





MATRIX FACE RECOGNITION



Why MATRIX Face Recognition?

Higher Productivity



Office Employee
Productivity



Field User
Productivity



Productivity of HR
and Admin



Productivity of
Manufacturing Unit

Higher Security



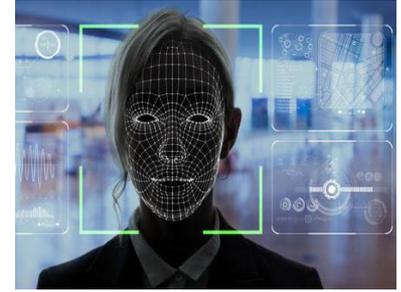
People Security



Physical Asset
Security



Data Security



Prevent
Unauthorized Entry
in Sensitive Areas

Higher Discipline



No Time Theft



No Extra Break Hours



No Tail-Gaiting



No Excuses Due to Poor
Performance of
Finger/Palm Reader



No Manual Attendance
Correction



On-Time Field
Meetings

Conventional FR v/s Matrix COSEC FR

Conventional FR		Matrix COSEC FR
Image Processing (Template based)		Deep Learning Technology
Issues with Varying Height of Users		Consistent Performance for Varying Heights
High Identification Time for More Users		Consistent Performance Regardless of Users
Poor Performance in Sunlight or Low Light		Stable Performance Under Varying Lights
Fixed Deployment		Multiple Deployment Methods
No location Tracking		Location Tracking through GPS

Conventional FR v/s Matrix COSEC FR

Conventional FR		Matrix COSEC FR
Difficult to Use	 A black icon of a hand with fingers spread, representing difficulty or complexity.	Simple to Use and Deploy
Immobility	 A black icon showing two arrows crossing each other, representing immobility or lack of movement.	Mobility
Disparate	 A black icon of a central node connected to four other nodes, representing a centralized or disparate network structure.	Centralized
Inflexible	 A black icon showing a downward arrow pointing into a box with two upward arrows pointing out, representing inflexibility or a rigid structure.	Flexible
Inaccurate	 A black icon of a target with an arrow hitting the bullseye, representing accuracy.	Accurate

COSEC FR Applications



Time-Attendance



Access Control



Visitor Management

COSEC Face Recognition Differentiators

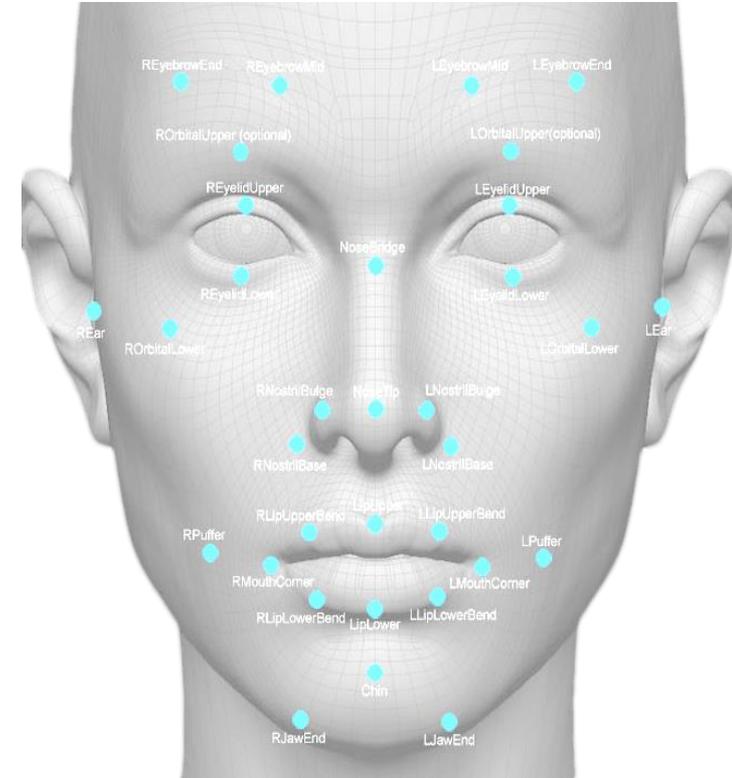
Deep Learning Technology



Deep Learning Algorithm



Convolutional Neural Network based
Matching



Deep Learning Technology - Working

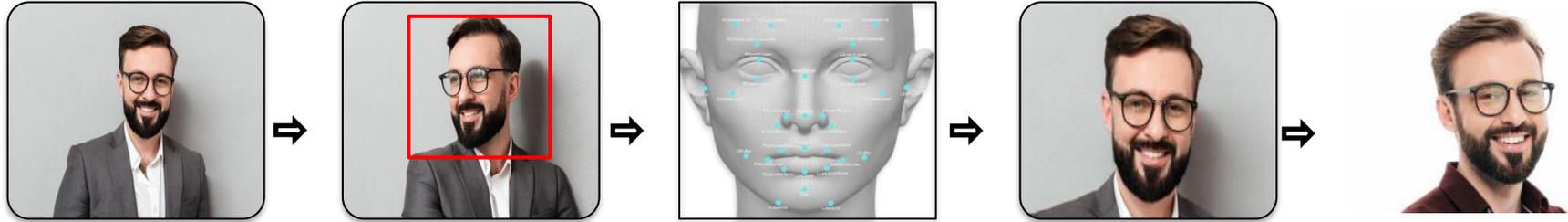


Image Capturing

Image Capturing from Real-time Video Stream

Face Detection

Face Detection and Extraction with Reference Nodal Points

Face Alignment

Face Familiarization by 2D/ 3D Alignment of Convolutional Layers

Face Representation

Pixels are Transformed into Feature Vectors - Templates

Face Matching

Similarity Score **98%**

Better User Experience



No Long Queues



Walk, Look and Go



Perform Special Functions from Device
UI/UX



Very High Throughput



Works with Different Usage Scenarios



Low Light Condition up to 30 Lux



Direct Light



Different User Heights



20% Covered Face



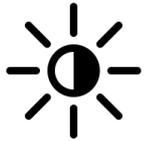
Higher Accuracy



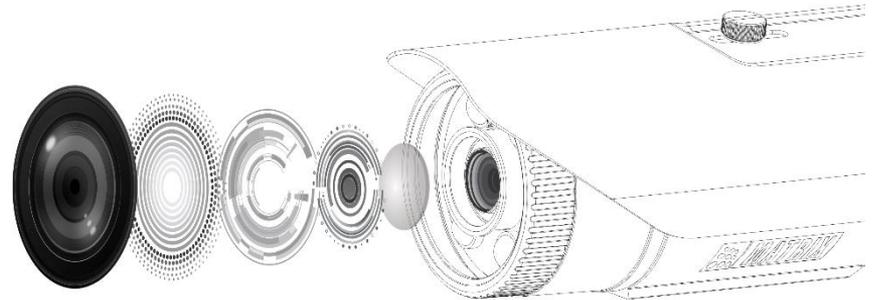
Industry Grade Surveillance Camera



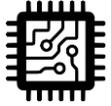
Exceptional Colored Image at Low Light



Stable Performance at Varying Light Conditions



Higher Speed



High Speed Processor



No Template based Matching



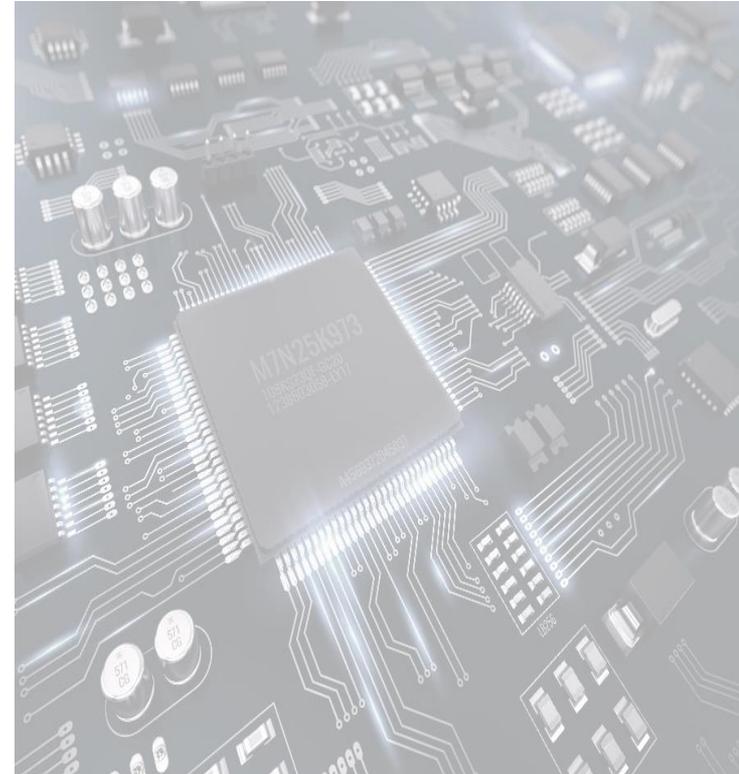
Identification in <1 Second



Look and Go



Same Identification Speed Irrespective of Users



Higher Capacity



1,00,000 Templates (1:1)



30 Face Angles per User



50,000 Users



5,00,000 Events



Future Ready Connectivity



3G/4G/VoLTE



Wi-Fi



Bluetooth



USB



PoE

Works in Challenging Conditions



IK10 Design: Vandal Resistant



IP65/66 Design:
Stands Still in Harsh Environment

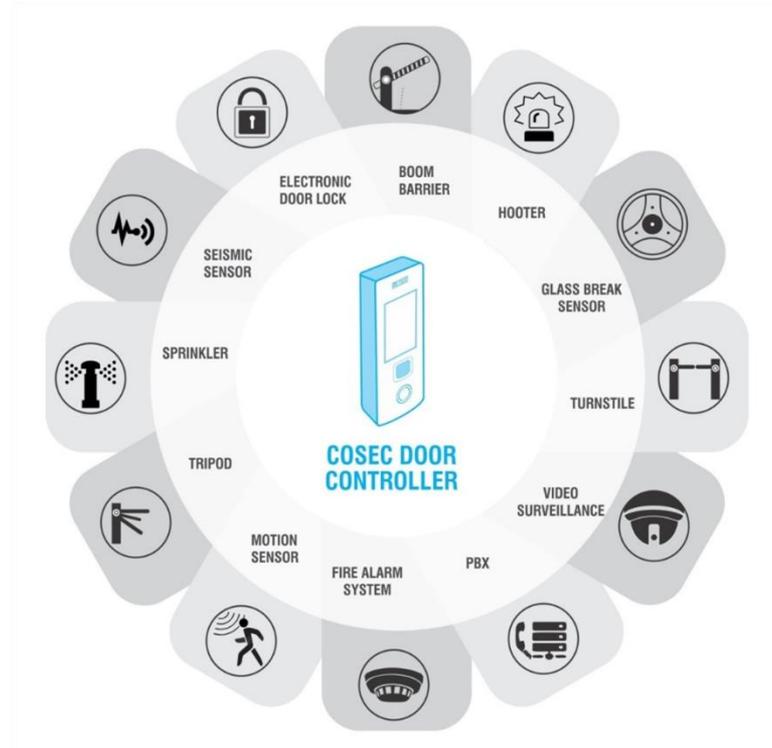


Tamper Detection



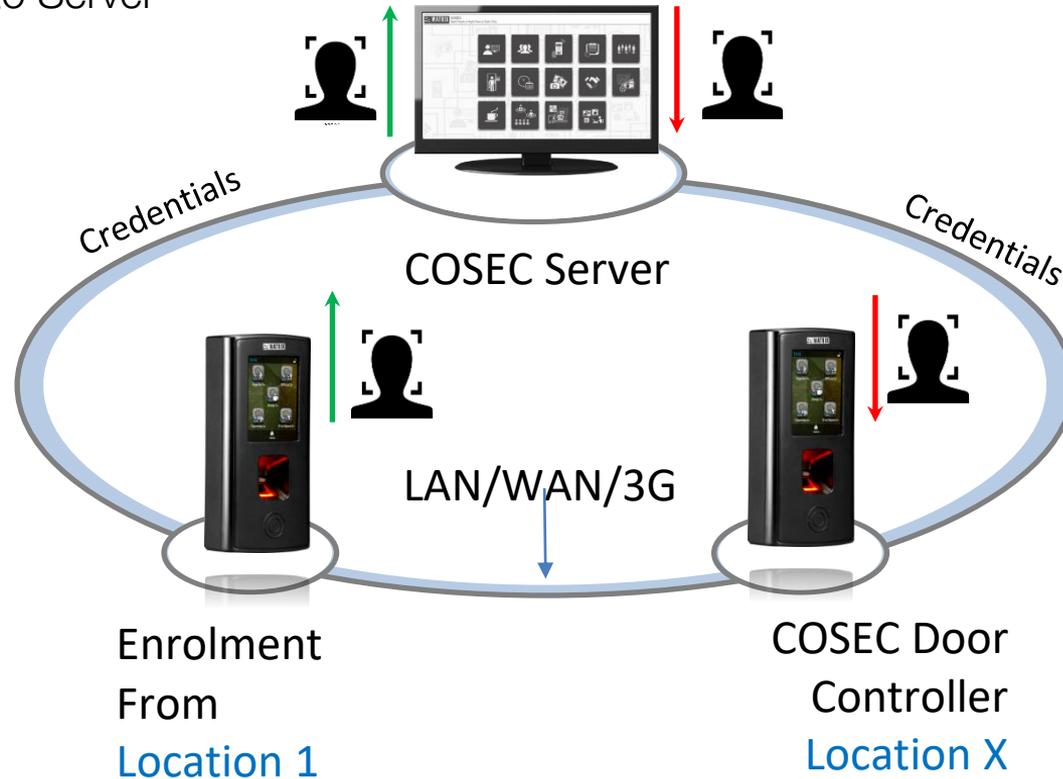
Access Control Interface

- Connect Door Lock on Any Interface Device
- Door Relay and Door Sense Port
- Auxiliary Input and Output Port
- Exit Reader and Exit Switch Port



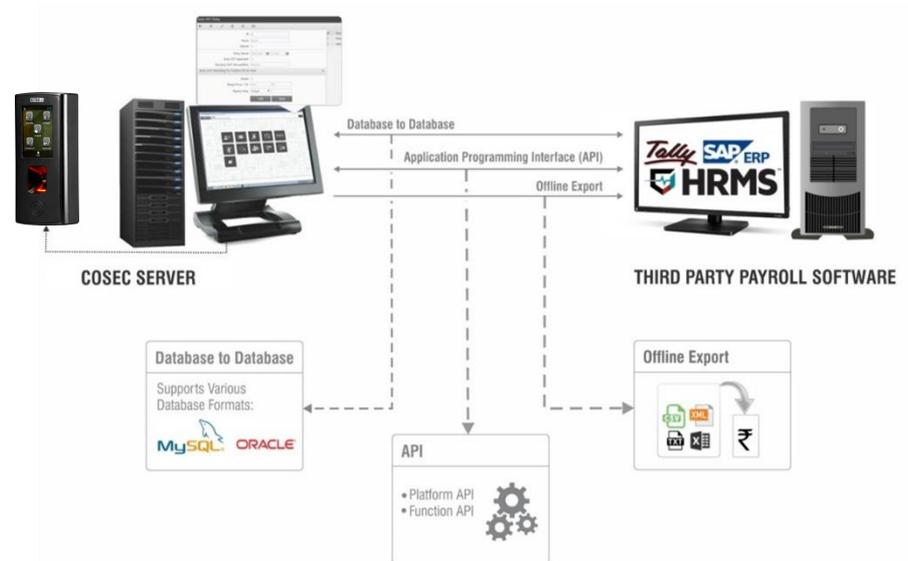
Auto Push Technology

- Real-time Data Transfer to Server
- No Data Loss
- No Manual Download



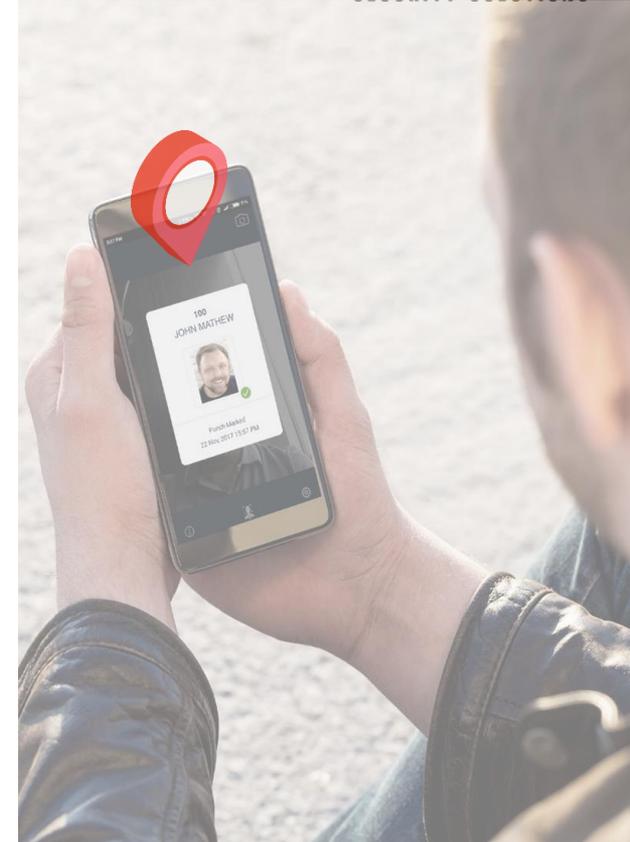
Ready Device API

- Integration with Third Party Software through API
- Device Configuration, User Configuration, Enrolment & more
- No Matrix COSEC Software required



GPS Tracking

- Capture Face while Attendance Marking
- Capture Real-time Location
- Matrix COSEC APTA Mobile Application
- Eliminate Masquerades



Encrypted Communication



AES-256 Bit Encryption



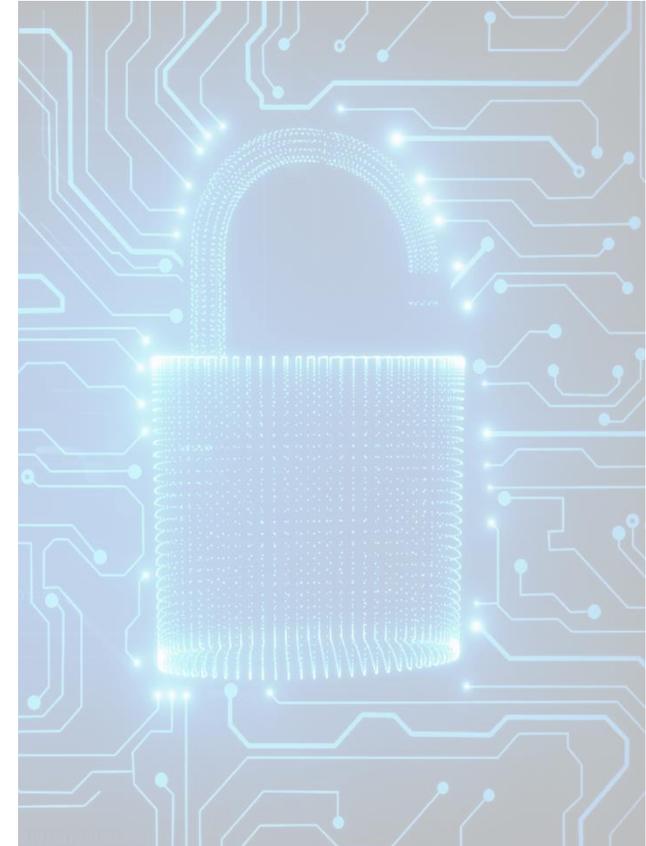
SSL Enabled



Highly Reliable



Snoop-proof and Hack Proof

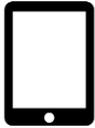


Multiple Deployment Modes



Device based FR

- Standalone
- Server based



Tablet based FR - COSEC MODE

- Server based
- Standalone



Mobile based FR - COSEC APTA

Device based FR

- Works with Matrix IP Camera and Door Controller
- Two Deployment Scenarios:
 - Embedded Identification server
 - Windows Identification Server
- High Performance in Different Usage Conditions
 - Lighting Conditions
 - Varying Height
- Flexibility to Mount Camera based on Requirements
- 50,000 Users, 30 Face Angles per User
- Very Accurate and Fast



Usage Scenario

Best Suited for Harsh Application Scenarios with Large Number of Users



Manufacturing
Units



Government
Organizations



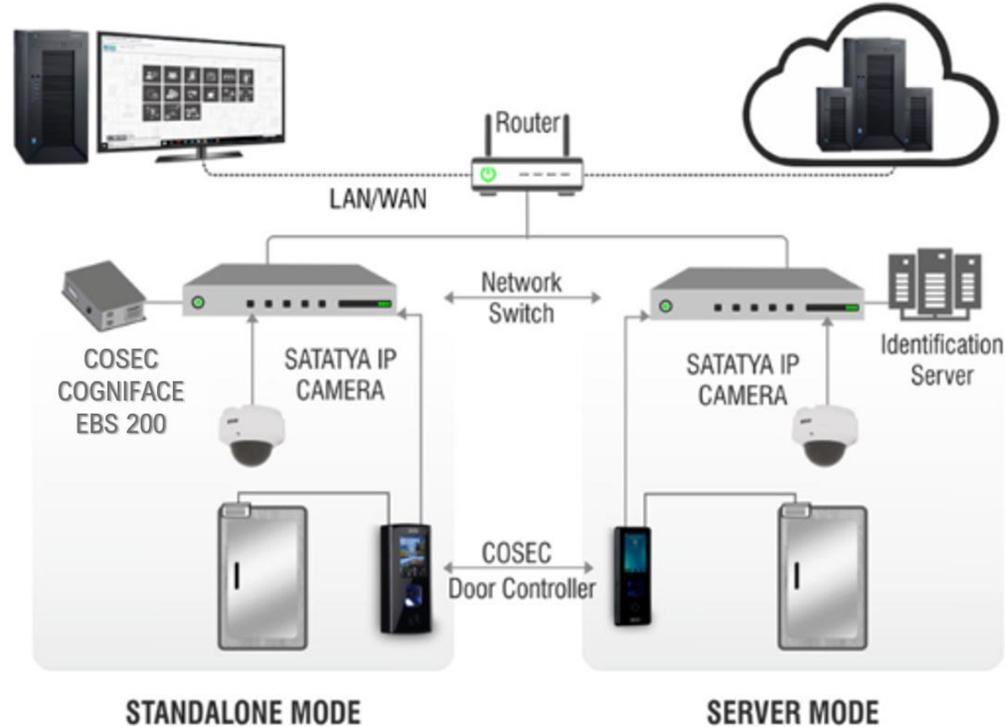
Hospitals



Construction Sites/
Mining Sites

Deployment

COSEC CENTRA - ON-PREMISES (WEB BASED) / **COSEC VYOM - CLOUD BASED**



FACE RECOGNITION LICENSES

COSEC CENTRA FR10/100/1000

COSEC VYOM FR UD 1K/10K/100K/1000K

Tablet based FR

- Works with Android based Tablet or Mobile
- Works on COSEC MODE Application
- Two Deployment Scenarios
 - Standalone Mode
 - Server Mode
- Flexibility to Carry Device for Mobile Sites
- 50,000 Users, 1,00,000 Templates
- GPS Tracking
- For Multiple Users on One Device (1:N)



Usage Scenario

Best Suited for mobile Applications with Limited Connectivity



Corporate
Offices



Construction
Sites



Education
Institutes
(Classrooms)



Logistic
Industry

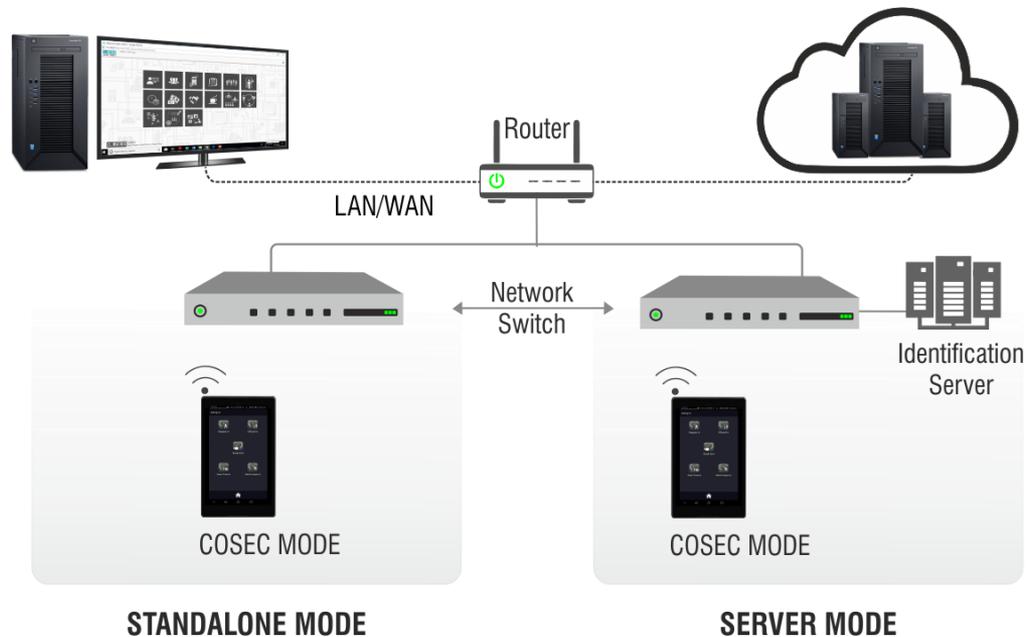


Retail
Outlet

Deployment

TIME-ATTENDANCE - TABLET BASED FR SOLUTION

COSEC CENTRA - ON-PREMISES (WEB BASED) / COSEC VYOM - CLOUD BASED

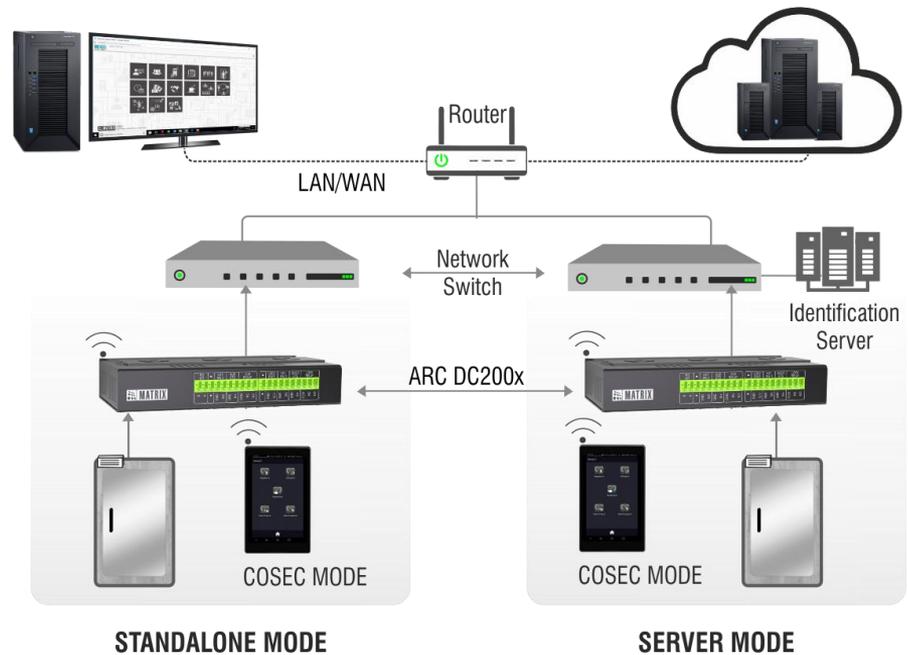


FACE RECOGNITION LICENSES
COSEC CENTRA FR10/100/1000
COSEC VYOM FR UD 1K/10K/100K/1000K

Deployment

ACCESS CONTROL - TABLET BASED FR SOLUTION

COSEC CENTRA - ON-PREMISES (WEB BASED) / COSEC VYOM - CLOUD BASED



FACE RECOGNITION LICENSES
COSEC CENTRA FR10/100/1000
COSEC VYOM FR UD 1K/10K/100K/1000K

Mobile based FR

- Matrix COSEC APTA Application
- Capture Face while Attendance Marking
- Capture Real-time Location
- One Mobile One User (1:1)



Usage Scenario



Field Employees



Mobile Users

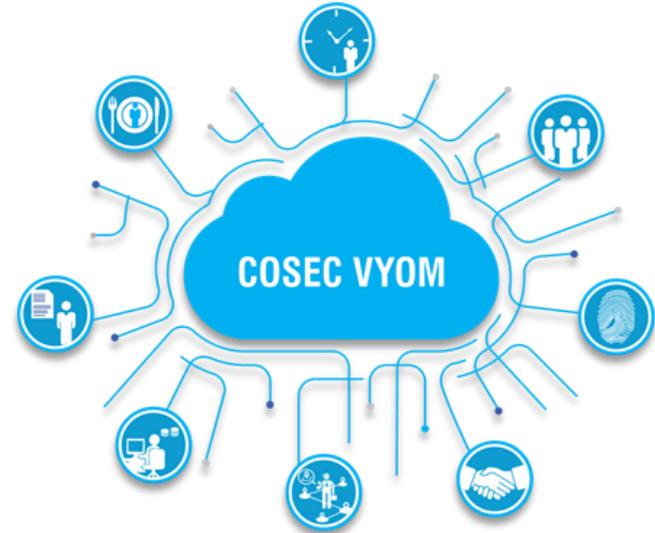
FACE RECOGNITION LICENSES
COSEC CENTRA FR10/100/1000
COSEC VYOM FR UD 1K/10/100K/1000K

Matrix COSEC FR Deployment

COSEC CENTRA - On Premise Solution



COSEC VYOM - On Cloud Solution



Certifications



CE



FCC



RoHS



IP65



IK08

Success Stories

Project Highlights	Matrix Offerings
Applications: On-Premise Time-Attendance, Contract Workers Management	<ul style="list-style-type: none">• Centralized Solution• Resolved Finger Identification Issues• Face Recognition for Contract Workers and Employees• Products offered:<ul style="list-style-type: none">• COSEC CENTRA PLATFORM• COSEC CENTRA TAM• COSEC CENTRA CWM• COSEC CENTRA FR• COSEC COGNIFACE Solution
Users: 500	
Devices: 2, Device based Face Recognition	
Technology Credential: Face Connectivity: PoE	
Location: 1	
Base Location: Kolkata, India	

Project Highlights

Applications: Cloud based Time-Attendance

Users: 1,000 Employees

Devices: Tablet Based Face Recognition

Technology

Credential: Face

Connectivity: PoE

Location: 1

Base Location: Mumbai, India

Matrix Offerings

- Device-less Time-Attendance
- Required Centralized Solution on Cloud
- Saved Server, Backend Infrastructure and Maintenance Cost
- Products offered:
 - COSEC VYOM
 - COSEC VYOM TAM
 - COSEC VYOM FR
 - COSEC MODE

Project Highlights:	Matrix Offerings
Applications: On-Premise Time-Attendance	<ul style="list-style-type: none">• Centralized Solution• Time-Attendance with Face as User Credential• Contactless Solution• Products offered:<ul style="list-style-type: none">• COSEC CENTRA PLATFORM• COSEC CENTRA TAM• COSEC CENTRA FR• COSEC COGNIFACE Solution
Users: 500 Employees	
Devices: 8, Device based Face Recognition	
Technology Credential: Face Connectivity: PoE	
Location: 1	
Base Location: Delhi, India	

Who Are We

1 Million+
Customers

2,500+
Partners

60+
Products

50+
Countries

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