

RTLS



“ Real-Time Location System Based Solutions ”

About Zernam

Zernam is an Ottawa based company that specializes in IT solutions and consulting for government and private organizations. We were founded by reputable and successful consultants with over 15 years' experience in the public and private sectors, and this expertise is the backbone of our company. The directors of Zernam Enterprise are successful business leaders who excel in multiple areas of practice, including Data Warehousing, Business Intelligence, Portals and Collaboration, ERP and CRM implementation, Data Migration and Application Development.

The Zernam philosophy is simple: We are dedicated to providing customized solutions to our clients with the highest level of professionalism, honesty, integrity and amiability. We use IT to help our clients excel in their business and make the most of their investments. This philosophy underpins our operation, and we take pride in delivering the highest possible level of service to our customers, while staying within their budgets and timelines.



Current Deployment of RTLS Solutions

Indoor Navigation & Location Based Services

- Al Araimi Boulevard Mall (Muscat, Oman) – 2018
- Red Sea Mall (Jeddah, KSA) - 2016
- King Khalid International Airport (Riyadh, KSA) – 2017, 2018
- King Fahd International Airport (Dammam, KSA) - 2017
- Medina International Airport (Madina, KSA) - 2017
- King Abdulaziz International Airport (Jeddah – old & new) – 2017,2018
- Riyadh Exhibition Center (Riyadh) – 2018
- Masjid Al Haram (Makkah AL Mukarramah, KSA) - 2016

AVL Solution

- Hajj 2016 for 2,000 buses (BLE based) – Turkish Hajj Group Agency (Makkah, KSA)

Real-Time People Tracking

- Security system based visitor tracking solution for Government Facility (Abu Dhabi, UAE) - 2019
- Smart Hajj solution for pilgrim tracking (1st phase deployment) (Makkah/Jeddah, KSA) - 2018
- Staff & Student Attendance and Asset tracking system (Makkah, KSA) – 2017,2018
- Staff & visitor tracking for training center (Riyadh, KSA) - 2018

Product Overview



Zernam provides RTLS (Real Time Location System) solutions for real time active tracking of assets, persons and vehicles.



Tracking is performed by actively sensing and locating Bluetooth based smart tags, affixed to assets or worn by people.



Zernam RTLS solutions comprise of sophisticated hardware and a highly advanced software engine for providing real-time location information.



Application areas range from active asset tracking from warehouse monitoring to transporting, Live asset tracking with indoor navigation, asset tracking in warehouse etc.

PRODUCT **TECHNOLOGY**

Bluetooth Beacon Technology in RTLS

When it comes to RTLS positioning, Bluetooth Low Energy has become the technology of choice compared to Wi-Fi and Active RFID



- Bluetooth Low Energy (BLE) is at the core of Bluetooth based RTLS solutions.
- Beacons or active tags are small, low-powered devices which utilize BLE communication and transmit a signal periodically.
- Bluetooth receiver devices called scanners receive the transmitted signal and indicate distance between a tag and a scanner based on RSSI.



Low-powered

Bluetooth Low Energy technology consumes less energy. Devices can run for several years on small batteries without replacement or recharge.



Low Cost

Bluetooth is 1/5th the price of competing technologies. A Bluetooth beacon costs between 5 – 25 \$.



Accurate

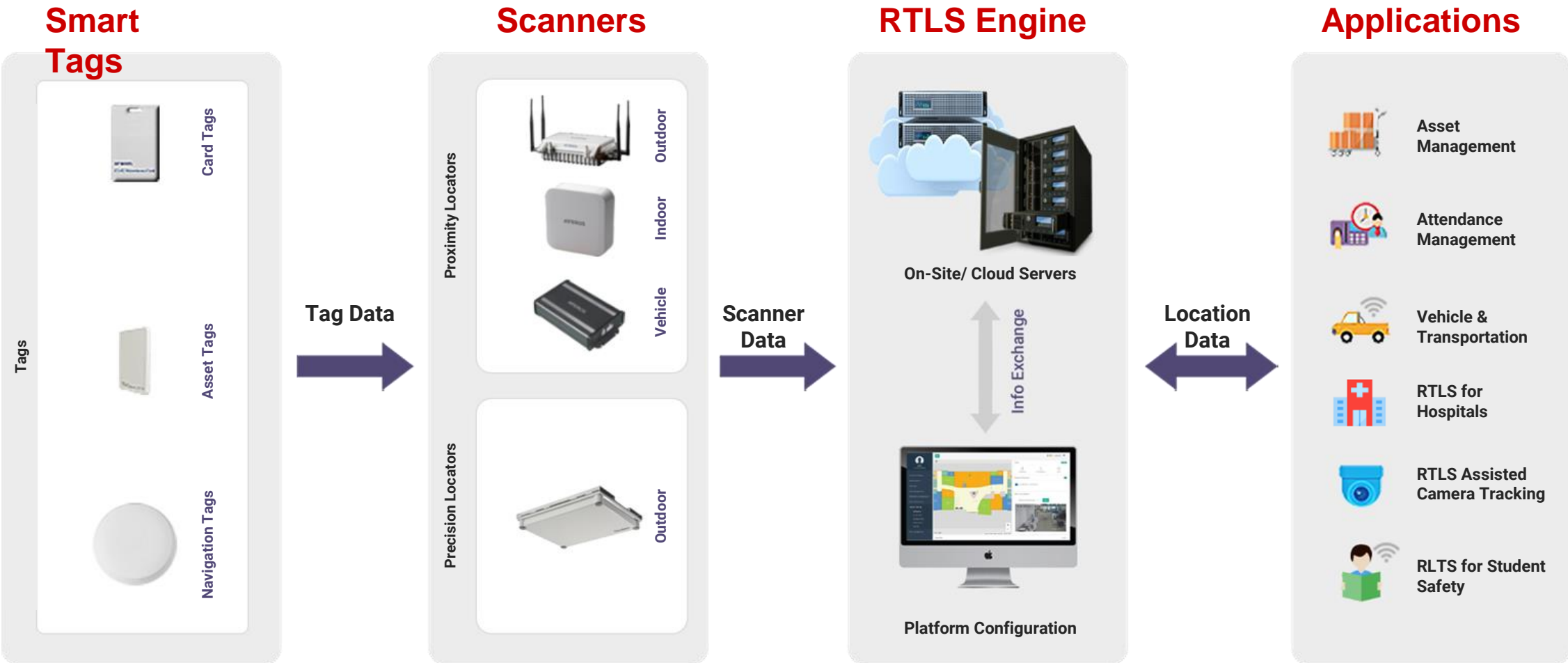
Capable of providing room-level accuracy below 4 meters range.



Range

BLE devices have wide range, up to 50 m in open areas and up to 20 meters indoors.

System Overview

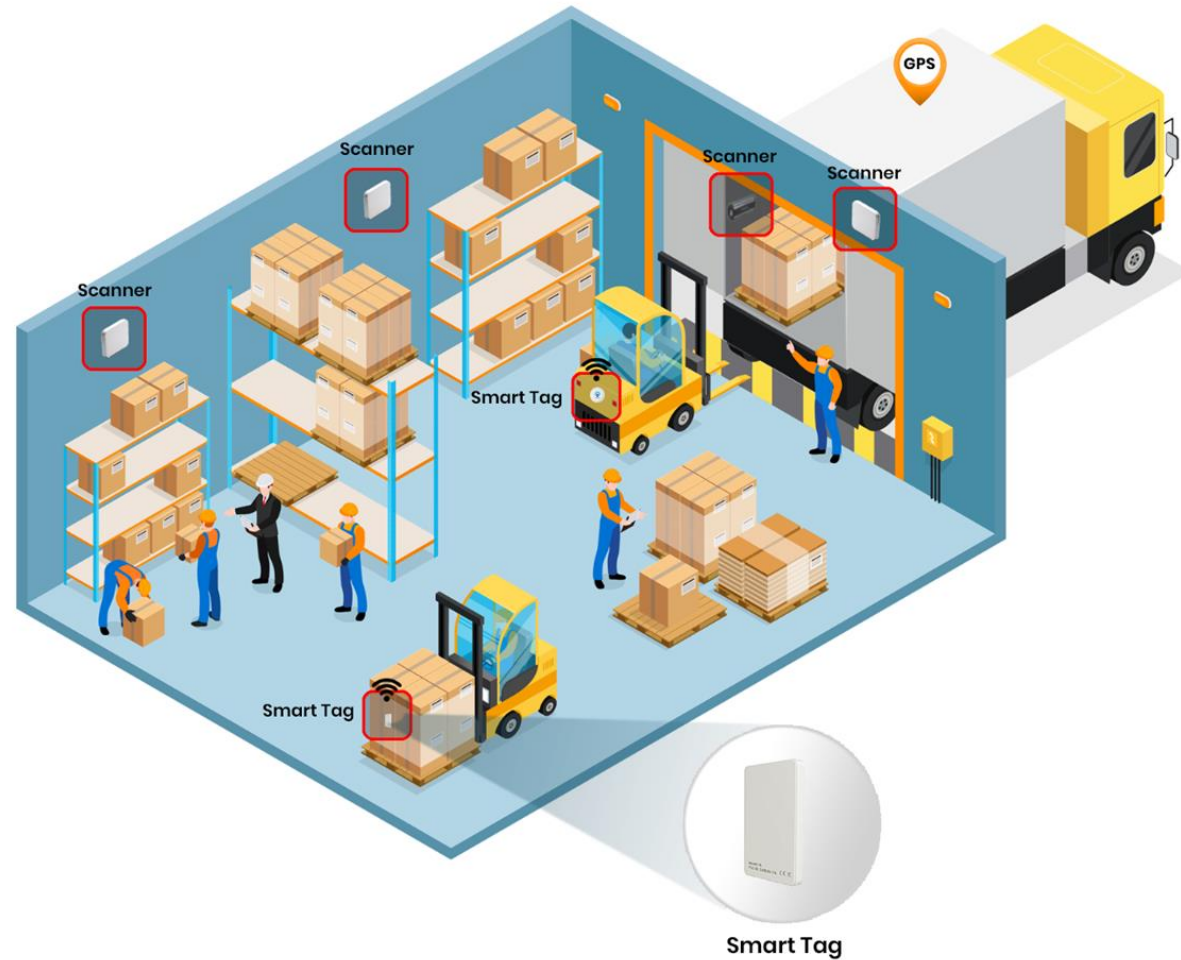


RTL^S USE CASES

Asset Tracking in Healthcare



Asset Tracking in Logistics



Student Tracking in Education Sector



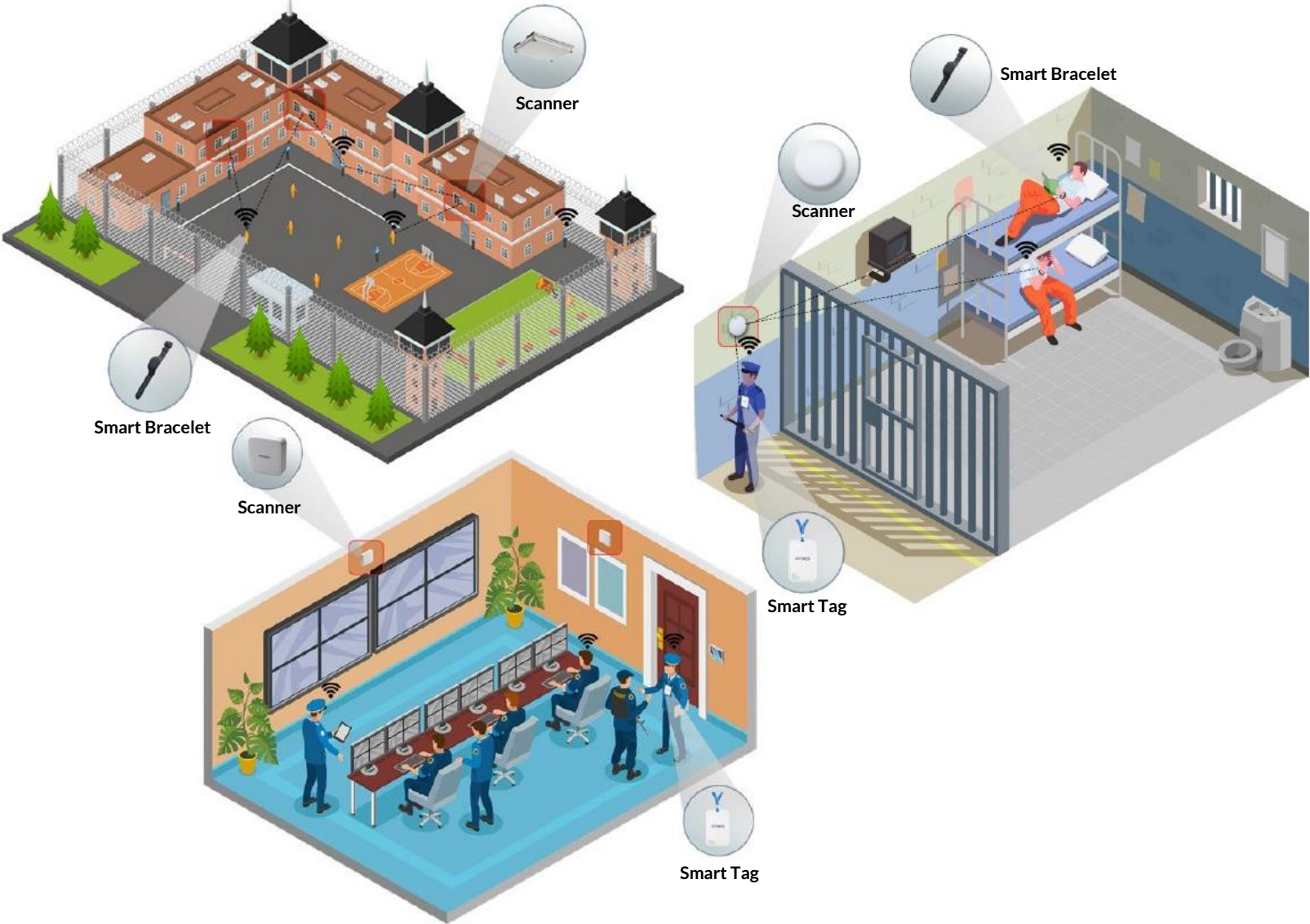
Staff Tracking in Workplace



RTLS for Maintenance Contractors



Staff & Prisoner Tracking

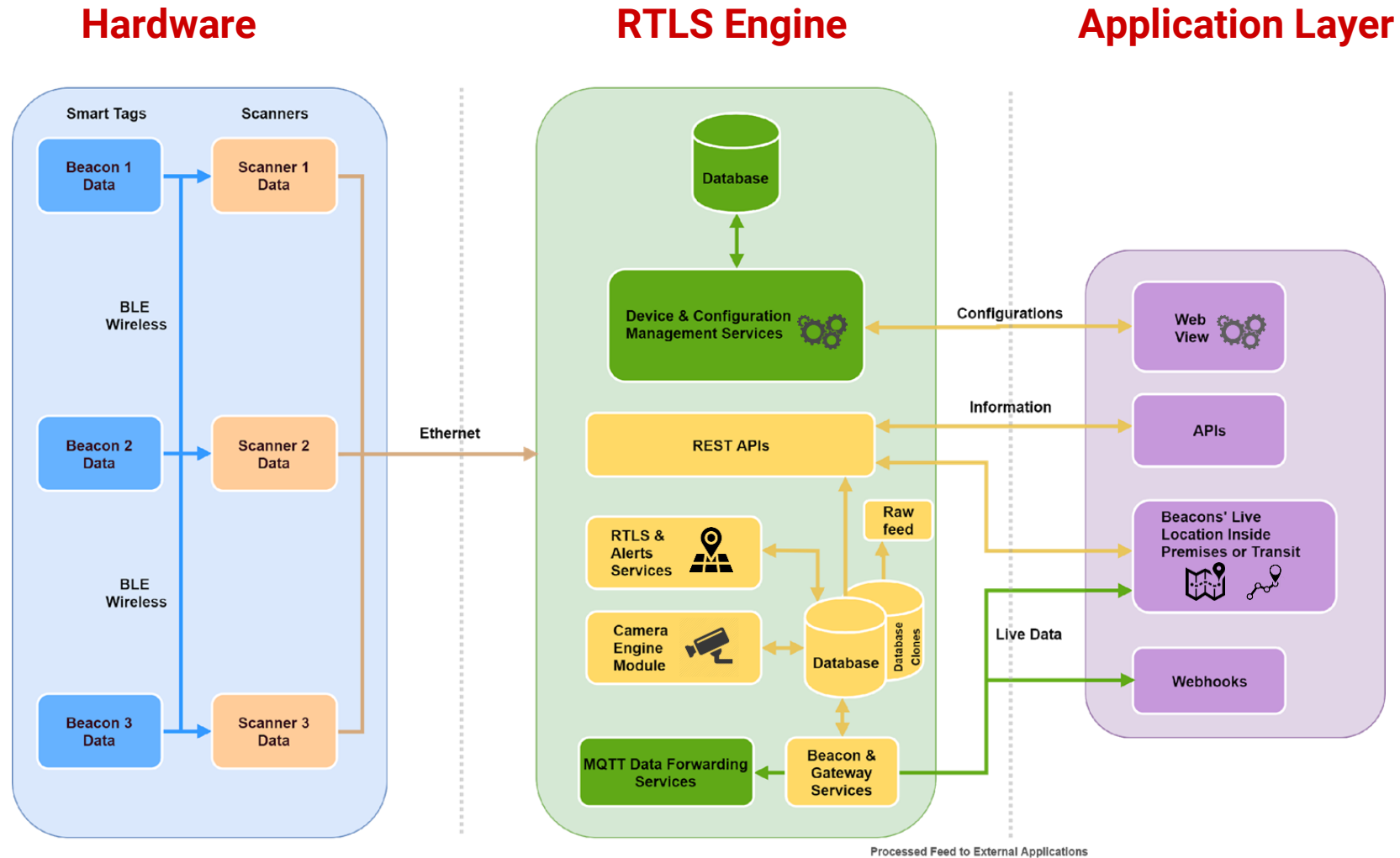


Asset & Personnel Tracking



SYSTEM COMPONENTS

Platform Overview



Hardware

SCANNERS



Loris X2

Indoor BLE scanner for proximity detection



Loris V1

Vehicle BLE scanner for tracking beacons locations inside vehicle



Loris OD

Outdoor BLE scanner for tracking beacons locations in terms of GPS coordinates



Loris L7

Outdoor Precision locator

SMART TAGS



CoreBlu X2-A+

BLE based active Smart Card



X2 - Pro

BLE proximity beacon for mobile positioning and navigation



CoreBlu M1

BLE proximity beacon for tracking assets

Software

Frontend

A modern and user-friendly frontend, developed on .NET



Backend Services

Various services for positioning, algorithms and notifications have been developed in different languages and run in the backend



Database

Data is stored in database defined and hosted in MS SQL server



Hosting Models

The RTLS engine can be deployed as **On-premises Model**. This model offers the following advantages:

- 1)**Security:** All the critical data and sensitive information you have will be stored and exchanged onsite.
- 2)**Control:** Gives you physical control over your backup.
- 3)**Connectivity:** Your data is available offline.



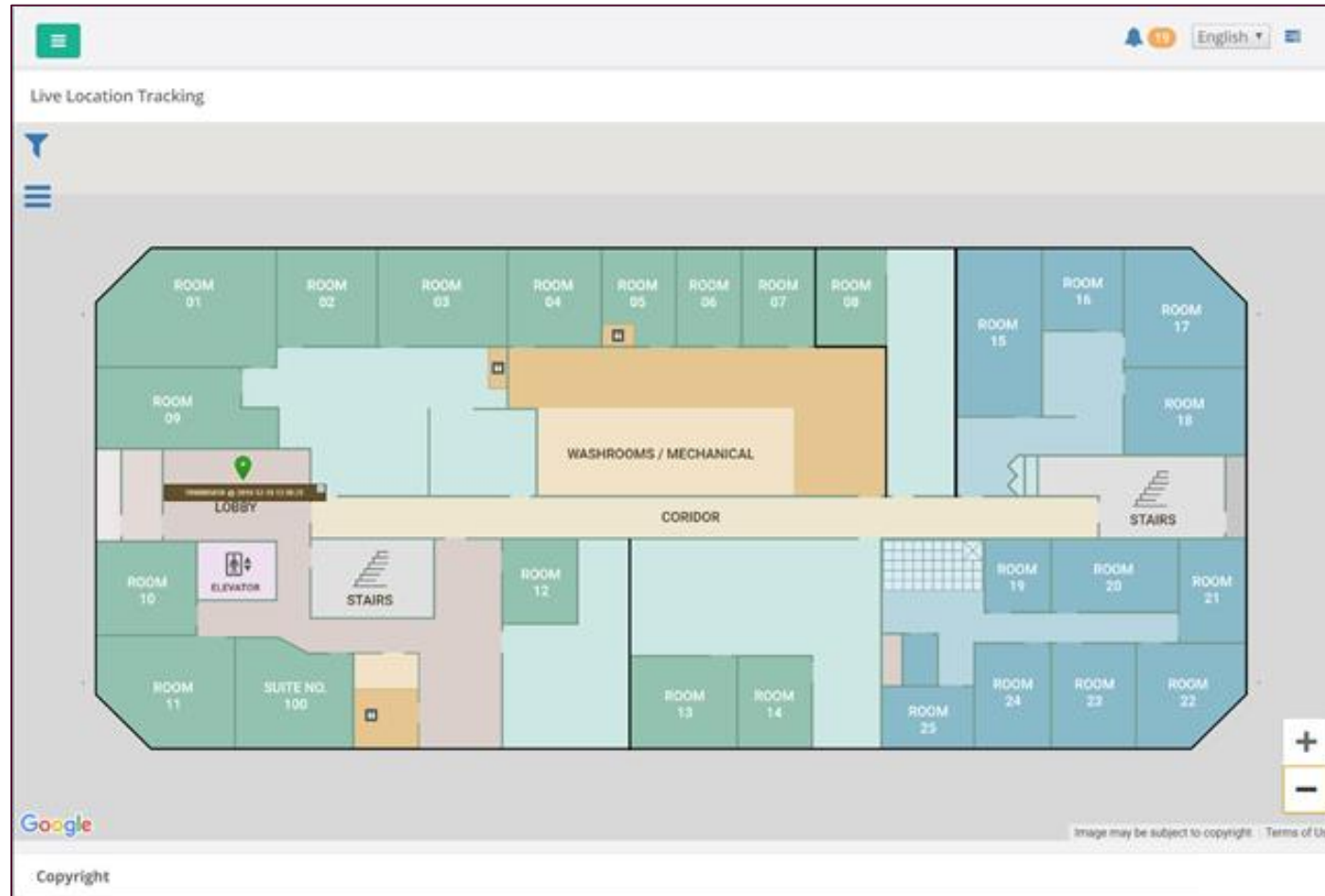
The RTLS engine can be deployed as **Dedicated Cloud Hosting Model**. This model offers the following advantages:

- 1)**Cost:** No need for onsite hardware or capital expenses.
- 2)**Accessible:** Data is remotely accessible.

Software Overview

Real Time Tracking

Automatically calculate, display and record the real-time position of all tracked tags on the premises.



Software Overview

Geofence Notifications

Serial # Name Notification Type

Action	Serial #	Name	Type	Notification Type	Notification Text	Date Time
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 19:14:40
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 18:29:10
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 17:19:15
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 16:08:10
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 12:15:15
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region In	A0990010017 has checked-in to region Hall 2	2018-12-31 12:11:45
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Hall 2	2018-12-31 12:11:40
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 11:55:55
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Hall 2	2018-12-31 11:53:55
<input type="checkbox"/>	A0990010017	A0990010017	Beacon	Region Out	A0990010017 has checked-out from region Theater	2018-12-31 11:48:05

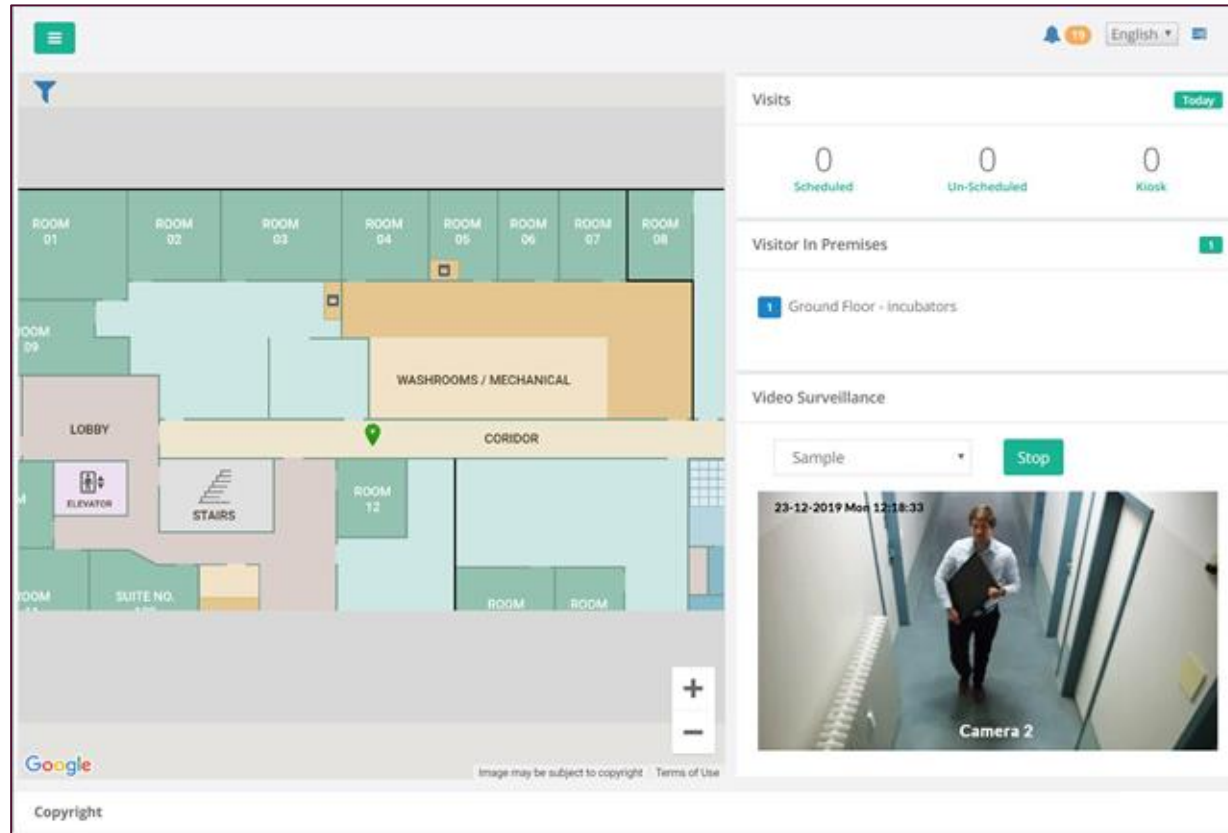
Page 8 of 37 View 71 - 80 of 361

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Notifications & Alerts

- Geo-fencing generates an alert whenever a tracked person or asset leaves the designated area
- SOS, temper and MEMS sensors alerts.

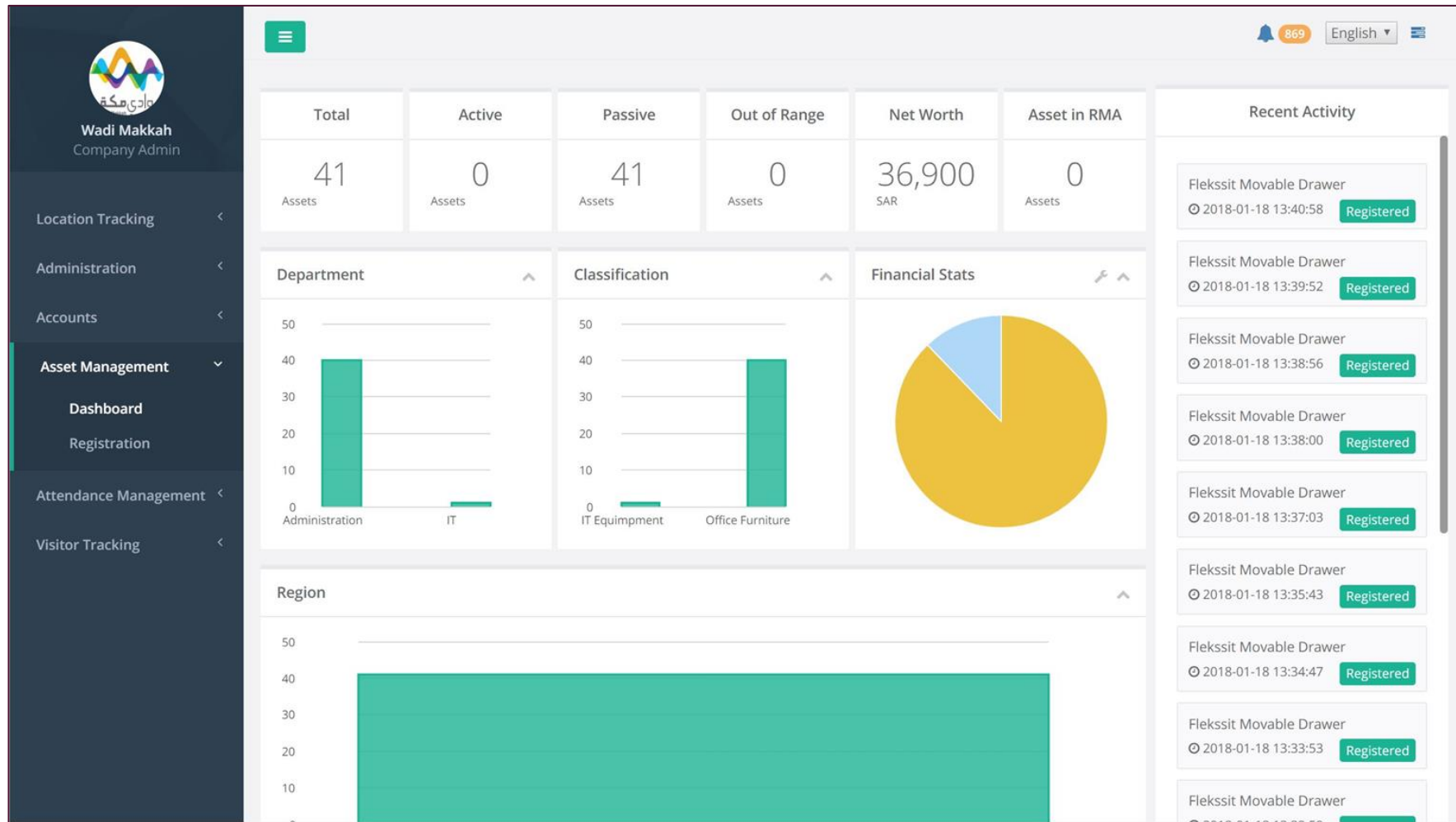
Software Overview



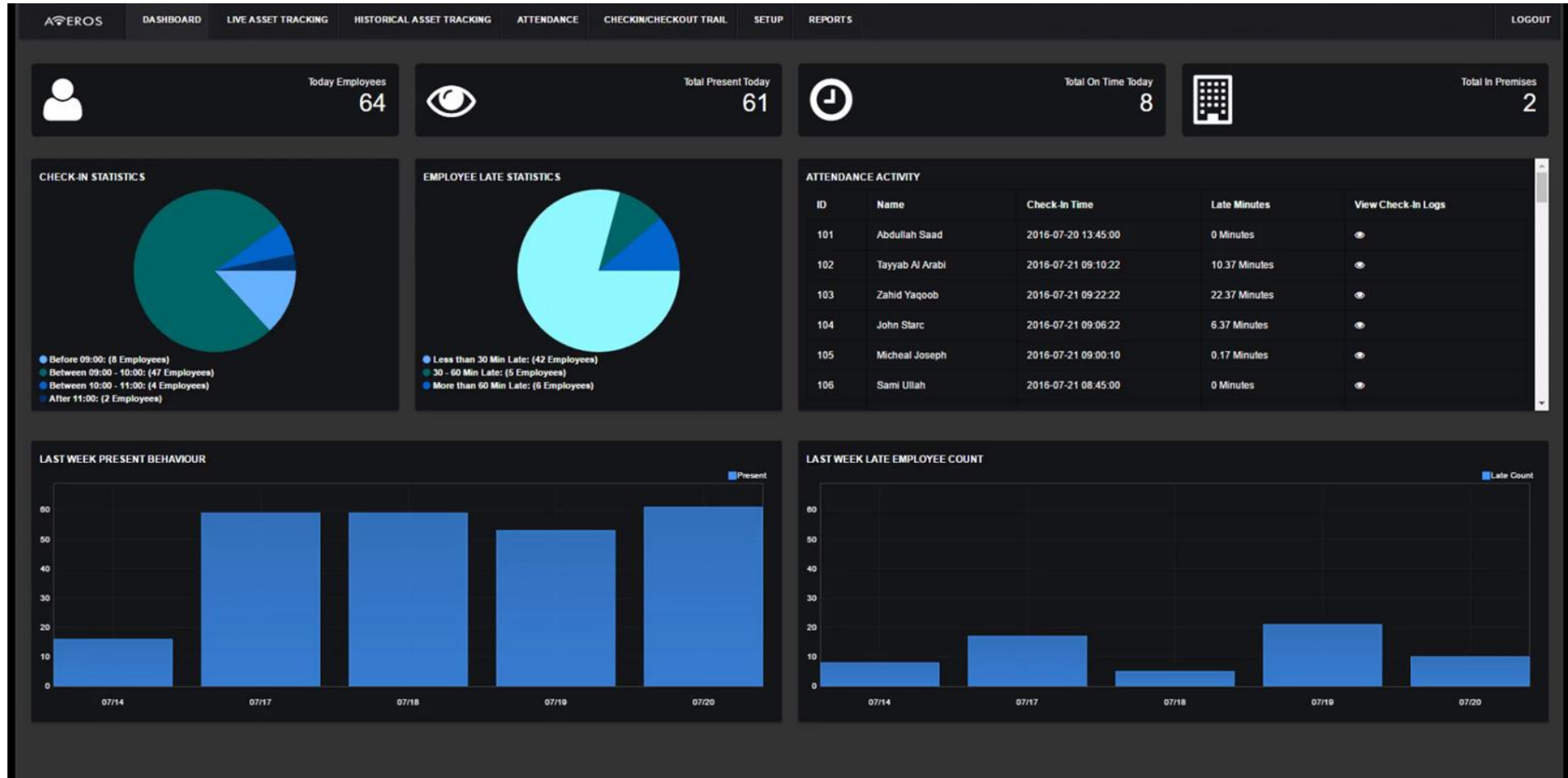
Camera Engine

- Camera Engine processes all IP camera streams and provides ease of access for clients to track a particular tag along with live video feed. All IP cameras with RTSP stream output are supported.

Custom Dashboards - Asset Management



Custom Dashboards - Attendance Tracking



Custom Dashboards & App - Visitor Tracking

demo
Company Admin

- Location Tracking
- Administration
- Accounts
- Asset Management
- Attendance Management
- School Attendance
- Visitor Tracking
 - Dashboard
 - Active Visits
 - Archived Visits
 - Notifications
 - Settings
- Fleet Management

Visits Today

0 Scheduled 0 Un-Scheduled 0 Kiosk

Visitor In Premises 1

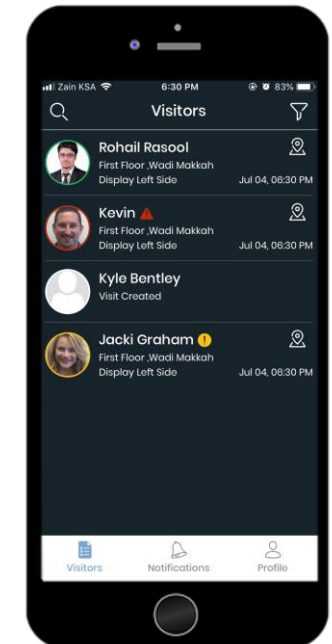
1 Ground Floor - incubators

Video Surveillance

Sample Rohail Rasool Stop

01-06-2019 Sun 12:18:33

Camera 2





Thank you

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