	GPS, LTE, SSD, NVR, VIOLATION VIDEO, CONTAINER, VIOLATION MULTIPLE IMAGE	36
Vega53	2	250/155	GPS, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, CONTAINER, NVR, LTE	37
Vega11	1	180/111	VIOLATION MULTIPLE IMAGES, STREAMING ON CONTEXT CHANNEL	38

SENSORS

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE, COUNTING, SPEED MEASUREMENT, DIRECTION IDENTIFICATION, POE	40

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW Platform	OUTPUT CONFIGURATION, CALENDARS, CYBER SECURITY, MULTILANGUAGE, FILTERING, DATALOOKUP (MATCH LISTS)	22
Stark Controller	Software for the centralized management of all devices	TRANSIT DATA LAKE, TRANSIT VIEWER, CENTRALIZED DEVICE MANAGER, 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
Stark Fusion	For merging data from different sensors	TO COMBINE CAMERA AND LASER METADATA	29
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	32

Bus Lane Enforcement

ANPR cameras used for bus lane enforcement are designed to boost the efficiency of public transportation and decrease congestion on main roads. By preventing unauthorized vehicles from accessing bus lanes, these systems help buses move more smoothly and maintain reliable timetables.

Tattile's ANPR cameras deliver high accuracy in both vehicle detection and license plate recognition. The integrated BBCM algorithm enables vehicle classification and effective management of unauthorized bus lane usage. Using the Stark ROI feature, it is possible to define the enforced area.

Advantages of Tattile solutions for bus lane enforcement

- > **Violation ROI:** multiple monitored zones for restricted and regular traffic areas
- > **Control list:** onboard authorized vehicles check
- > **Violation evidence package:** violation video and multiple violation images
- > **Embedded vehicle classification:** AI Laser technology for best-in-class classification performance
- > **Non-invasive solution:** transit detection and vehicle classification with zero road works



Bus Lane Enforcement - Solutions

ANPR				
PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 85	3	320/198	GPS, LTE, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, CONTAINER, NVR	36
Smart+ 55	2	320/198	GPS, LTE, SSD, NVR, VIOLATION VIDEO, CONTAINER, VIOLATION MULTIPLE IMAGE	36
Vega53	2	250/155	GPS, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, CONTAINER, NVR, LTE	37
Vega11	1	180/111	VIOLATION MULTIPLE IMAGES, STREAMING ON CONTEXT CHANNEL	38

SENSORS				
PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE, COUNTING, LTE, POE, DIRECTION IDENTIFICATION	40

SOFTWARE				
PRODUCT	Description	Features	Page	
Stark	Common SW Platform	CONTAINER, DATALOOKUP (MATCH LISTS), CYBER SECURITY, CALENDARS, ROI, FILTERING, MULTIPLE IMAGES ON TRANSIT	22	
Stark Controller	Software for the centralized management of all devices	TRANSIT DATA LAKE, TRANSIT VIEWER, CENTRALIZED DEVICE MANAGER, REMOTE DEVICE UPDATE & CONFIGURATION	28	
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL OCR	26	
Stark Fusion	For merging data from different sensors	TO COMBINE CAMERA AND LASER METADATA	29	
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	32	

The Weigh-In-Motion (WIM) system enables accurate vehicle weighing while driving, providing real-time data for traffic monitoring, infrastructure protection, and enhanced road safety.

By integrating weight sensors, ANPR cameras, and laser scanners, authorities can effectively monitor and enforce regulations for overweight vehicles.

Tattile ANPR cameras provide automatic transit detection and license plate recognition, while laser scanners generate precise three-dimensional vehicle profiles at measurement points.

By integrating these technologies with a weight sensor, authorities can enforce the overweight vehicles.

Advantages of Tattile solutions for WIM

- > **Trigger Fusion:** automatic weight sensor failure detection
- > **Violation evidence package:** violation video and multiple violation images
- > **Embedded 3D vehicle classification:** AI Laser technology for best-in-class classification performance



ANPR				
PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Smart+ 55	1	320/198	GPS, LTE, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, NVR	36
Vega53	1	250/155	GPS, LTE, SSD, VIOLATION VIDEO, VIOLATION MULTIPLE IMAGES, NVR	37
Vega11	1	180/111	VIOLATION MULTIPLE IMAGES, STREAMING ON CONTEXT CHANNEL	38

SENSORS				
PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Comark+ Laser	2	250/155	CLASSIFICATION BASED ON VEHICLE SHAPE, COUNTING, POE, DIRECTION IDENTIFICATION	40

SOFTWARE				
PRODUCT	Description	Features	Page	
Stark	Common SW Platform	OUTPUT CONFIGURATION, NETWORK TRIGGER, TRIGGER FUSION, DIGITAL INPUT TRIGGER, DATALOOKUP (MATCH LISTS), CYBER SECURITY	22	
Stark Controller	Software for the centralized management of all devices	TRANSIT DATA LAKE, TRANSIT VIEWER, CENTRALIZED DEVICE MANAGER, REMOTE DEVICE UPDATE & CONFIGURATION	28	
Stark OCR	Tailor-made AI OCR to exploit to the maximum level of Tattile's camera potentialities	NEURAL OCR	26	
Stark Fusion	For merging data from different sensors	TO COMBINE CAMERA AND LASER METADATA, TRIGGER NATIVE INTEGRATION	29	
BCCM	An application to identify additional vehicle features useful for generating a fingerprint	CLASSIFICATION BASED ON IMAGE	32	

Parking Enforcement

Mobile Parking Enforcement allows authorities to efficiently monitor parking areas and ensure compliance by identifying vehicles without proper payment.

Tattile Mobile+ camera is designed for quick installation on patrol vehicles, allowing in-motion license plate reading and payment verification.

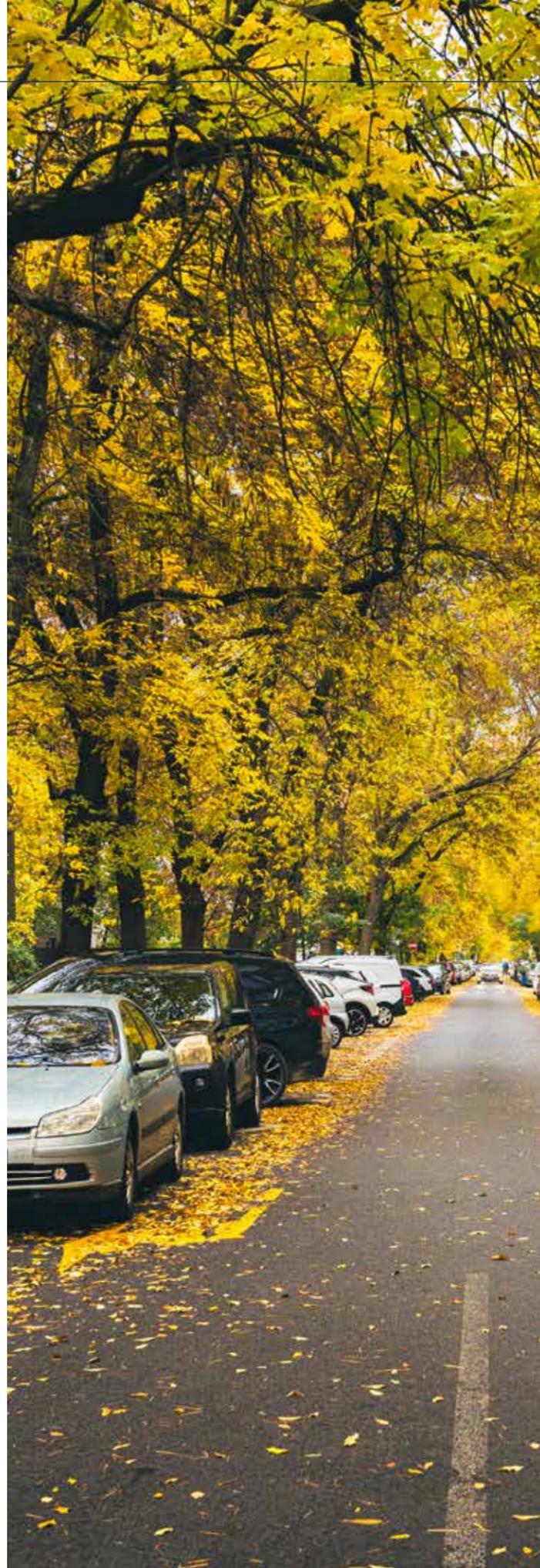
With built-in WIFI and cellular connectivity, Mobile+ communicates real-time data to devices such as tablets or PCs, streamlining its integration into wider systems.

The integrated GPS module enables accurate determination of the vehicle's location.



Mobile+ offers features specifically designed for Parking enforcement

- › **Control list:** onboard authorized vehicles check
- › **Advanced vehicle features recognition:** Make, Model, Color, and Class onboard recognition
- › **Violation evidence package:** violation video and multiple violation images



Parking Enforcement - Solutions

ANPR

PRODUCT	No. of lanes	Max speed (kmh/mph)	Features	Page
Mobile+	2	200/124	GPS LTE SSD NVR CONTAINER STREAMING ON CONTEXT CHANNEL	39

SOFTWARE

PRODUCT	Description	Features	Page
Stark	Common SW Platform	OUTPUT CONFIGURATION CYBER SECURITY MULTILANGUAGE CALENDARS DATALOOKUP (MATCH LISTS) FILTERING	22
Stark Controller	Software for the centralized management of all devices	TRANSIT DATA LAKE TRANSIT VIEWER CENTRALIZED DEVICE MANAGER REMOTE DEVICE UPDATE & CONFIGURATION	28
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	32



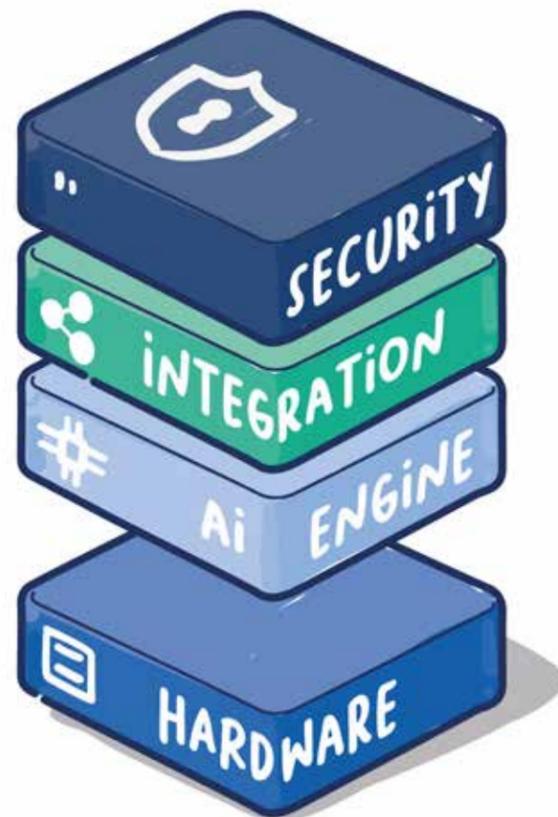
Software

INDEX

- Stark p. 22
- Stark OCR..... p. 26
- Stark Controller..... p. 28
- Stark Fusion..... p. 29
- Tasc p. 30
- Stark P2P..... p. 31
- Stark BCCM Embedded & Cloud..... p. 32

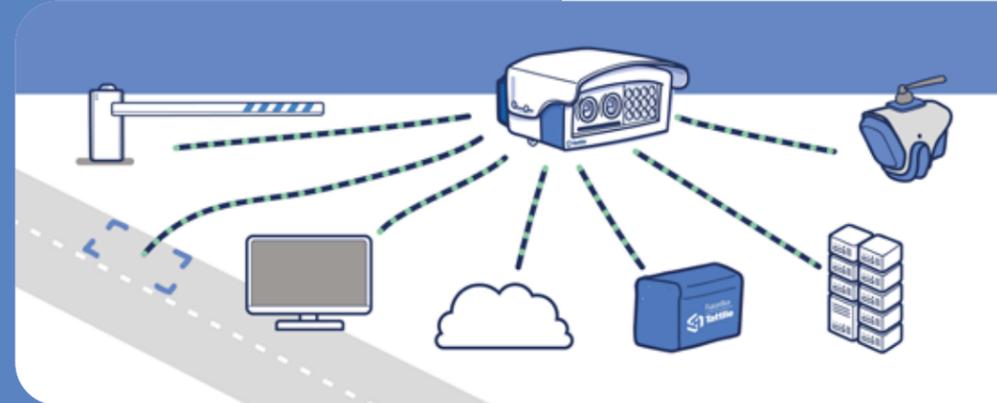
The core of all Tattile's products

- › 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



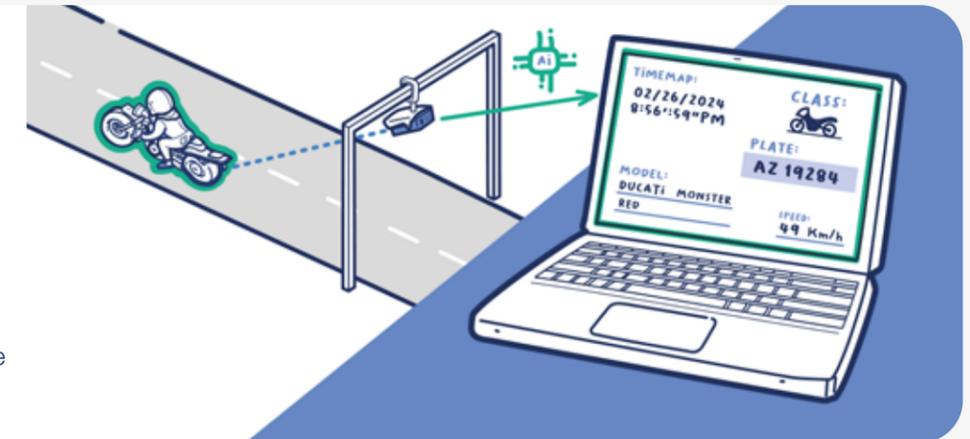
Integration

- › Trigger: external, automatic or combined
- › **REST API**, no SDK needed
- › **Standard 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

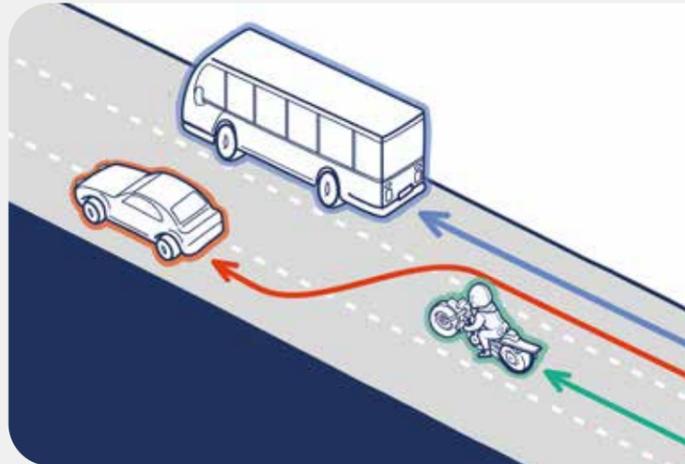
Configurable Violation output

- › Violation video
- › Multiple violation images
- › Digital Signature and encryption



AI Transit Detection

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



Speed limit configuration

- › Easy configuration through the camera web interface
- › Configurable speed limit for different vehicle classes
- › Speed limits can be set individually for each lane



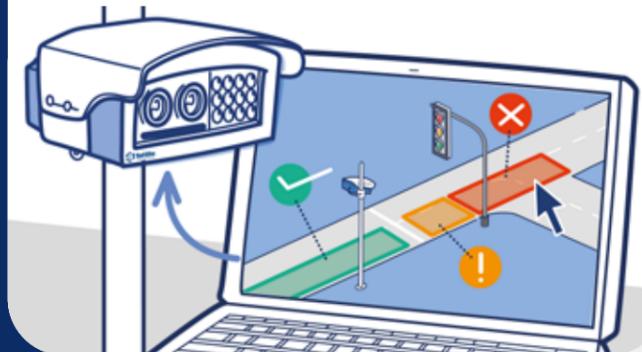
Easy configuration

- › Wizard system configuration
- › User-friendly web interface
- › Customizable Violation messages



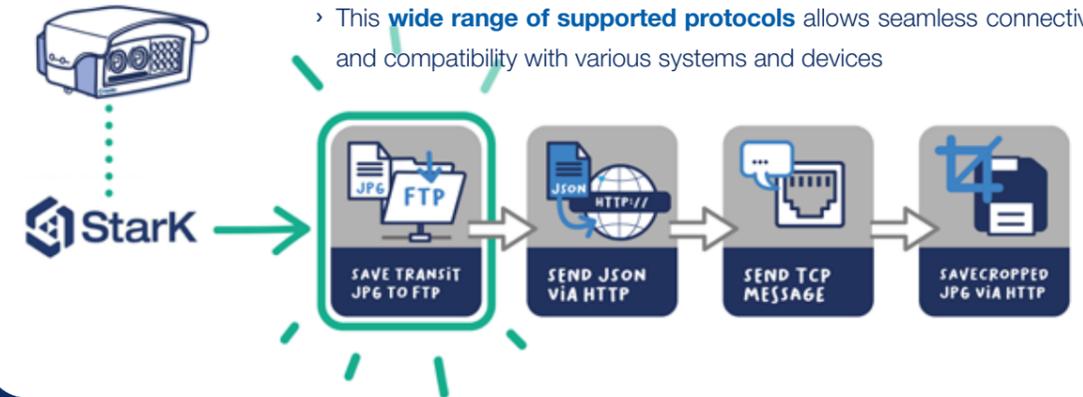
Violation ROI configuration

- › The violation 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. It also enables specific configurations for monitoring yellow box violations



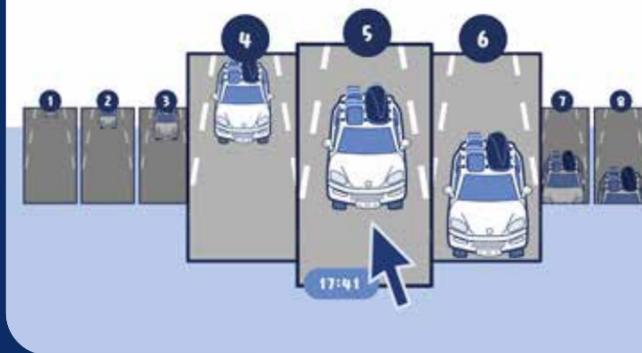
Customizable output configuration

› This **wide range of supported protocols** allows seamless connectivity and compatibility with various systems and devices



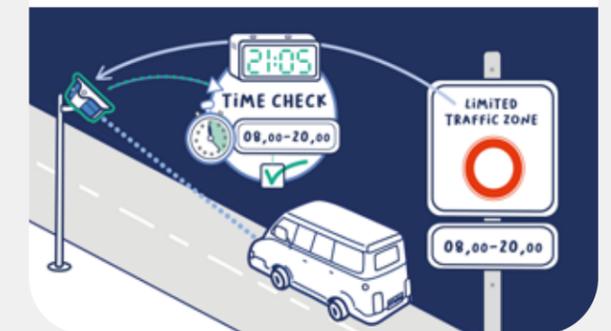
Multiple images

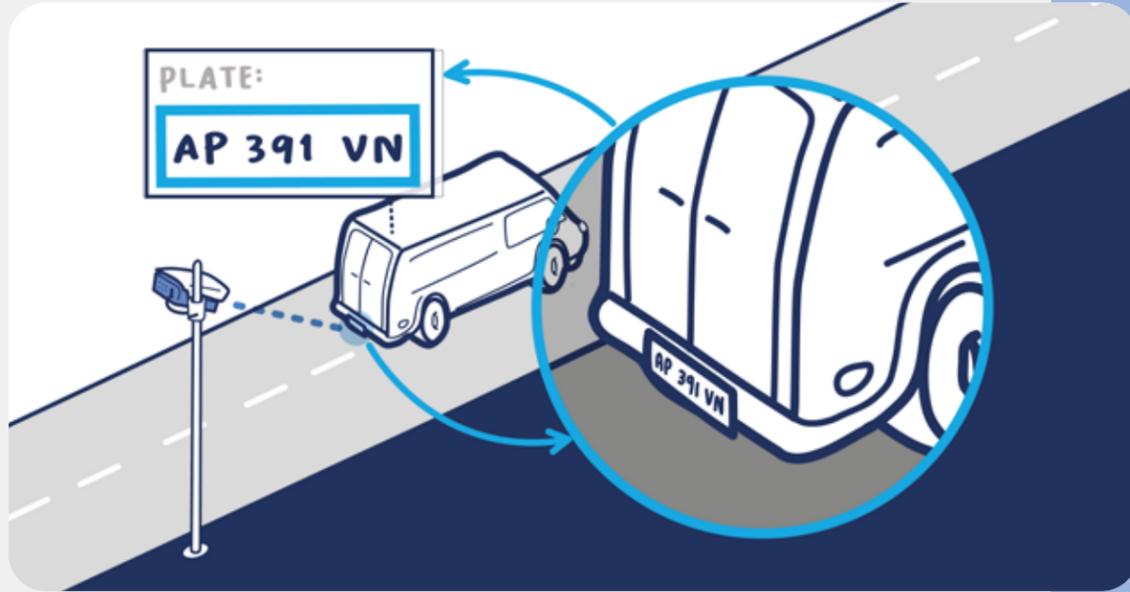
- › Multiple images function allows receiving up to **eight images** of the same transit, on both OCR and context channels
- › Customizable in the choice of captured frames, it allows monitoring of a vehicle during all its transit and movement on roadways



List and Calendars Management

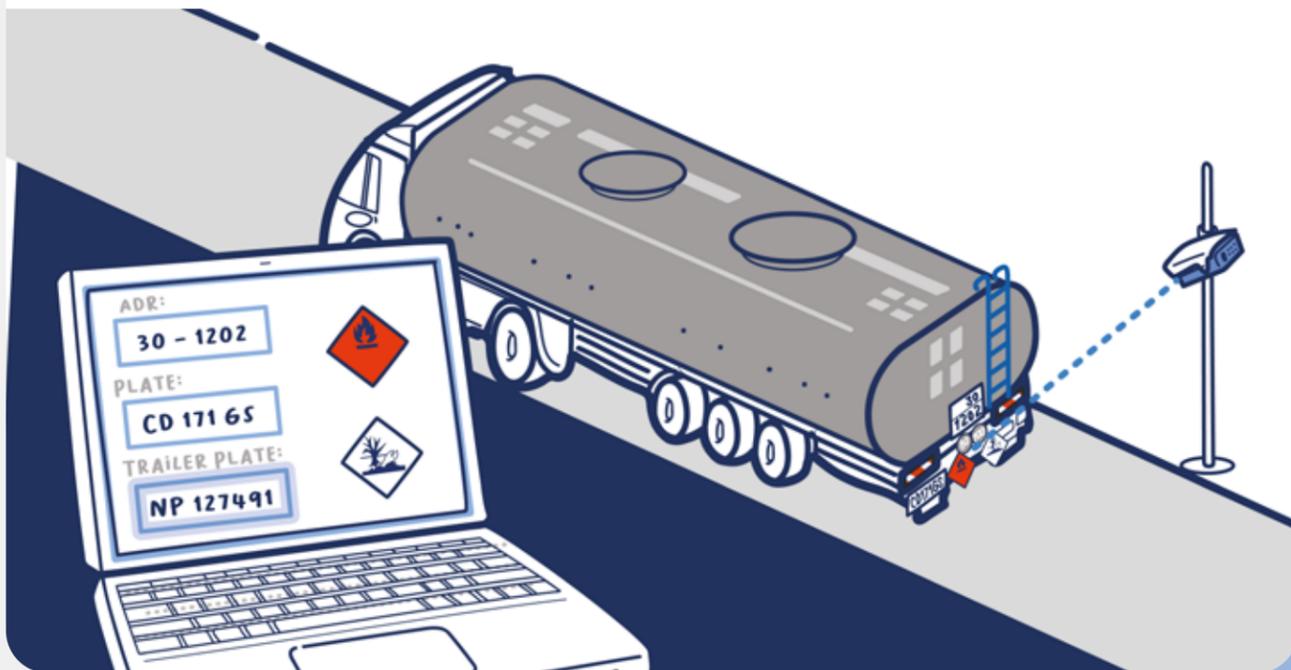
- › Advanced internal vehicle list management and smart event scheduling through configurable calendars, ensuring efficient and automated control





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

- › 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 (500K) collected from Tattile's cameras

EU



NA



LATAM

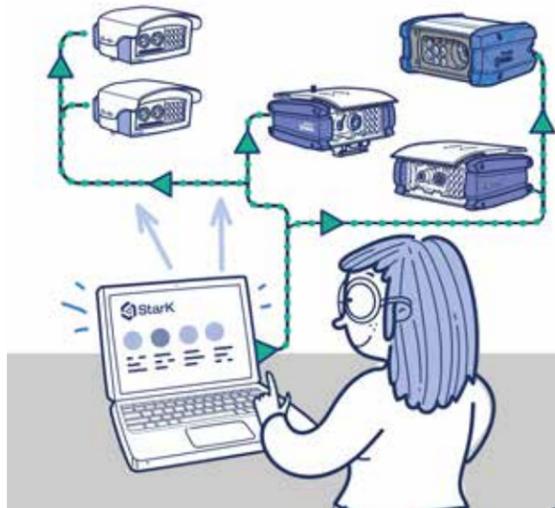


APAC



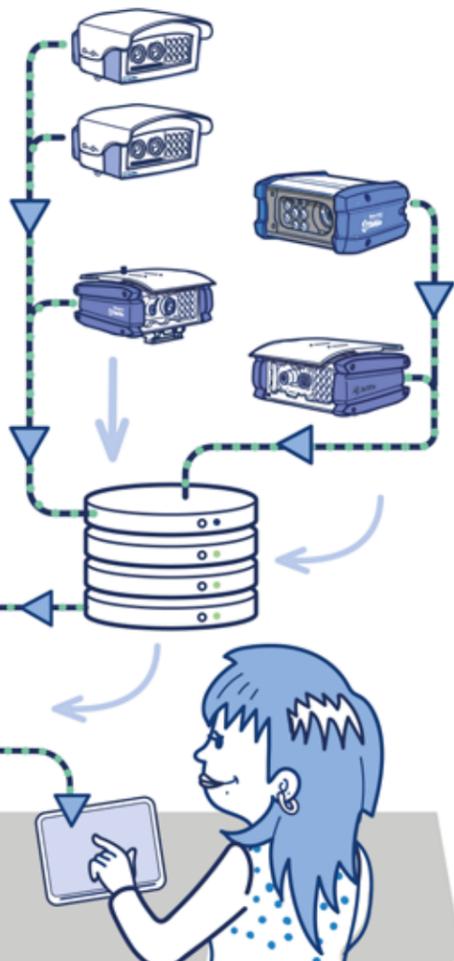
Software for centralized management of all devices

- › **Centralized configuration deployment**, 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 and tablet**

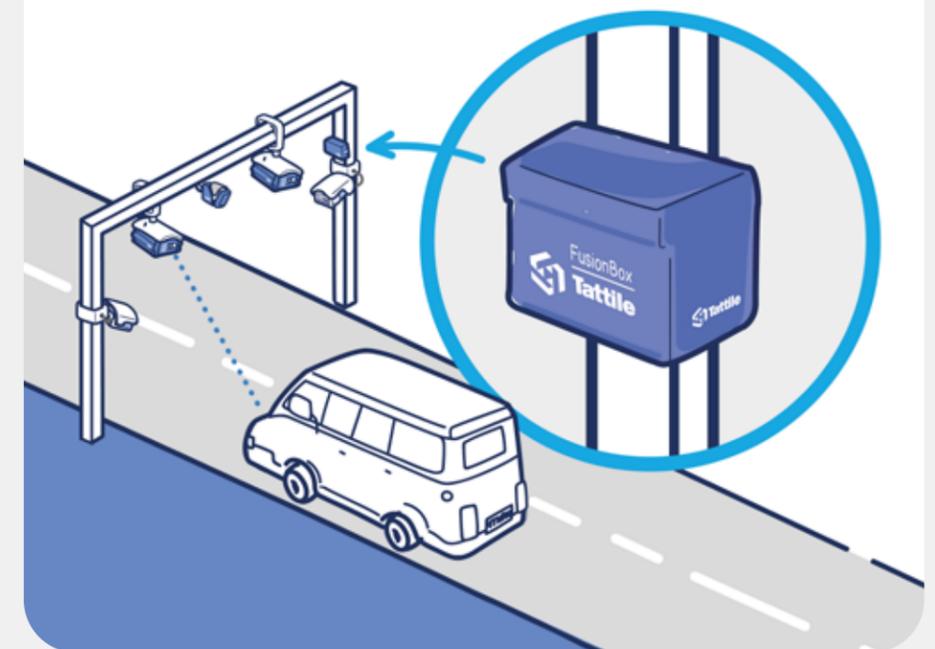


Software for multi-device data aggregation

- › 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

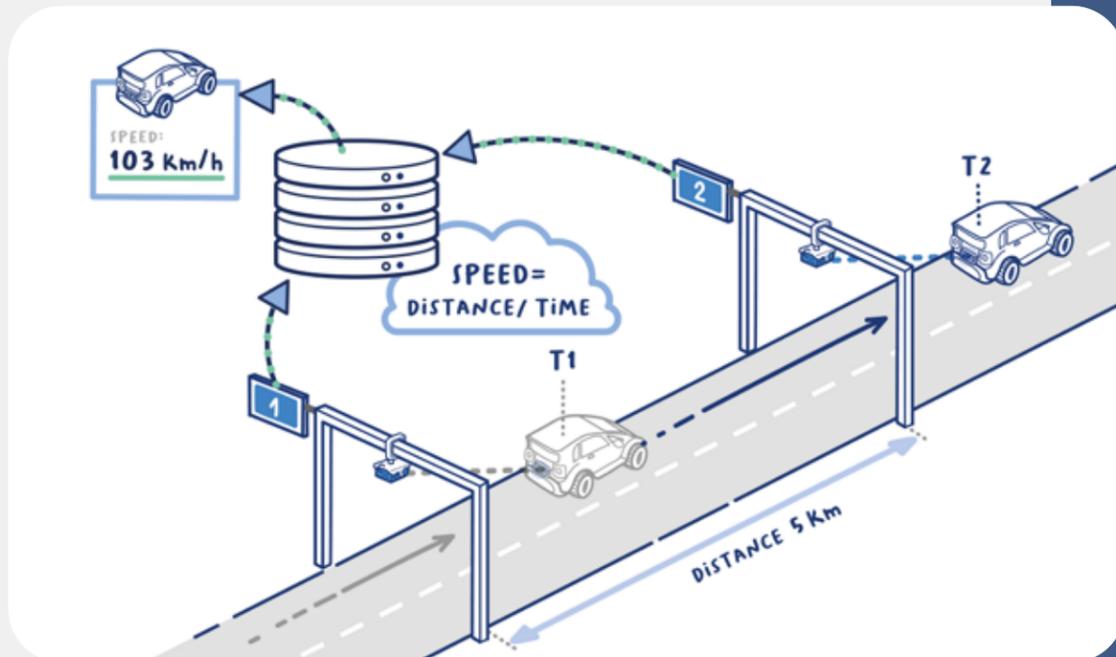
- › **All-in-one computational unit** designed to exploit Stark Fusion at the maximum level
- › To **minimize latency**, Fusion Box can be installed directly on the gantry or next to the devices
- › It is possible to connect several devices



software

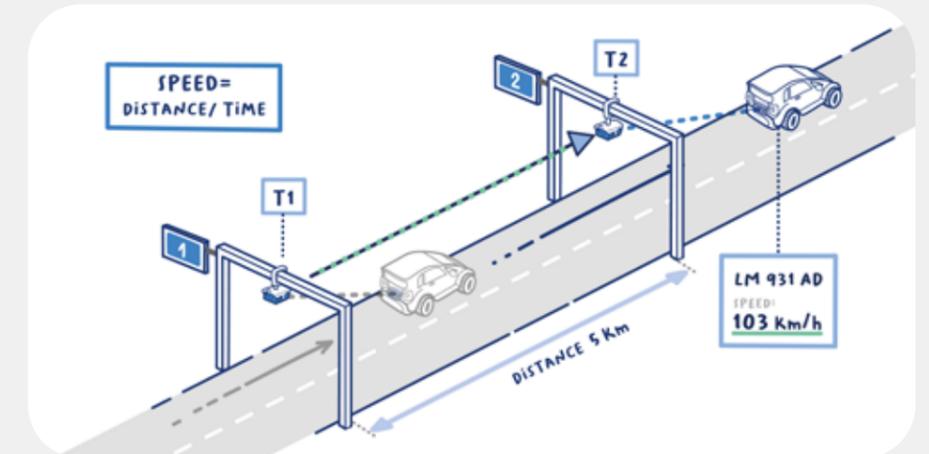
An innovative server-based Average Speed Enforcement solution

- › Scalable to support an **unlimited number of cameras** and monitored sections
- › **Multi-tenant** solution for segregated environments
- › Web-based user interface to **centrally manage** and configure the system
- › Available on-premises and in the cloud
- › Fully configurable system to comply with local regulations
- › Welmec 7.2 compliant
- › Real-time automatic diagnostic for maximum system reliability



The first Serverless Average Speed solution

- › **No external server** or external infrastructure is needed. Perfect to manage independent sections
- › Section's cameras communicate through encrypted protocols
- › Directly configurable from the camera web interface (no central configuration software)
- › **Seamless integration** with any back-office software
- › Welmec 7.2 compliant
- › Real-time camera diagnostic for maximum system reliability



Software

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

+243
different
makers

Model

+2.000
different
models

Class

7 different
classes

Color

10 different
colors



Hardware

INDEX

Smart+ Speed	p. 34
Smart+ Traffic Light	p. 35
Smart+	p. 36
Vega53	p. 37
Vega11	p. 38
Mobile+	p. 39
Comark+ Laser	p. 40

Smart+ Speed

The most powerful SPEED measurement Smart Camera

SPEED ENFORCEMENT

With its top algorithms and **on-edge processing** power, this AI camera takes enforcement and security to a whole new level, setting new industry standards for accuracy, reliability, and efficiency.

The **Neural plate & vehicle detector** algorithm enables it to quickly and accurately identify vehicles of different types, including cars, trucks, and motorcycles.

Embedded radar for easy system deployment.

Violation detection up to 320 Km/h (198mph).

Suitable for gantry and pole installation.

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+ SPEED	
Software Platform	Stark
AI accelerators	2 hardware accelerators
Lanes	Up to 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



Smart+ Traffic Light

The new generation of AI red light enforcement cameras

TRAFFIC LIGHT ENFORCEMENT

Smart+ Traffic Light can detect the status of lamps through image analysis, **without the need for physical wiring**, reducing the installation and maintenance costs.

Virtual Loops can detect violations **without the need for road work**. The violation ROIs can be set directly in the camera software.

The system can track the vehicle, recognize illegal turns and stops, and read its license plate when it enters or transits through a preconfigured region of interest.

The Smart+ Traffic Light is equipped with a new high-quality sensor **8 Mpx** on the OCR channel, which provides better image quality and covers up to **2 lanes**.

BCCM algorithm available on-board. The camera captures the license plate, brand, class, color, and model to create a complete vehicle fingerprint in a single report.

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+ TRAFFIC LIGHT	
Software Platform	Stark
AI accelerators	2 hardware accelerators
Lanes	2
Max vehicle speed	200 kmh / 124 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



Smart+

Scalable hardware for increasing workloads

AVERAGE SPEED ENFORCEMENT

LEZ & LTZ BUS LANE WIM



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
Software Platform	Stark
AI accelerators	1 hardware accelerator
Lanes	2
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

AVERAGE SPEED ENFORCEMENT

LEZ & LTZ BUS LANE WIM



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
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

LEZ & LTZ BUS LANE WIM



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

Vega11 is available also with high-quality **varifocal lenses** covering, the most efficient 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
Max vehicle speed	180 kmh /111 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



Mobile+

Dual AI sensors for
unseen detection &
reading performance

PARKING ENFORCEMENT



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”

SPEED ENFORCEMENT **BUS LANE**

AVERAGE SPEED ENFORCEMENT

LEZ & LTZ **WIM**



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



Support Team

INDEX

- 🔗 Project Management..... p. 42
- 🔗 Remote & On-Field System Support..... p. 43
- 🔗 Academy..... p. 44

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 technical 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

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



DOWNLOAD THE CATALOGUE



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

