oosto

i³ Technologies Corporation PARTNER

Company Overview

Don't Let Threats Go Unrecognized

Transform passive cameras into active security systems

Oosto takes the guesswork out of automating person of interest (POI) alerting, access control and mobile surveillance to quickly spot bad actors, identify high value customers and ensure better user experience.

Security and operations teams are driven to recognize threats to safety, as well as optimizing customer experience. Their success depends on accurate and fast identification of people.

The human eye alone is imperfect, and most software that automates the recognition of individuals on watchlists underperforms in real-world conditions.

Powered by Vision AI, Oosto helps protect your employees and premises with automated watchlist alerting, contactless access control and mobile surveillance — without adversely impacting the user experience.

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Our Solutions

The Vision AI Platform:
The Platform that Underpins our Technology Stack

Oosto's Vision AI platform leverages a number of state-of-the-art technologies including machine learning, liveness detection and biometrics to help protect an organization's physical access points. By identifying authorized personnel and persons of interest in real-time — whether VIPs or bad actors — modern enterprises can layer in additional operational insights to streamline the customer experience. Vision AI is being used to optimize frictionless access control, video surveillance, and watchlist alerting.

OnWatch
Protect people and premises by recognizing and responding to threats

An automated watchlist alerting system that identifies persons of interest and their contact history in real-time. This video surveillance solution identifies persons of interest (e.g., felons, shoplifters, employees and VIPs) through both face- and body-based recognition in real-time, and sends automatic alerts to your security and customer service teams.

OnAccess
Improve entry experiences while enhancing safety

A frictionless access control solution that uses facial recognition to open guarded points of entry for authorized people through privacy compliant and spoof-proof face recognition. By using face-based biometrics and liveness detection to verify authorization, organizations can overcome the shortcomings of traditional passcodes, card keys and fobs which can be shared, lost or stolen.

OnPatrol
Safeguard law enforcement with tactical, face-based surveillance

A tactical facial recognition application for Android smartphones that protects law enforcement and military personnel by connecting to existing body cameras and analyzing video streams in real time, using on-the-go Vision AI technology - helping to identify persons of interest such as criminals, dangerous individuals, or even missing children.

What Makes Us Unique

Superior Recognition

Oosto's neural nets are trained in the toughest conditions on low quality images and have been tested by the most demanding users to ensure the highest accuracy in real-world conditions. This accuracy translates to 0.1% false alarms and 0.2 ms detection speed.

Streamline Investigations

Search video for people and personal attributes through software that indexes each individual and every attribute, and get instant answers. This capability lets you search for bad actors or persons of interest within historical video footage to further investigate security matters using our newest offline file-ingestion capability.

Edge Computing

Our platform pushes more of this processing to the actual cameras (via embedded SDKs) and dramatically reduces the need for expensive, on-premise servers and expensive GPUs, fundamentally changing the historical paradigm for large-scale video security and biometric-based access control.

Advanced Privacy Controls

Oosto automatically blurs the faces of non-targeted individuals on video playback and even offers a privacy mode which discards all detections of non-enrolled (non-watchlist) individuals.

Multisite POI Management

Centrally manage watchlists, track POIs across multiple locations, and control how POI data is managed, analyzed and distributed while receiving real-time alerts.

Crowded Environments

Oosto is capable of simultaneously identifying multiple individuals in crowded settings with a high degree of precision. As people enter the camera's field of view, our Vision AI platform will identify persons of interest in a fraction of a second.

Make Every Camera Smart

Oosto adds visual intelligence to your existing camera network and achieves the highest stream to server ratio, which maximizes the value of your investment.

Instant Query Results

Oosto provides the fastest video search - letting users scan, and instantly find, people and attributes - both in real-time and in historical footage.

Intelligent Zone Control

Create physical and digital barriers around any space with granular control so only authorized personnel are allowed into high-security areas and receive instant alerts when unauthorized people attempt to enter these zones.

Liveness Detection

Oosto's liveness detection technology ensures that every detected face is a real person by identifying spatial inconsistency and using an array of sensors that create a 3D face map to immediately detect spoofing attempts.

Commitment to Ethical Facial Recognition

Commitment to the ethical use of artificial intelligence sits at the heart of everything we do at Oosto. From designing balanced datasets and creating game-changing privacy features, to supporting regulation of the industry at large, we understand that as the pioneers of responsible facial recognition, we are accountable for laying the foundations for a safe and ethical future.

Six Principles of Artificial Intelligence Ethics

Oosto understands the great value that our technology and systems can provide to society. At the same time, we recognize that powerful technology has the potential to be misused if placed in the wrong hands. We have an inherent responsibility to ensure that our technology and products are used properly.

Oosto has adopted the following six principles for ethical facial recognition:

Fairness

Our software must be deployed in a manner that reflects a commitment to treat all people fairly.

Transparency

We shall communicate the capabilities and limitations of our software to our respective partners and customers.

Accountability

We shall ensure that the operation of our software is subject to human control, specifically for uses that may affect people in consequential ways.

Non-Discrimination

Our software must not be used for unlawful discrimination.

Notice and Consent

We instruct our partners and customers to provide adequate notice and secure consent in the deployment of our software.

Lawful Surveillance

We advocate for lawful surveillance and will not allow the deployment of our software in scenarios that we believe will undermine this risk.

The Industries We Serve

Transportation

Airports,
Train Stations

- Access Control
- Perimeter Security
- Watchlist Alerting
- Tailgating Alerts

Gaming

Casinos, Betting
Shops, and Stadiums

- Watchlist Alerting
- Access Control
- Money Laundering
- Identification of VIPS
- Multi-site Control
- Track POIs Across
  Multiple Cameras

Corp Buildings & BFSI

Smart buildings,
Financial Institutions,
Data Centers,
Campuses

- Access Control
- Visitor Management
- Perimeter Security
- Mask Detection
- Tailgating Alerts

Government

Law Enforcement and
Homeland Security

- Access Control
- Watchlist Alerting
- Mobile Surveillance
- Perimeter Security
- Finding Missing Persons
- Expedite Investigations

Oosto's Partners

Oosto has teamed with leading strategic partners, system integrators, VMS solutions, chip manufacturers, cloud providers and OEMs to ensure that our technology can integrate with your existing systems - speeding up the time to value and increasing your ROI.

Global Channel Partners

Honeywell

convergint

Johnson Controls

PROSEGUR

Atos

Orion Security Solutions

Solution Partners

milestone

Genetec

Honeywell

SALIENT

BOON EDAM

tds

Technology Partners

Ambarella

NVIDIA

intel

Qualcomm

Oosto's Marquee Customers

Deloitte. | Morgan Stanley | Cedars Sinai | Ford

Sands LAS VEGAS SANDS CORP. | CHASE CENTER | macy's | verizon

The Global Leader in Vision AI

We are a core visual AI platform company with unmatched expertise in AI and deep learning, and a proven track record of designing, developing and deploying software to solve real-world problems.

$355M+ in Funding, Backed by a High-Quality Growth and Strategic Investor Syndicate

SoftBank | Lightspeed | FIFTH WALL

DFJ GROWTH | Qualcomm | Schneider Electric | IQT IN·Q·TEL

Built On the Most Cutting-Edge Research, Deployed with Tier 1 Companies Around the Globe

Oosto's world-leading algorithms are fueled by our proprietary neural networks, and are designed, developed, tested and commercially deployed with leading organizations across the globe to ensure the highest accuracy in challenging, real-world conditions.

500+
Customers, including many Fortune 500

100+
Experts across four major geographies

20+
PhDs with deep knowledge and real-world expertise

Visit **www.oosto.com** to learn more and schedule a personalized demo.

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Protect your people and premises with

Watchlist Alerting

Recognizing and responding to threats to safety and optimizing customer experience is what drives security and operations teams, and their success depends on accurate and fast identification of people.

The human eye alone is imperfect, and most software that automates the recognition of individuals on watchlists underperforms in real world conditions.

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Top 5 Challenges Facing Building Operations & Security Teams

1

Slow response times to real-world situations leads to safety breaches

2

Lack of situational awareness about the people in your space

3

High cost of adding new technology to legacy infrastructure

4

Public privacy concerns that make recognition technologies risky

5

Siloed location data prevents centralized decision-making

6

Analyzing footage quickly from disparate media sources

Capabilities That Solve These Challenges

Automated POI Alerting

Identify a person of interest (POI) and the people they have come in contact with through both face and attribute recognition in real-time or in historical footage, and get an alert instantly on any device.

Dedicated Mobile App

Solve critical safety challenges on-the-go with our new watchlist alerting application and provide your security teams with real time access to your site dashboard and the ability to update their teammates on alert statuses, directly from their phone.

Privacy Compliance

Detect and recognize only POIs, control viewing privileges of your team, and protect the privacy of bystanders.

Video Search

Search video for people and personal attributes through software that indexes each individual and every attribute, and get instant answers.

Centralized Intelligence Dashboard

Centrally manage watchlists across locations and control how POI data is managed, analyzed and distributed while receiving real-time alerts.

Existing Infrastructure Optimization

Deploy software that uses computing power efficiently and requires minimal changes to your visual sensor infrastructure.

Oosto Inquiry

As an add-on module to OnWatch, swiftly ingests hours of offline video from a variety of cameras to search for and identify likely suspects in minutes.

Benefits to the Organization

✓

90% increase in security team productivity

✓

Increase safety without adding new infrastructure

✓

Protect without compromising privacy

✓

Conclude investigations faster

✓

Make better, faster decisions with complete knowledge

What Makes Oosto Different?

Superior Accuracy

Oosto's neural nets are trained in the toughest conditions on low quality images and have been battle-tested by the most demanding users and academic standards to ensure the highest accuracy in real-world conditions.

Active Privacy Controls

Oosto's technology was engineered to comply with privacy regulations while giving operators the tools to protect privacy and ensure compliance, including bystander blurring, dynamic data retention times and hard data deletes.

Make Every Camera Smart

Oosto adds visual intelligence to your existing camera network and achieves the highest stream to server ratio, which maximizes the value of your investment.

Instant Query Results

Oosto provides the fastest video search, letting users search and instantly find people and attributes in real-time and in historical footage.

Unlimited Scale

Oosto rapidly and cost-effectively scales visual intelligence from edge to cloud across unlimited locations.

Customer Success Stories

Major U.S. Retailer

CEO-backed initiative to reduce shrinkage led the security team to select Oosto to improve safety of employees and reduce crime at 290 stores around the country.

2x
increase in identified theft incidents

2x
increase in recovered merchandise

6 month
return on investment

Top Hospitality & Entertainment Business

One of the world's largest entertainment and hospitality companies uses Oosto to protect its staff, strengthen its regulatory efforts and reduce the manual effort of risk mitigation.

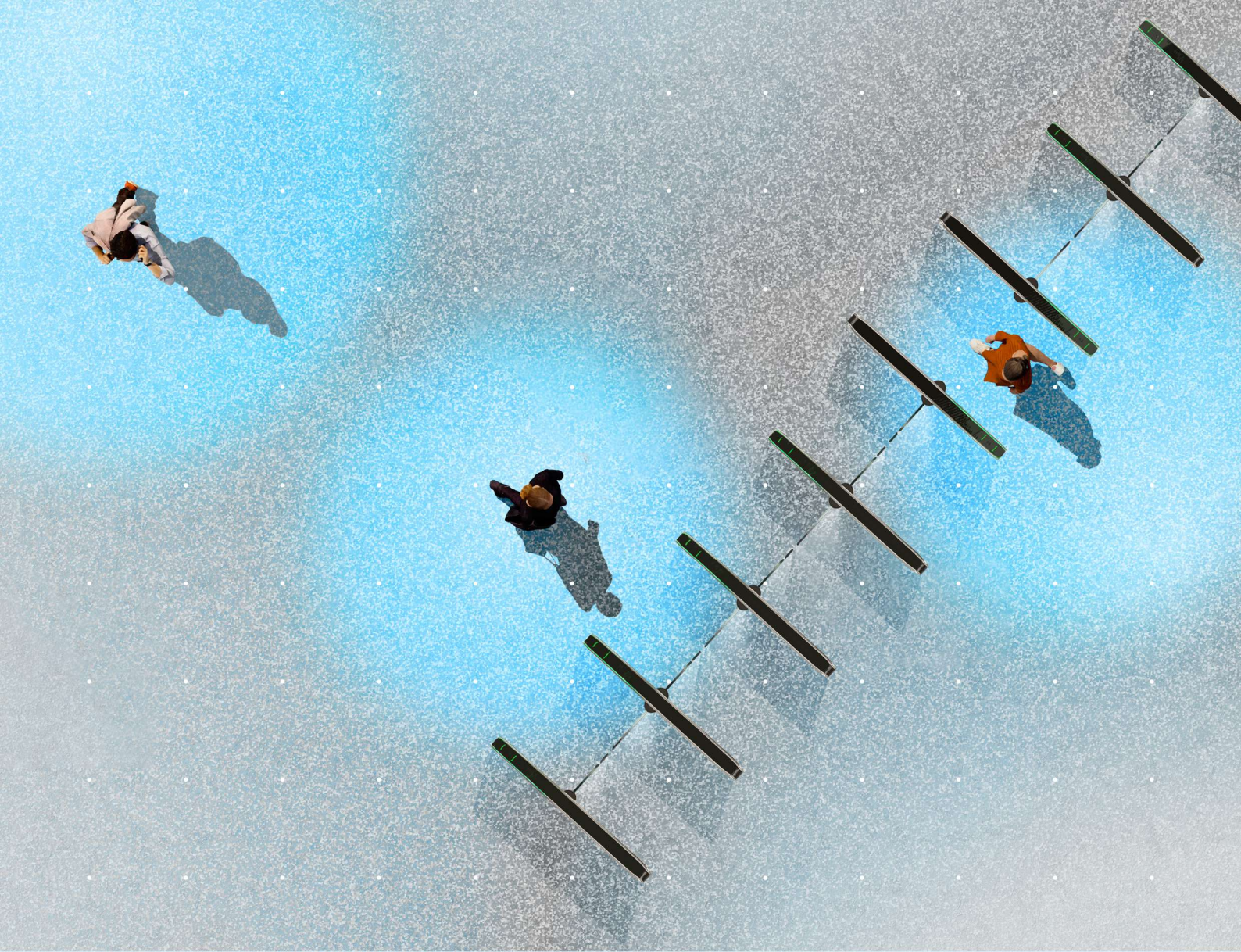**1900%**
increase in apprehensions in one month (from 2 to 40)

40%
increase in identifications of previously unknown threats

$1M
saved in one year

Touchless Access Control

Move people through spaces
safely, quickly and seamlessly

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Create better entry experiences while enhancing safety by providing touch-free, frictionless access through privacy-compliant and spoof-proof face recognition.

Optimize the way people
move through your space

Keep people safer
by better controlling
access to spaces

Stop exposure risk
related to surface
contact and crowding

Benefits to the Organization

Provide secure entry
with superior accuracy
and privacy controls

Subsecond entry for
authorized personnel

Scale quickly by optimizing
existing systems and infrastructure

Capabilities & Features

01

Secure Entry Screening

Identifies people within the field of view of a camera who are authorized to enter, without requiring the removal of masks

Spoof protection
Verifies a person's liveness and stops spoofing from a print or digital image by detecting inconsistency through existing cameras, or with a 3D map created by AnyVision's Abraxas Point tablet

Easy-to-customize alerts
Generates instant dashboard alerts for people on the notification lists, configurable by group, location and time

02

Accurate & Frictionless Recognition

Delivers a truly frictionless experience with the fastest and most accurate recognition in the industry

Touchless access
Eliminates the need to touch any surface by using face recognition to verify an authorized identity at entry points and internal spaces without the need for physical barriers

Seamless entry
Ends bottlenecks and improves entry flow by detecting authorized people 2 -3 meters from the camera, without requiring them to slow down or stop

03

Existing Infrastructure Optimization

Quickly deploy at scale and seamlessly integrate with your current access control system

Smart integration
Comes pre-built with integrations to leading access control vendors and with APIs that enable integrations to any system

Multiple deployment options
Can be used on AnyVision's Abraxas Point tablet or paired with existing cameras and entry hardware like turnstiles and elevators

System Technical Specifications

System Component		Performance and Limitations
System	Architecture	On Premise
		On the cloud (Google, Azure, AWS)
Integrations	Camera integration	Run up to 10 cameras or 20 Abraxas Points per single GPU
	Access control system integration	Automatically syncs reference picture, card information and basic info to Abraxas Server
Detections	Capabilities	Face
	Accuracy	Up to 99.9%
	Speed	0.43ms per 1000 faces
	Minimum face size	Minimum 60x60 pixels
Recognitions	Capabilities	Face
	Accuracy	Up to 99.9%
	Recognition	1:N
	Re-ID speed	0.2ms
	Minimum face size	60x60 pixels
	Maximum enrolled faces	350,000 faces
Data Base	Database size	Up to 350,000 people

Technical Specifications

System Component		Performance and Limitations
System	OS	Android 8.1
	Display	Touch 8-inch
	Reset Key	1 Reset Key
	Face Illumination LED	White LED
	Communications	Ethernet/WiFi
	Power Supply	12V/2A
	Audio	Digital Audio Speaker, Microphone
	Front Camera	3D Depth Sensing Camera + RGB camera
	Peripheral Port	1 DC Port, 1 RJ45
Integrations	I/O Integrations	Using Moxa e1214 on Abraxas Point or Wiegand support using ABX server
Detections & Recognitions	Face Recognition Distance	0.3 m to 3 m
	Maximum Enrolled Faces	10,000 faces on the stand-alone Abraxas Point tablet
General Information	Certification	CE, FCC
	Environmental	Operating temperature: -10°C ~ 45°C Storage temperature: -25°C ~ 60°C
	Dimensions	272 (L)*135 (W)*30 (H)
	Brackets (optional)	Wall Mount Bracket, Turnstile Mount Bracket

Server Specifications When Streaming via IP Camera

ANV Part Number	Max Streams	GPU	CPU	Memory	OS SSD (Mirrored)	SAS (NVME) SSD	HDD SATA	Network
ANV-ABX-r4000S1A	10	1 * RTX4000	1 * Xeon Silver 4214R	64 GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S2A	20	2 * RTX4000	1 * Xeon Silver 4214R	64 GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S3A	30	3 * RTX4000	2 * Xeon Silver 4214R	128GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S4A	40	4 * RTX4000	2 * Xeon Silver 4214R	128GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S5A (available on HPE server only)	50	5 * RTX4000	2 * Xeon Gold 6230R	192 GB (HEXA Triple Channel)	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB

Technical Assumptions
Watchlist size: up to 100K | Camera FPS: up to 15 | Camera resolution: 2MPX | Server Models: DELL R740/ HP DL380

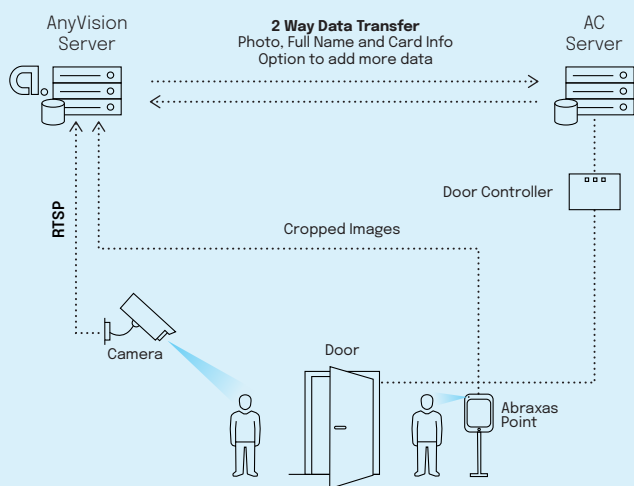# Server Specifications When Streaming via Tablet

ANV Part Number	Max Streams	GPU	CPU	Memory	OS SSD (Mirrored)	SAS (NVME) SSD	HDD SATA	Network
ANV-ABX-r4000S1A	20	1 * RTX4000	1 * Xeon Silver 4214R	64 GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S2A	40	2 * RTX4000	1 * Xeon Silver 4214R	64 GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S3A	60	3 * RTX4000	2 * Xeon Silver 4214R	128GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S4A	80	4 * RTX4000	2 * Xeon Silver 4214R	128GB	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB
ANV-ABX-r4000S5A (available on HPE server only)	100	5 * RTX4000	2 * Xeon Gold 6230R	192 GB (HEXA Triple Channel)	2 * 512GB	2 * 1TB	2 * 4TB (RAID 1)	10GB

Technical Assumptions
Watchlist size: up to 100K | Server Models: DELL R740/ HP DL380

Integration & Architecture

Integrations with access control systems provide for the import of an entire personnel list and/or personnel groups in order to trigger the door controller to open an entry point with or without a dry contact or Wiegand protocol.

Integration Architecture Software-Only

AnyVision Server — **2 Way Data Transfer** Photo, Full Name and Card Info Option to add more data — AC Server

RTSP

Door Controller

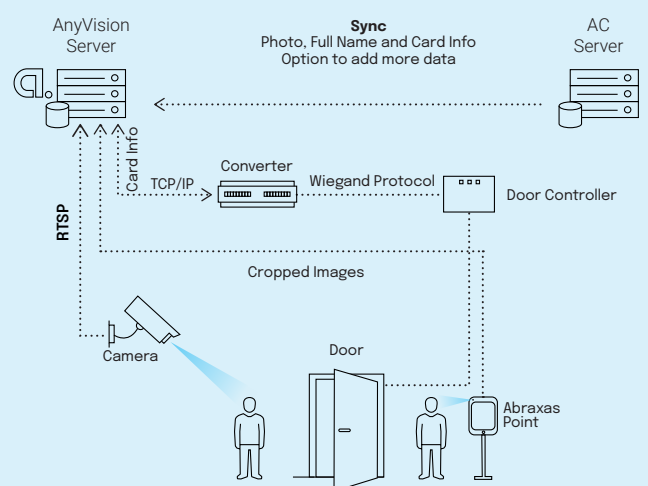Cropped Images

Camera

Door

Abraxas Point

Supporting integrations with key access control systems*:

Genetec Security Center V5.9.4
Honeywell Prowatch V4.35 & V4.5
CCure 9000 V2.7 & V2.8

*As of April 2021

Integration Architecture with a Wiegand Converter

AnyVision Server — **Sync** Photo, Full Name and Card Info Option to add more data — AC Server

RTSP

Card Info

TCP/IP — Converter — Wiegand Protocol — Door Controller

Cropped Images

Camera

Door

Abraxas Point

Supporting integrations with key access control systems*, including:

Genetec Security Center V5.7 & V5.8
Lenel OnGuard V7.6
NEDAP AEOS 2019.1.3 & 2020.1
Bosch BIS V4.7

*As of April 2021

OnPatrol
Data Sheet

Protect Your Officers, Anytime, Anywhere.

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Oosto OnPatrol is a tactical surveillance mobile application that protects law enforcement and military personnel by recognizing and offering real-time alerts about Persons of Interest (POIs) on their mobile device (e.g., phone, bodycam).

OnPatrol de-escalates potential threats and prevents casualties on both sides by identifying criminals and dangerous individuals in real-time through Vision AI technology. It is designed specifically to recognize and check people's faces against a watchlist of persons of concern in real-world conditions, including people in motion, in dim lighting, at occluded angles, when partially obscured by other people and even with heavy make-up.

The application features all the benefits of our desktop platform on your mobile Edge device, in addition to unique, on-the-go capabilities, helping to better protect law enforcement agents and security officers while also achieving a higher level of operational efficiency and flexibility on the ground, without the need of powerful on-premise servers.

Works completely offline and doesn't require backend connectivity.

Police Protection

- Improve police safety by allowing officers to assess the threat level of people around them in either 1:1 encounters or in group environments
- Whether underground, in a remote area, or around hundreds of people, never let weak or non-existent internet connections block your people from receiving the watchlist alerts they need in real-time
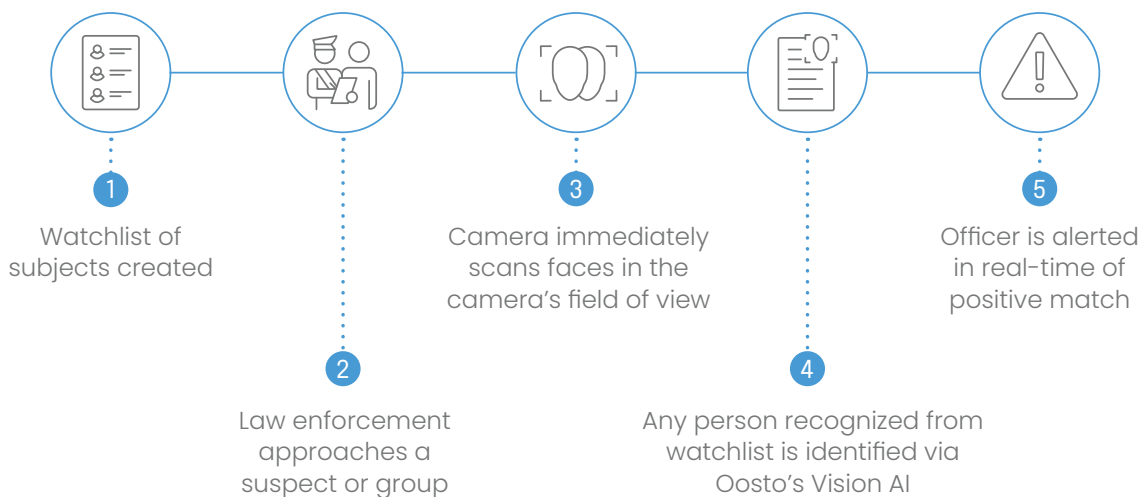
No CCTV Cameras, No Problem

- Analyze mobile camera or body camera video footage (or other non-traditional means of capturing video footage, such as camera glasses) directly on a mobile device
- Synthesize video data right at the ingestion point (the camera) which eliminates significant costs for data servers, additional bandwidth, and infrastructure costs usually associated with high-volume video collection and analysis

Built for Real World

- Immediately identify known criminals or persons of interest
- Never let disguises or masks block your team from identifying subjects on your watch list
- Easier, more efficient and more accurate than the human eye
- Never worry about misidentification again and be certain you've apprehended the right individual

How This Technology Works

1 Watchlist of subjects created

2 Law enforcement approaches a suspect or group

3 Camera immediately scans faces in the camera's field of view

4 Any person recognized from watchlist is identified via Oosto's Vision AI

5 Officer is alerted in real-time of positive match

Key Features

Subject Enrollment
Enroll/delete a person of interest by detection either from still images or from live streams

Subject Recognition
Receive an alert when a subject is recognized in real-time

Watchlist
Create a subject database by uploading single or multiple images or adding existing detections

Track Subject Location
Track a subject's appearances and mark them to create a geographic route

Alert
Define an alarm preference (audible or vibration)

Search Backwards
Search for subjects through all earlier detections

Camera Management
Configure a set of connected cameras and switch between them during run-time
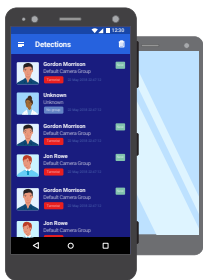
Search, Export & Delete
Export data for further analysis, set automatic deletion rules and customize deletion options
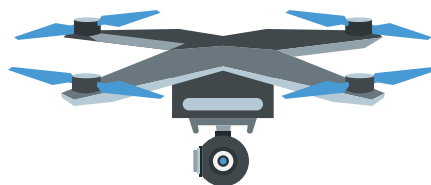
Covert Mode
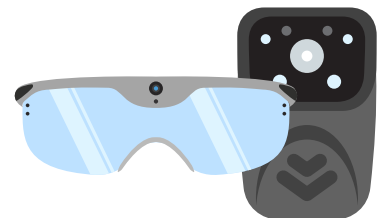Operate in hidden mode to attract no attention

Make Your Cameras Smart

Mobile Phones

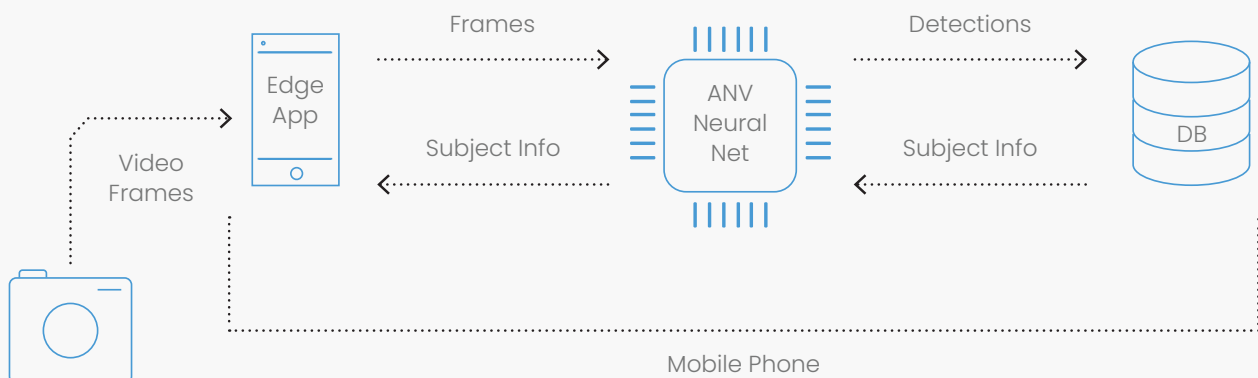### External Devices

Wearable Camera

Minimum System Requirements

System Component	Performance and Limitations	
Mobile phone	Architecture	On mobile designated smartphones
	Software/hardware	Software Only (on designated smartphones)
		Software + HW (can be supplied by Oosto)
Integrations	Camera integration	Direct Wi-Fi RTSP cameras or direct USB cable connection.
		One active RTSP video stream supported at any given time.
Detections	Capabilities	Facial
	Accuracy	Up to 99.9%
	Speed	273ms per 1000 faces
	Minimum face size	Minimum 45x45 pixels
Recognitions	Capabilities	Facial
	Accuracy	Up to 99.9%
	Recognition	1:1, 1:N, M:N
	Re-ID speed	101ms
	Minimum face size	45x45 pixels
Data Base	Database size	Up to 10k subjects
Storage	Tracks	Depends on mobile device storage.
		1GB of storage holds 2600 detections.
		Samsung S9 device, with 64GB, can hold up to 135K detections.
Battery	Up-time	Connected to an external camera in background, mobile device can last up to 10 hours.

Technical Specifications

Component	Minimum Supported
System	Samsung 9 or higher
Mobile Phone Chipset	Qualcomm SDM 845 / 855 / 888
GPU	Adreno 630 or higher
CPU	Octa-core (4x2.8 GHz Kryo 385 Gold & 4x1.7 GHz Kryo 385 Silver) or higher
Memory	6 GB RAM or higher
Storage	64 GB or higher
Operating System	Android 8 or higher
Operating System	External USB camera
	External Direct Wi-Fi RTSP camera

System Architecture

Frames

Detections

Edge
App

ANV
Neural
Net

DB

Video
Frames

Subject Info

Subject Info

Mobile Phone

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About Oosto

Top performing organizations use Oosto's AI-driven computer vision to improve customer experience while enhancing safety.

Our recognition technology is built into industry leading touchless access control and automated watchlist alerting capabilities that perform with unrivaled accuracy, speed and efficiency in the most challenging conditions. Oosto's mission is to make the world a safer, more intuitive and more connected place.