

Traffic Management Systems



Complete Mobility Provider.



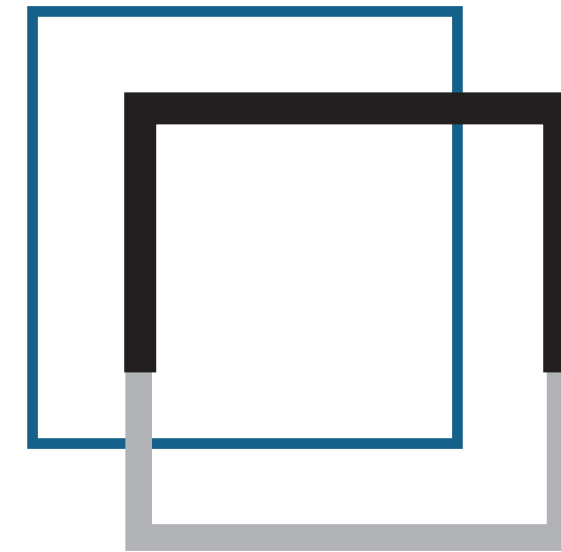
Who are we?

Founded in 2009, ISSD provides solutions to create added value in the field of intelligent transport. Its areas of expertise include traffic management, electronic applications and consulting services. With the slogan 'Complete Mobility Provider', ISSD contributes to mobility from A to Z by working for a greener, more efficient and accessible transport future in more than 5000 locations in 15 countries.

ISSD is located in METU Teknokent, Türkiye's most prestigious technology development zone. The company stands out from its competitors with its product portfolio, technical expertise, R&D capabilities and long-term customer relationships. ISSD's young and talented team is committed to creating value and aims to become a global leader by delivering this value to the world.



CHAOS Dynamic Junction Control System.



CHAOS

Dynamic Junction Control System.

“Türkiye’s first patented dynamic junction control system”

CHAOS reduces delays and emissions at the signalized junctions by changing green time intervals dynamically depending on the number of vehicles on each approach. CHAOS systems can communicate with each other via wireless connection for signal coordination and network optimization.

CHAOS

Components.

MANGO - Next Generation Traffic Management Centre Platform

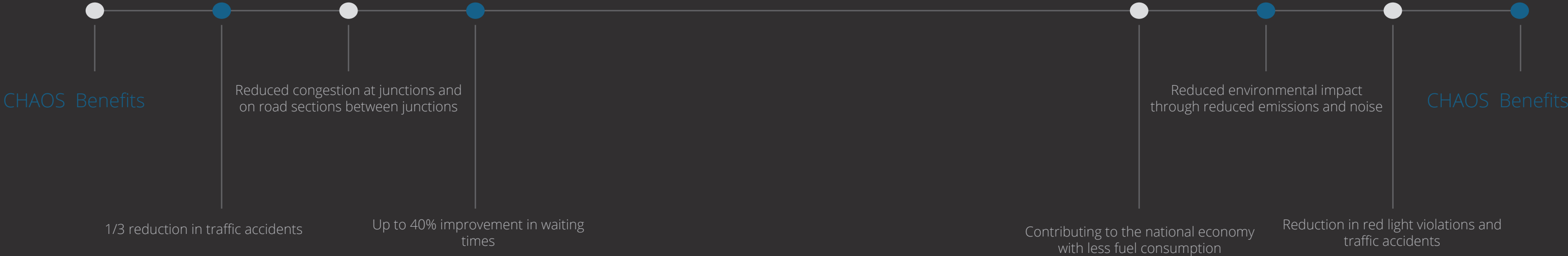
MANGO is interactive traffic management software. Its user-friendly, web-based interface allows you to monitor, analyse, manage, and control different traffic systems and sensor sets.

CENTRIS - Dynamic Intersection Control Unit.

CENTRIS continuously optimises light durations at junctions by instantly analysing data such as the number of vehicles, vehicle density and average vehicle speed obtained from vehicle counting cameras placed at the junction.

VIERO-AI - Vehicle Counting System.

VIERO-AI, based on image processing, counts the vehicles passing through any road section 24/7, in all weather conditions.



CHAOS

Abilities.

CFM - FCD Supported Dynamic Junction Management

The CFM traffic management algorithm sets itself apart from other algorithms by incorporating traffic scene analysis cameras and Floating Car Data. This unique approach enables it to achieve a high level of orchestration between intersections, resulting in reduced travel times and increased comfort for drivers.

Signal Coordination

CHAOS systems can communicate with each other via wireless connection. This property can be used for signal coordination between consecutive junctions. The main purpose of signal coordination is to reduce travel times along a corridor by coordinating the junctions.

Tram and Pedestrian Priority

Existing or newly installed loop detectors, magnetometers or pedestrian buttons at intersections can be used by CHAOS algorithms to prioritise trams and pedestrians.

Emergency Vehicle Preemption

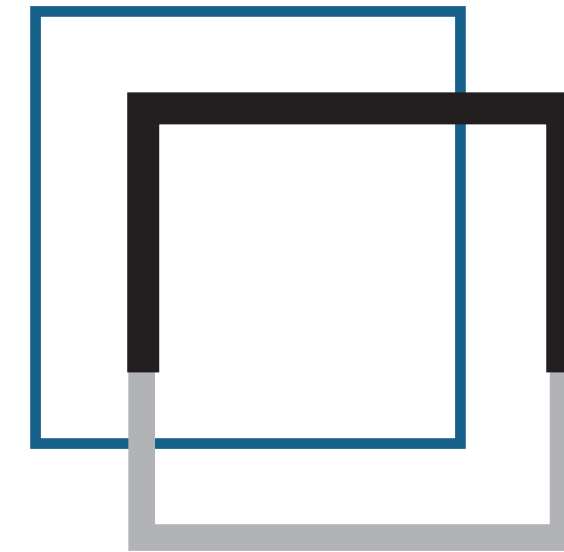
With CHAOS, it is possible to give priority to emergency vehicles coming from any approach of the junction. Emergency vehicles which are defined in Traffic Control Center software are detected and tracked by using GPS data.

Dynamic Junction Management with Discharge Feature

Thanks to the discharge detection feature of our VIERO-AI vehicle counting cameras placed at the exit lanes of the intersection, congestion at the exits is detected and dynamic intersection management is performed accordingly.



VIERO AI
Vehicle Counting System.



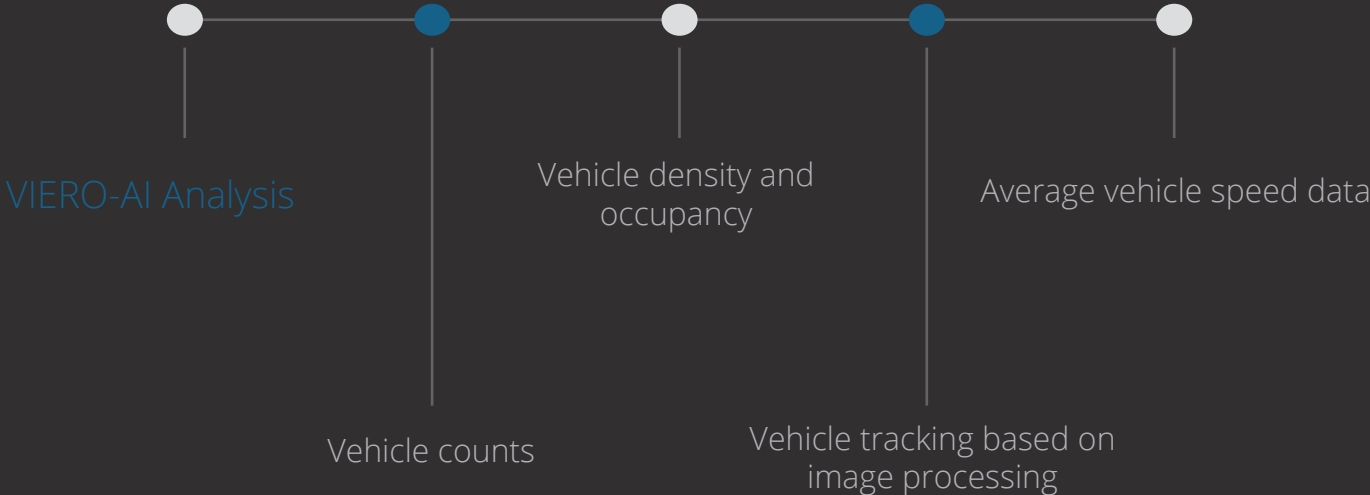
VIERO AI Vehicle Counting System.

“The easiest way to collect traffic data”

VIERO-AI performs real-time vehicle counting, density and occupancy measurement and generates average vehicle speed information. VIERO-AI works two different modes for day and night and achieves results with less than 8% error due to our image processing algorithms. VIERO-AI can run Artificial Intelligence based algorithms in real time thanks to the embedded INTEL

Movidious Vision Processing Units.

VIERO-AI, is composed of a high resolution IP camera, an image processing board and a wireless communication module in an IP67/IK10 certified housing. VIERO-AI has a higher performance than its competitors due to the hardware-specific algorithms.

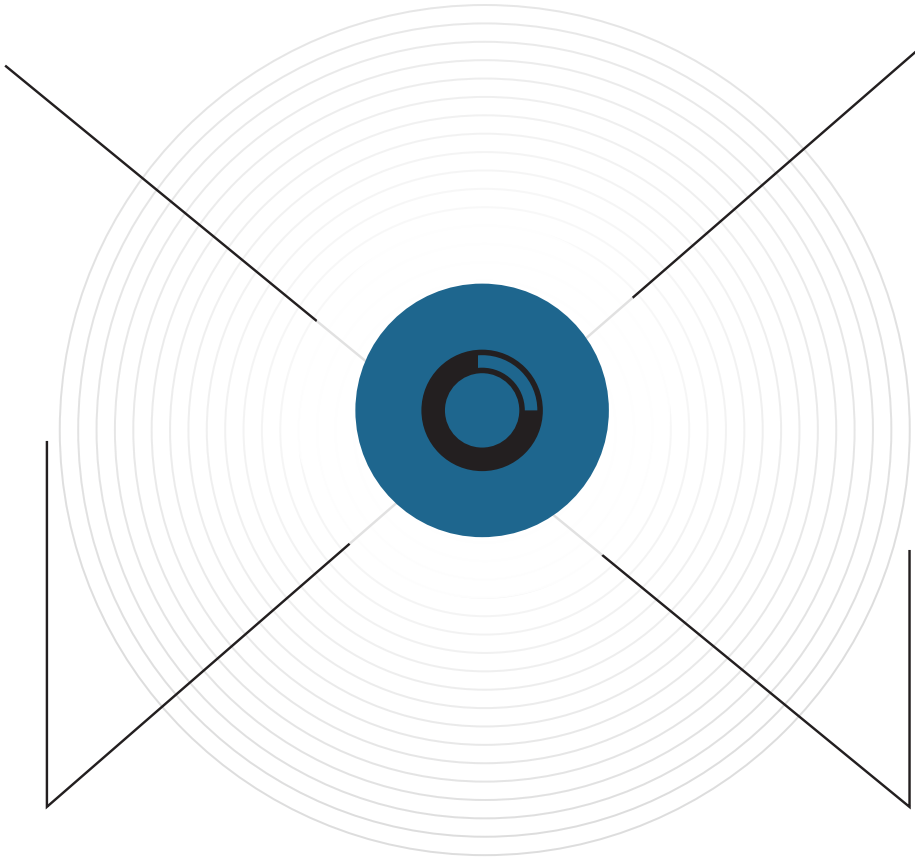


VIERO AI Benefits.

Provides The Highest
Performance 24/7

Free Update During
Guarantee Period

Wireless Communication
Capability



Counting Up To 6 Lines

Clear View Up To 100
Meters



VIERO-AI

It generates various traffic data by vehicle counting, density measurement, image-based vehicle tracking and average vehicle speed measurement.

24/7 Excellent Performance

Vehicle count, density and average vehicle speed measurement thanks to the artificial intelligence-based system.

Capable of Monitoring 6 Separate

Vehicle counting up to 6 lanes with a single camera on the designated point.

Data Transfer

Data Transfer to remote centers over the network.

Operating Temperatures

High performance operation in the temperature range of -40°C / +85°C.

User Friendly Interface

Easy access to system settings and data with a convenient and simple design.

Remote Control

Quick and safe access to the system with built-in remote access features.

Traffic Data produced by VIERO-AI

VIERO-AI, produces a variety of traffic data by measuring vehicle counts, density and occupancy, vehicle tracking based on image processing and average speed data. The data that system produces is used in various studies, mainly Dynamic Junction Control System (CHAOS), transportation-oriented design, planning, analysis, macro modeling and so on.



User Friendly Interface

VIERO-AI can provide traffic data around the clock and throughout different weather conditions to operators in real time with its efficient and easy-to-use user interface.

Real-time Vehicle Count

VIERO-AI Provides real-time vehicle count throughout day and night and within different weather conditions. The produced data is then instantly shared with traffic operators via the VIERO-AI interface.



VIERO AI

Vehicle Counting System.

General Specifications	Number Of Lanes Covered	Vehicle Count up to 6 lanes
	Detection Distance	Field Of View of Up to a 100 meters
	Day/Night Vehicle Counting and Classification accuracy	%92-94
	Data Transfer	Ethernet/Wifi (Ops.)
	Software Update	Free Updates During Warranty Period
Camera Specifications	Mode of Operation	Continuous Real-Time Operation
	Sensor Type	2 Megapixel Progressive Starvis CMOS
	BLC Mode	BLC / HLC / WDR (140dB) / SSA /AGC /AWB
	Noise Detection	3DNR
	Day/Night	Automatic (ICR) / Colored / S / B
	Profile	ONVIF Profile S&G, API, PSIA CGI
	Data Tranfer	Ethernet (RJ-45 (10 / 100Base-T)
	Data Storage	Mirco SD Card 128GB
	Bit Rate	H.264: 32K ~ 10240Kbps
	Power Source	DC12V, PoE + (802.3af)
	Operating Conditions	-40 ° C ~ + 60 ° C (-40 ° F ~ + 140 ° F) / Less than 95% RH
	Lens	2.7mm~13.5mm varifocal lens
	Protection Rating	IP67, IK10
	Guarantee	2 years

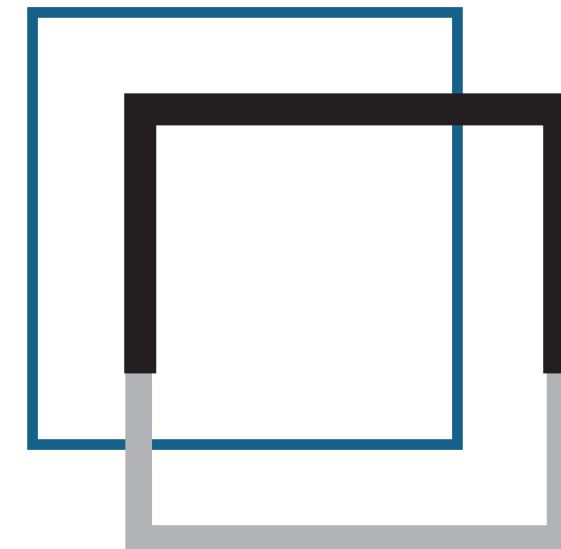
VIERO AI

Vehicle Counting System.

Processor Specifications	Processor Frequency	2.5 GHz
	Cache Memory	6 MB
	Core Count	4
	RAM	4 GB
	Storage	32 GB
	Processor Model	12. Generation Intel i3
	Image Transfer	1x HDMI, 1x Displayport
	USB Interface	2 x USB 2.0 ve 2 x USB 3.0
	Network Interface	2 x RJ45 Konnektör 10/100/1000 Mbps
	Additional Hardware Features	PCI slot 32-bit/33 Mhz PCIex4 slot 4GB/s
Software Features	Operating System	Ubuntu 18.04
		Supported with OpenVino cards over PCI express for deep-learning purposes
		Ability of processing Deep learning algorithms in addition to Pytorch and Tensorflow compliable libraries
		The processor module has sub-hardware support for deep learning models.



VIERO 360 Junction Analysis System



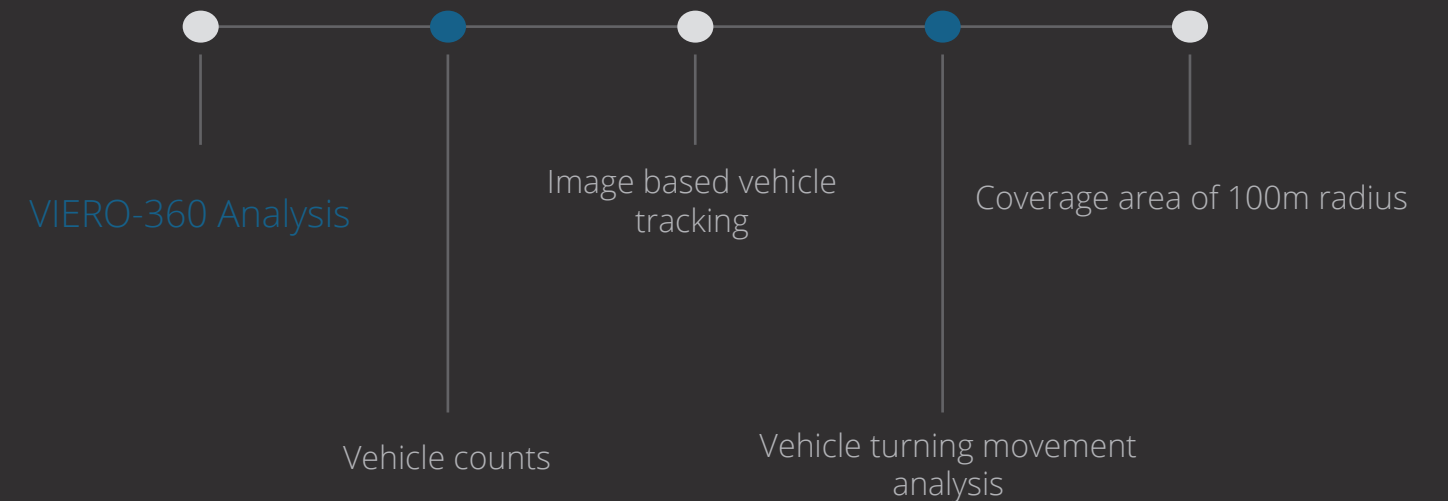


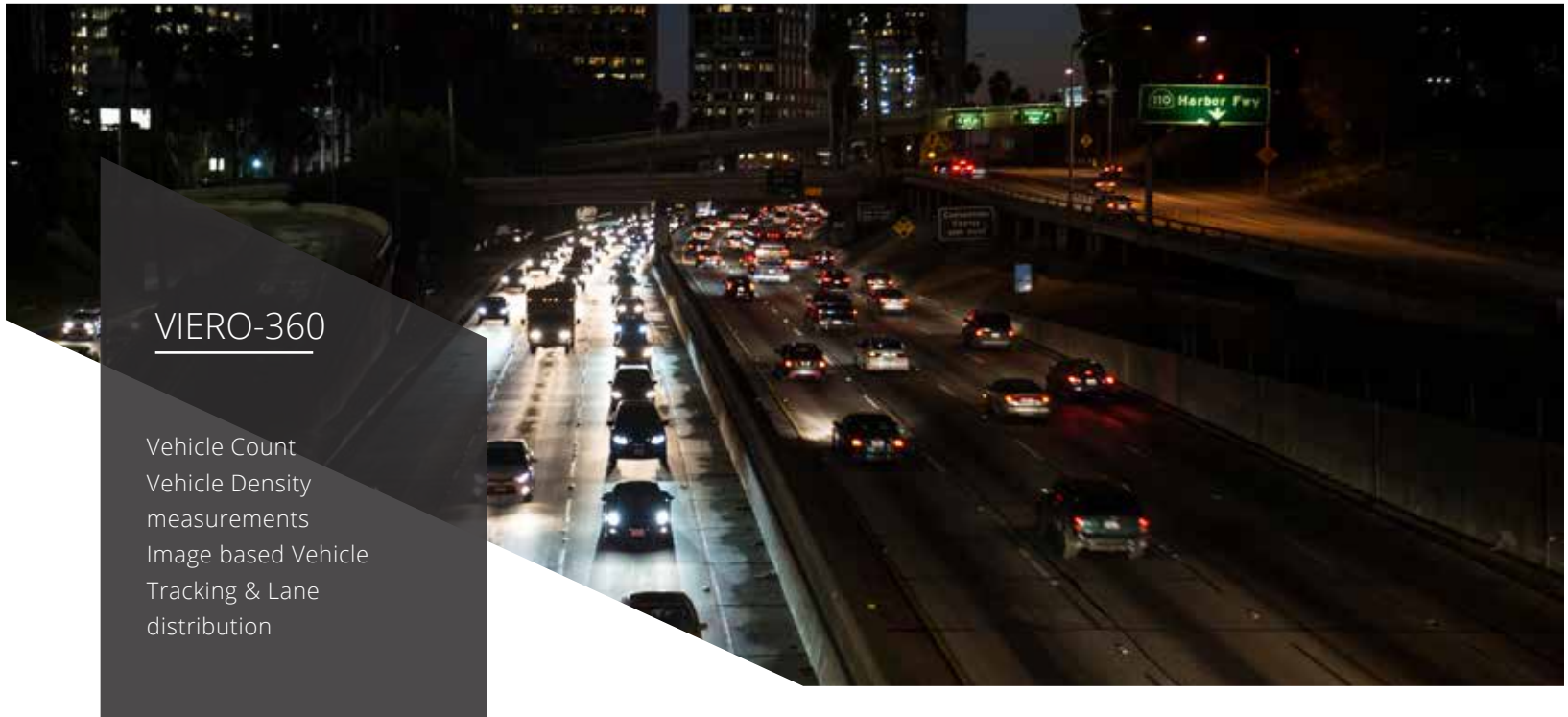
A cost-effective
solution for accurate
junction analysis

VIERO 360 Junction Analysis System.

VIERO-360 utilizes Fisheye Cameras and Artificial Intelligence based detection algorithms to extract vehicle turning movement data within junction with an accuracy of 90% during daylight conditions.

The system is able to determine the path of every vehicle crossing the intersection. The obtained data is then instantly shared with traffic operators via the VIERO-360 interface.





VIERO 360 Junction Analysis System

VIERO 360, produces a variety of traffic data by measuring vehicle counts, density and occupancy, vehicle tracking based on image processing and average speed data. The data that system produces is used in various studies, mainly Dynamic Junction Control System (CHAOS), transportation-oriented design, planning, analysis, macro modeling and so on.



User Friendly Interface

By using this interface, Operators will be able of determining the path of every vehicle crossing the intersection .

24/7 Excellent Performance

Vehicle counting and density measurement with artificial intelligence based system.

Coverage area of 100m radius

Image based Vehicle Tracking & Lane distribution

Data Transfer

Data Transfer to remote centers over the network

Operating Temperatures

-40 ° C ~ + 60 ° C (-40 ° F ~ + 140 ° F) / Less than 95% RH

User Friendly Interface

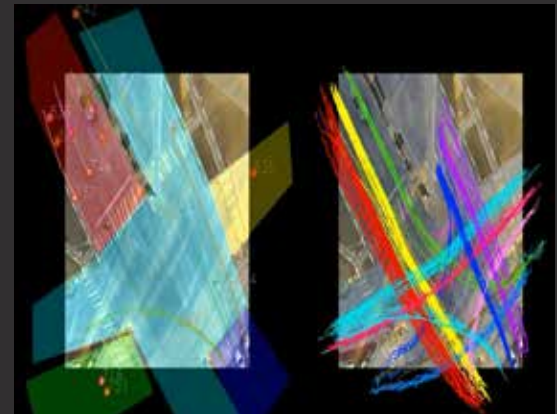
Easy access to system settings and data with a convenient and simple design.

Remote Access Capability

Quick and safe access to the system with built-in remote access features.

Real-Time Vehicle Counting

VIERO-360 provides real-time vehicle count throughout day and night and within different weather conditions. The obtained data is then instantly shared with traffic operators via the VIERO-360 interface.



VIERO 360

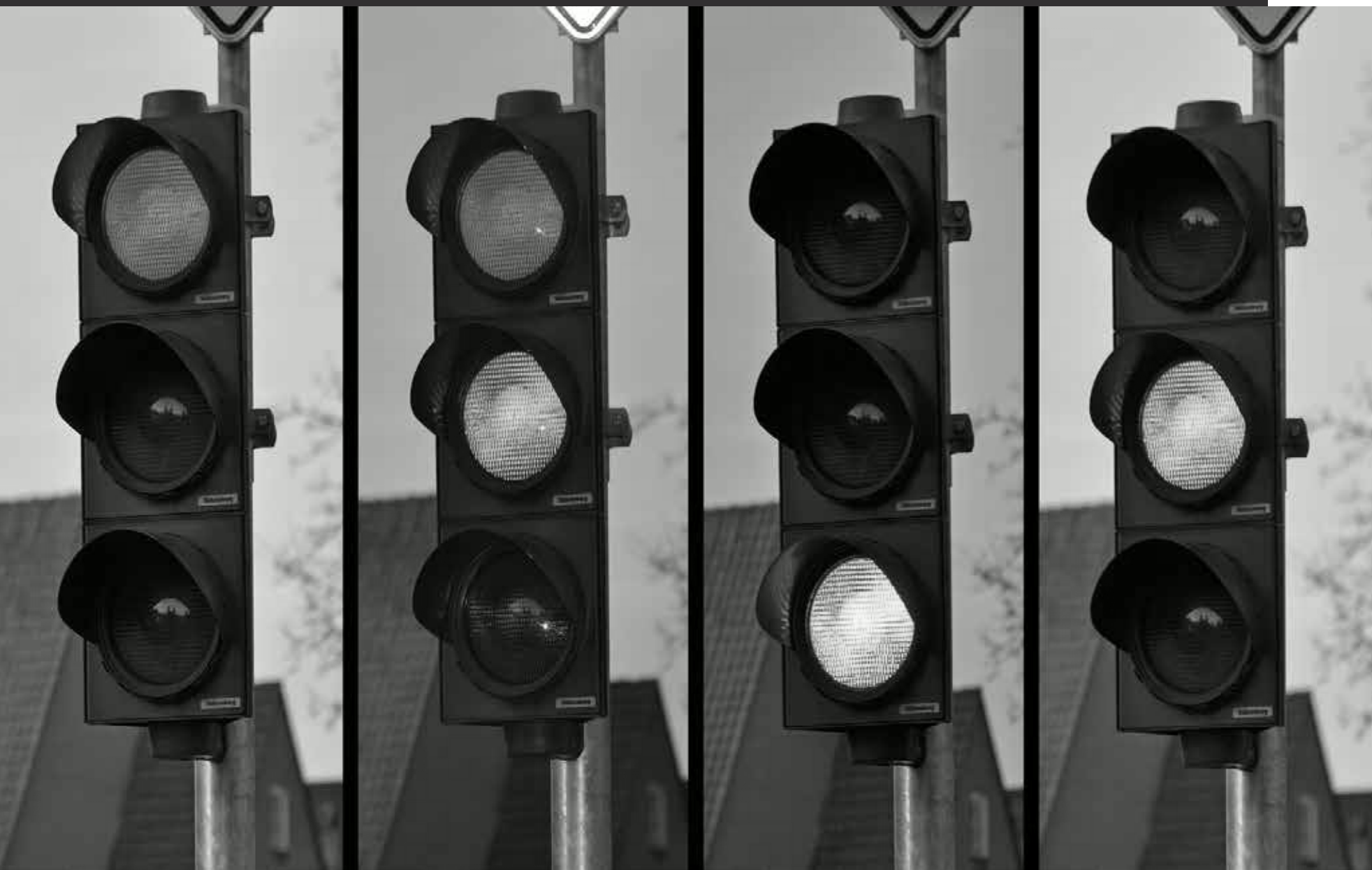
Junction Analysis System.

General Specifications	Day/Night Vehicle Counting and Classification accuracy	%70
	Data Transfer	Ethernet/Wifi (Ops.)
	Software Update	Free updates during the warranty period
	Mode of Operation	Continuous real-time operation
Camera Specifications	Sensor	5 MP Progressive CMOS
	Imaging Area	1.47mm Fisheye Lens for 180 ° Panoramic View and 360 ° Surround View
	IR Fed Görüş Mesafesi	Built-in IR illuminators, effective 850nm IR LEDs up to 20 meters * 6
	Day/Night	Auto (ICR) / Color / B / W
	ONVIF	ONVIF
	Verification Mode	Panoramic, Double Panoramic, Original, 1 + 3, EPTZ, 4 pictures
	WDR	WDR Pro
	Viewing Area	180 ° (Horizontal) 180 ° (Vertical) 180 ° (Diagonal)
	Video Compression	H.265, H.264, MJPEG
	Built-in Storage	Slot-Type: Micro-SD
	Data Transfer	Ethernet (RJ-45 (100 / 1000Base-T)), addressable
	Power Source	DC12V, PoE + (802.3at)
	Guarantee	2 years
	Operating Conditions	-40 ° C ~ + 60 ° C (-40 ° F ~ + 140 ° F) / Less than 95% RH

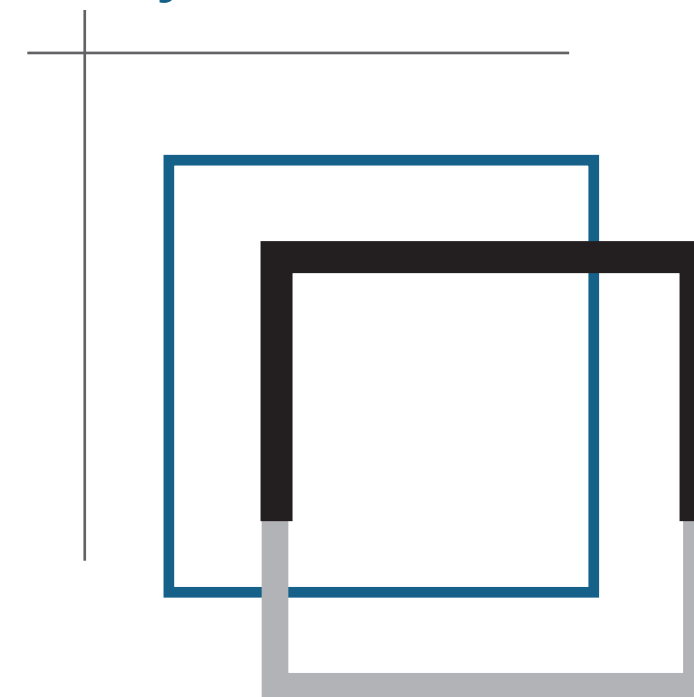
VIERO 360

Junction Analysis System.

Processor Specifications	Processor Frequency	2.5 GHz
	Cache Memory	6 MB
	Core Count	4
	RAM	4 GB
	Storage	32 GB
	Processor Model	7. Generation Intel i3
	Image Transfer	1 x HDMI, 1 x Displayport
	USB Interface	2 x USB 2.0 ve 2 x USB 3.0
	Network Interface	2 x RJ45 Konnektör 10/100/1000 Mbps
	Additional Hardware Features	PCI slot 32-bit/33 Mhz PCIex4 slot 4GB/s
Software Features	Operating System	Ubuntu 18.04
		Supported with OpenVino cards over PCI express for deep-learning purposes
		Ability of processing Deep learning algorithms in addition to Pytorch and Tensorflow compliable libraries
		The processor module has sub-hardware support for deep learning models.



CENTRIS
Dynamic Junction Control Unit.



CENTRIS

Dynamic Junction Control Unit.

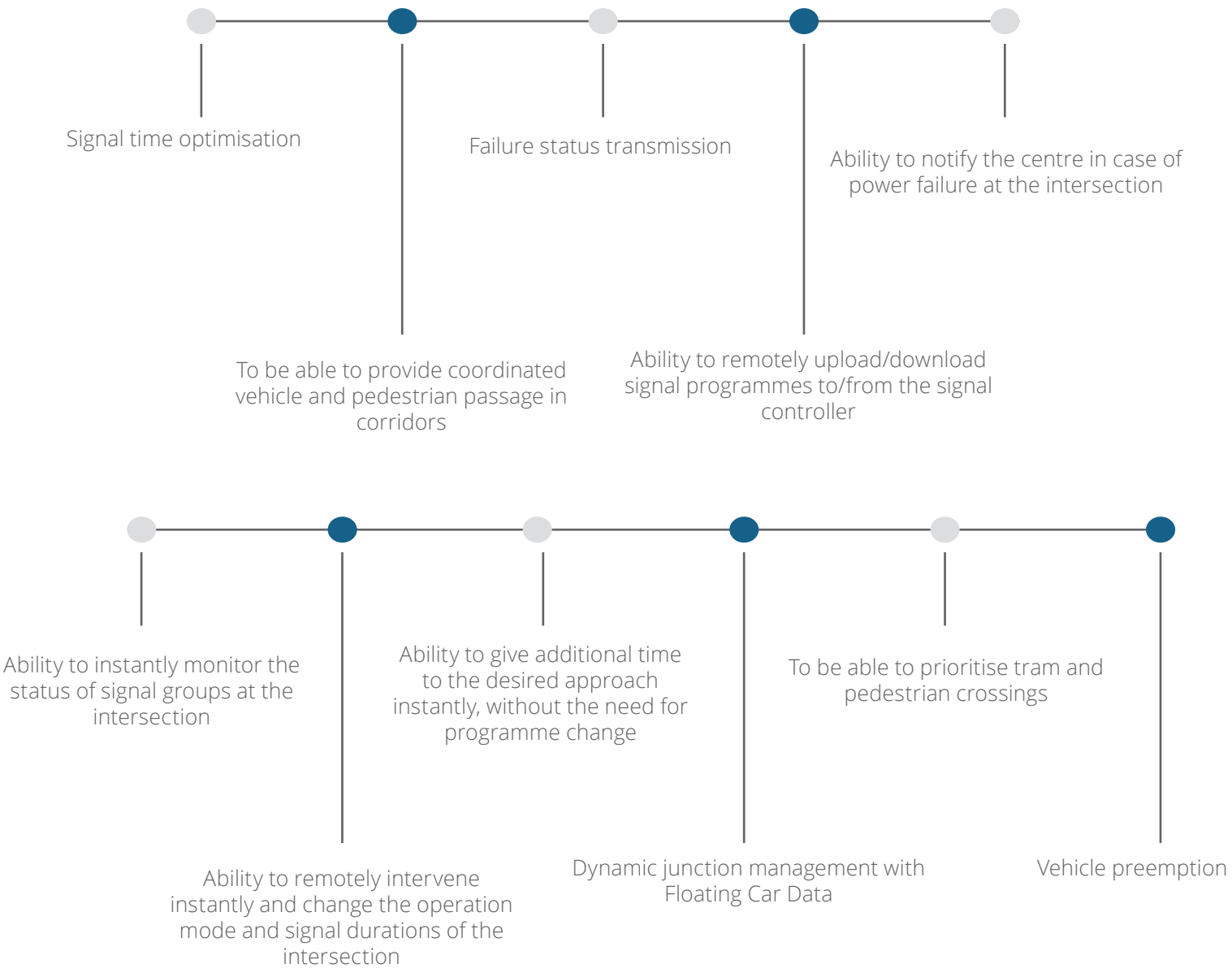
CENTRIS is a multi-functional control unit, which is used for junction management, signal optimization and the remote control of any traffic sensor/device including the detection of failures. Its high-speed processor allows analyzing collected data from various sensors in real time, and running the customized algorithms inside.

CENTRIS module instantly analyses the data such as vehicle count and vehicle density data produced by Vehicle Counting Cameras VIERO-AI, to be placed on the junction to optimise the traffic light durations continuously. Thus, the average waiting times such as the delay of the vehicles at the traffic lights are reduced.

CENTRIS works integrated with the Traffic Control Centre software MANGO. Signal programmes prepared through MANGO can be uploaded to CENTRIS with remote access.



Centris Abilities



Everything is under control

CENTRIS

Dynamic Junction Control Unit.

General Specification	Processor	ARM Cortex-A8
	Serial Communication	SPI, I2C, RS232 USB and Digital I/O Units
	Memory	512MB RAM, 4GB Storage, SD Cart
	Network	100Mbit Ethernet, GSM Quad Band
	Supported Protocols	NTCIP, OCIT, Customized Communication Protocols
	Power Consumption/Power Input	10W / 220V AC
	Housing	IP54
	Operating Temperature	-10°C ~ +85°C
	Dimensions (LxExD) (With/without box)	250mm x 305mm x 115mm / 205mm x 130mm x 50mm
	LCD Screen to Display (The Current)	Time/Date, phase status, working status, connection status
	Minimum Data Transmitted to Traffic Control Center Software	ICU (Time/Date, instant fault recording, working status, Instant Status of ICU output cards
	Wehigt (With/Without Box)	1740 gr / 685 gr



MANGO

Next Generation City Traffic
Management Platform



MANGO

Next Generation City Traffic Management Platform

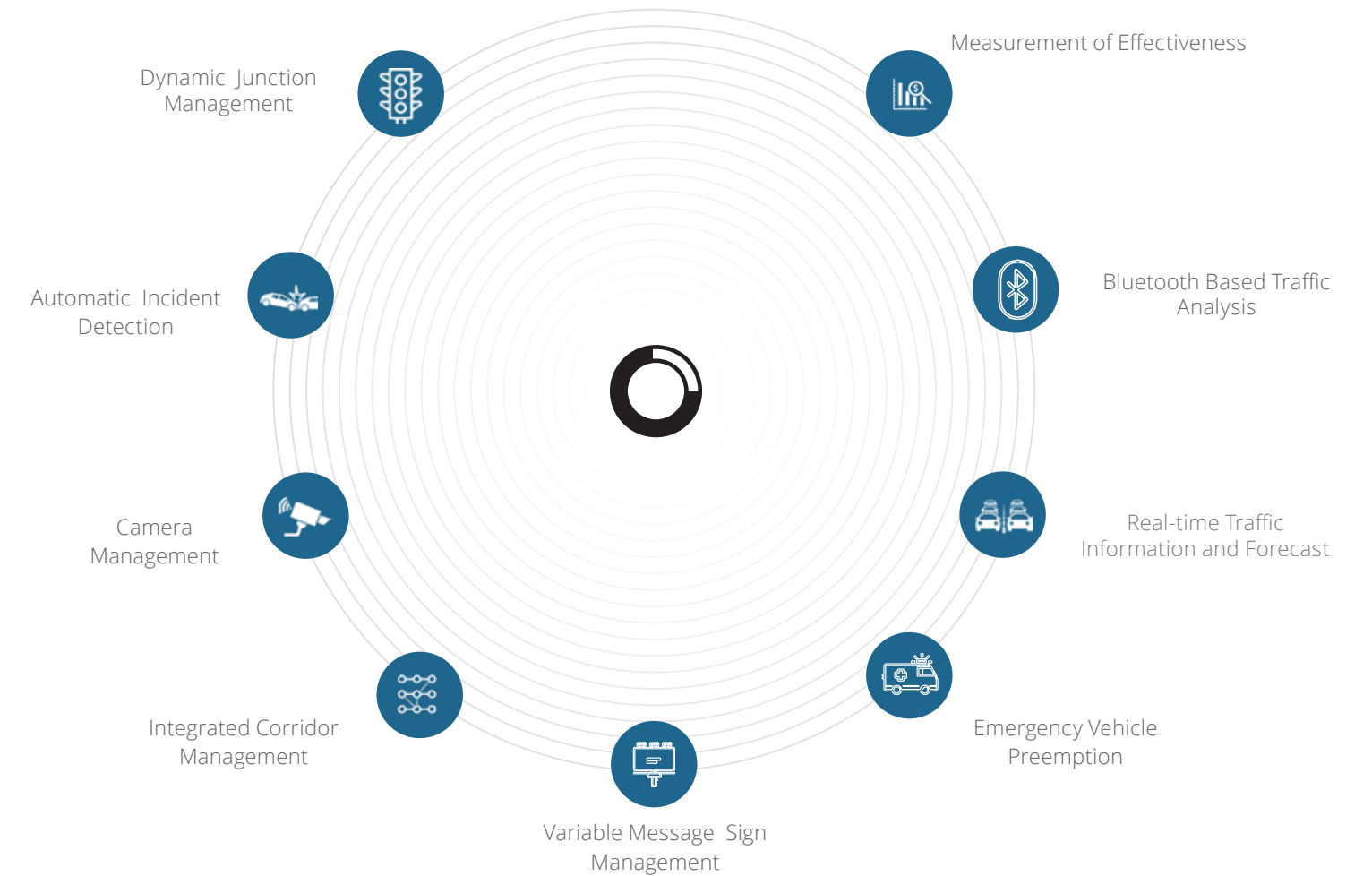


MANGO is a traffic management software, which is able to monitor, analyze, manage and control a variety of traffic systems and sensor sets from a single, user-friendly, web-based interface. The software increases the traffic management capabilities of cities by offering an **interoperable city traffic management environment**.

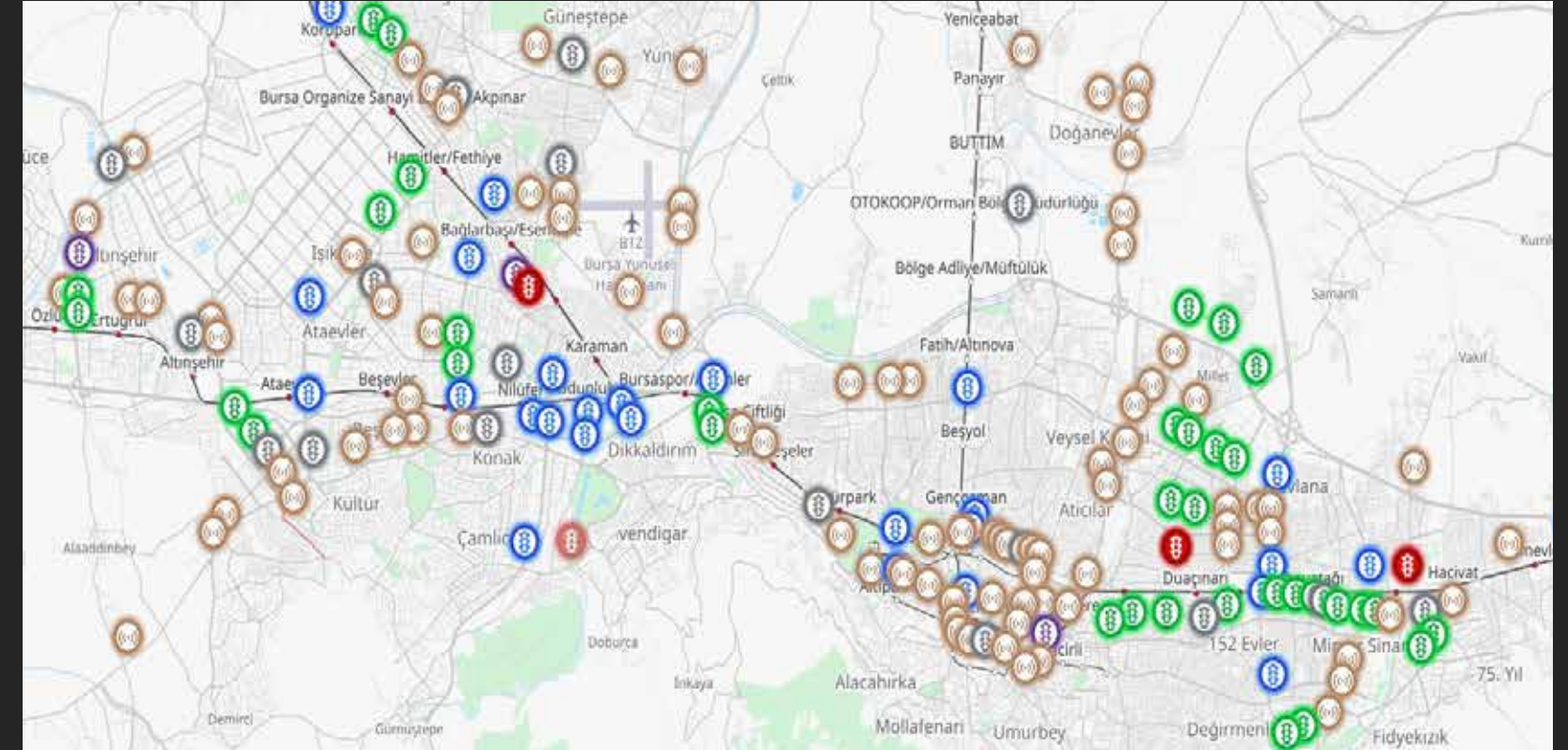
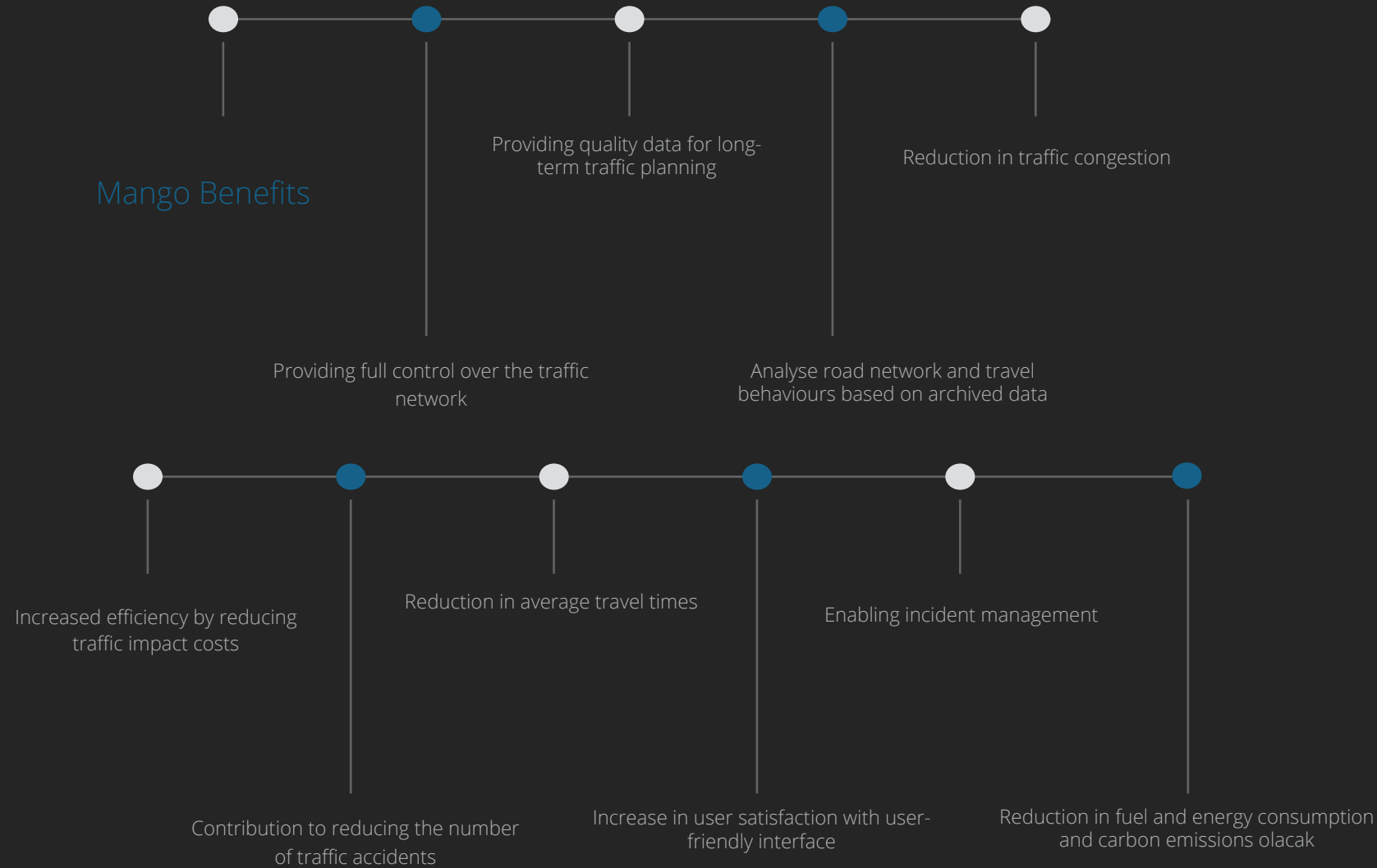
MANGO, based on a digital map, is a totally web-based software which enables the remote control of junctions, perform statistical analysis based on selected data and time, communicate with junctions 24/7.

MANGO users have access to a highly flexible and scalable platform, with various applications that can be added as plug-ins to the software. It means that, MANGO can solely be a dynamic junction management software, but it can also be enhanced with real-time traffic information from different data sources such as Floating Car Data (FCD), smart cameras, GPS data, magnetic detectors etc.

MANGO Modules.



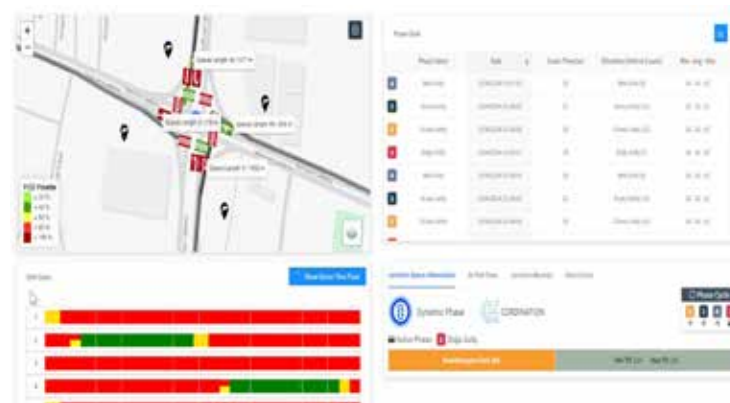
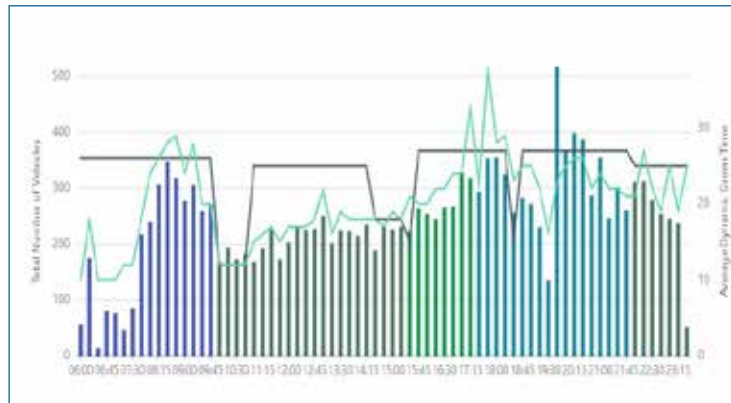
Mango Benefits



MANGO
An **interoperable** city **traffic** management
environment

MANGO

A platform that connects live to intersections
and is in contact 24/7.

[illegible]

CFM FCD Supported Dynamic Junction Management.



What we care.

Simple and Intuitive User Interface

Communication between the system and the users is established quickly and easily from a single intuitive user interface in our software. Users both have a holistic management opportunity and can easily access customized data/reports according to their needs.

Open Data, Platform ve API

The methods of our software are open to third-party developers. Developers who want to access the system interface could use the shared API information and the system can integrate with new devices/applications.

Interoperability

Our traffic management software has a system design that can work with third-party software. Any kind of integration levels are allowed for MANGO.

Security

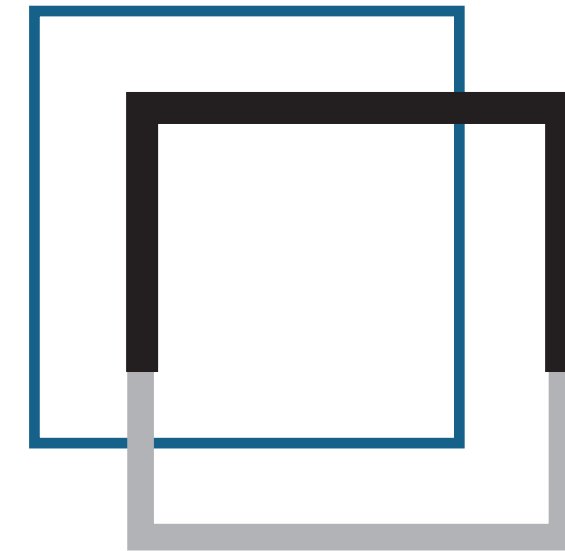
Our software is protected with encryption at the device level and at the center to secure the sensitive data of existing applications.

Scalability

Our software is scalable and %99 available, and it has an architecture that can process trillions of data regardless of system and sensor size.



BLUESIS
Bluetooth Based
Traffic Analysis System.



BLUESIS

Bluetooth Based Traffic Analysis System.

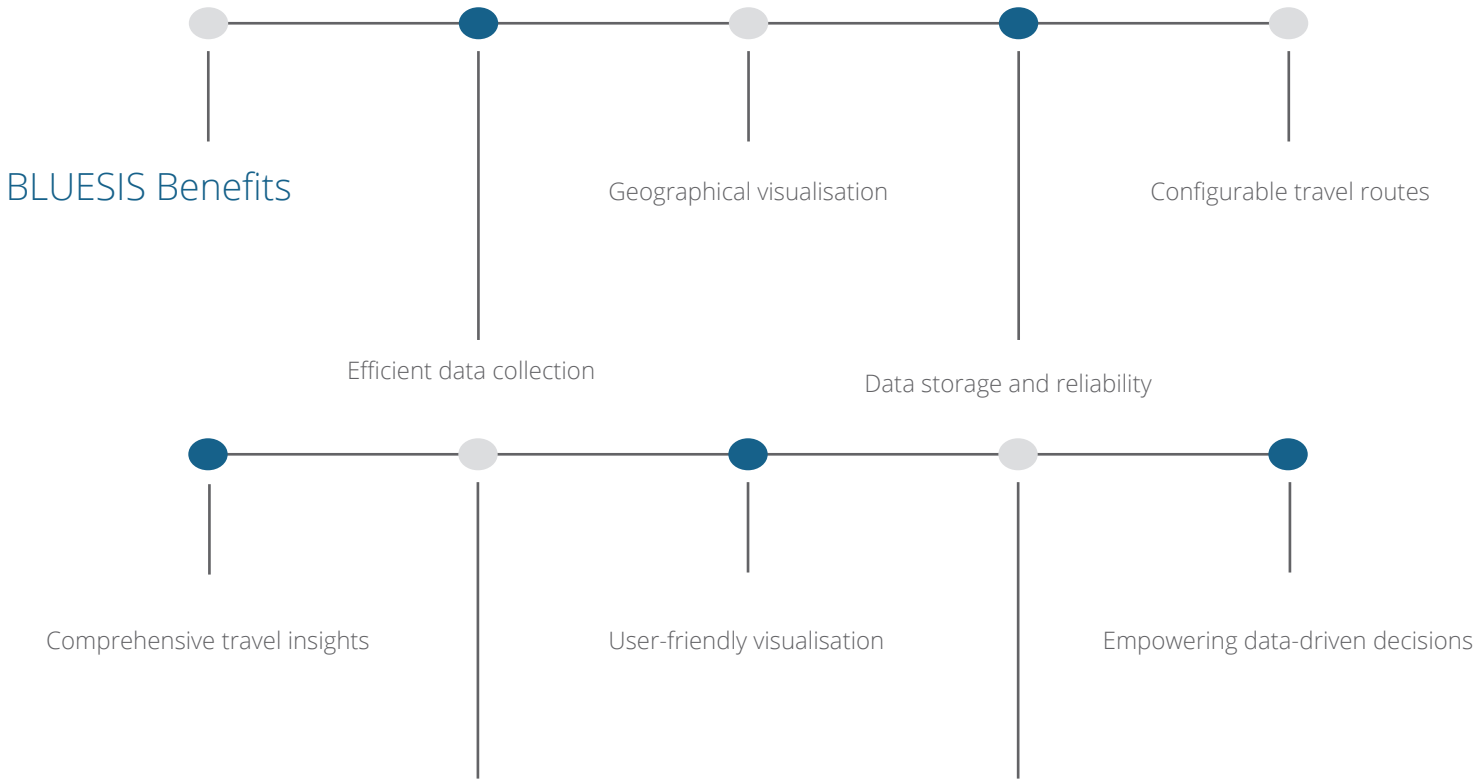
"Your travels are under surveillance with BLUESIS"

Bluetooth Based Traffic Analysis System BLUESIS, positioned across diverse city locales, has the ability of catching unique MAC addresses of Bluetooth-enabled devices such as, in-vehicle audio systems, headsets, mobile phones etc. By leveraging this data,

MANGO Bluetooth Analysis Module performs comprehensive calculations to determine travel durations and speeds for each route on a per-minute basis. This module not only derives average travel time and speed

between pairs of these sensors, but also provides vehicle trajectories and daily distribution of interzonal travel in an Origin-Destination matrix with percentage-based representations.

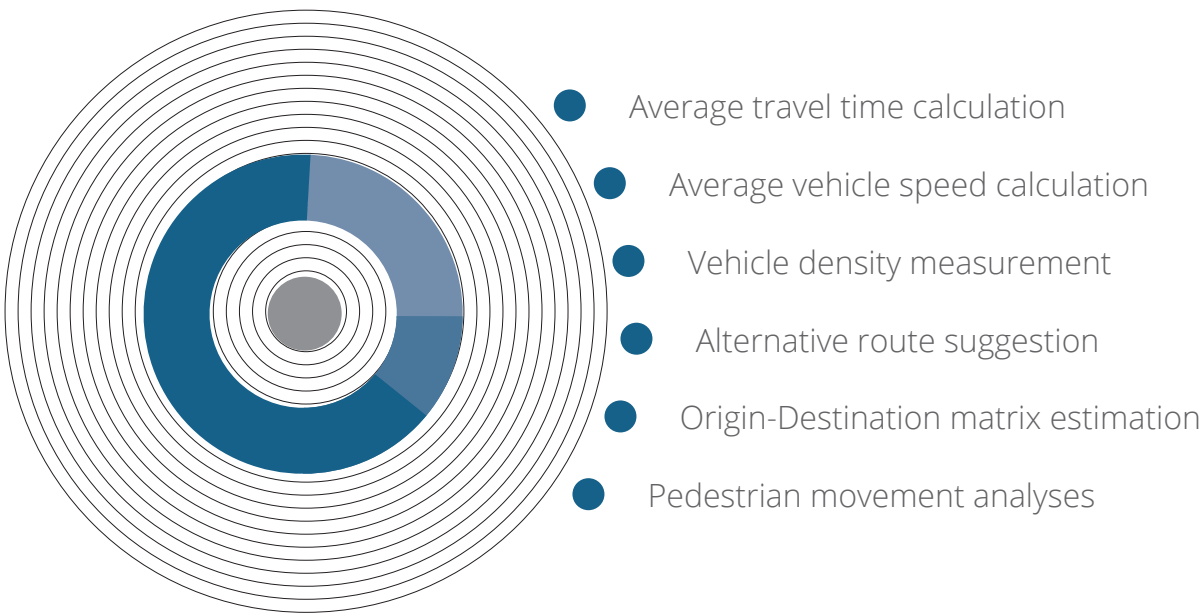
BLUESIS has bi-directional range up to 200 meters and IP65 enclosure which has maximum performance in all weather conditions. BLUESIS can even work with solar energy panels thanks to the low power consumption feature.



BLUESIS

Bluetooth Based Traffic Analysis System.

BLUESIS Analyses



BLUESIS

Bluetooth Based Traffic Analysis System.



Easy Installation and Integration

Remote configuration
Easy and fast installation
without calibration
Integration with Traffic
Control Centers in OCIT/
NTCIP standards.



Low Power Consumption, Wide-ranging Sensing

Detection range with a
radius of 100 meters
Ability to work 24/7 in all
weather conditions
IP 65 enclosure
Low power consumption
Ability to work with solar
panels (12V DC) or 220V AC
3G/4G/4.5G and wired
communication support.



Wireless Data Transfer

BLUESIS can transmit data
wirelessly. Thus, it is not a
big challenge to install the
system in site locations
where the infrastructure
is not available. BLUESIS
also can save collected data
onto an SD memory card
and prevents data
loss in case of failure in
communication channels.

General Specifications	Operation System	Linux Based OS
	Detection Distance	100 m radius, 200 m range
	Speed Detection	Average speed in every 1 min.
	Data Transfer	Integrated GSM Module, Ethernet
	Setup	User Friendly Interface
	OD Matrix	Distribution of Vehicle Routes in the Traffic Network
Hardware Specifications	Processor	ARM Cortex-A8
	Side Unit	SPI, I2C, USB ve Dijital I/O Units
	Memory	512MB RAM, 4GB Storage, SD Cart
	Bluetooth	Single/Double Channel
	Network	100Mbit Ethernet, GPRS/GSM Quad Band
	Power Consumption	5W
Other Specifications	Power Input	9-18VDC (Solar Panel), 220VAC
	Enclosure	4,2 Meters
	Operating Temperature	(Plate, System Name, Date, etc.)
	MTBF Value	Plates with Non-Reflective Floor (Rectangular, Square)
	Weight	2.5 Kg
Housing Specifications	Dimensions	106 x 159 x 180 mm (GxYxU)
	Material	Reinforced Plastic

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Complete Mobility Provider

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