Technical Requirement Document

Business Intelligence Dash Board

Project Name: Confidential

Company Name: Hanwha Vision Middle East FZE

1. Introduction

1.1 Purpose

Business Intelligence web-based dashboard enables surveillance professionals to make data-driven decisions that can drive the success of their entire operations. The dashboard uses Hanwha cameras and AI analytics to visualize and monitor market trends and events in real time. Optimized for various customer environments – including retail, manufacturing, and cities – the new Business Intelligence dashboard helps customers understand and contextualize information about their facility and operations, deriving insights that can turn unrealized data into actionable insights. The dashboard also offers a view into a variety of statistics to optimize the customer experience, increase productivity, and enhance profitability.

1.2 Intended Audience
End – User

1.3 Scope
Need to redevelop Customizable Web based BI Dashboard with Visual statistics for intuitive understanding of customer's needs and Insight into daily business operations regardless of time or location. To provide insight in various by storing, analysing and visualizing metadata from AI cameras and other devices. By using latest Power BI tools, Opensource DB

2. System Features and Requirements

2.1 Functional Requirements / Scope of Work
AI analysis of Videos from Cameras installed in customer premises and notification of abnormal situations, accumulate, reprocess and visualize metadata on BI dashboard to provide information operational efficiency.

The scope of this project is to develop a custom GUI based web dashboard for its users with the following functionalities:
1. User management & roles-based access, that includes add, edit users and assign them roles to access/restrict the dashboard options.
2. Data filtering options.
3. Advanced reporting options (5,10,15,30,45,1hr Interval ,24hrs, 7 days, 1month, 3 months, 6months, 1year and selected intervals). The dashboard will allow users to view Realtime reports as well (relative to configured report fetch time).
4. Export report functionality in pdf, excel and csv format. Pdf exported reports should have

a graphical representation of data and rest of the reports excel and csv will be text only.

5. Data representation in pi-charts and bar chart on the UI. Need to implement at least 3 charts for each widget as selection for the operators

6. Show cameras online/offline status with the camera icon.

7. Live camera image thumbnail, on hovering over the camera icon.

8. An option to draw a multipoint region over the floor plan or google map images and create a single or multiple zone.

9. The cameras come inside the drawn region will become part of that region.

10. Show data on the dashboard for the selected region only or multiple regions. By default, the dashboard will show data from all the connected cameras.

11. There will be a configuration screen from where user will do the following:

    a. Upload floor plans and google map images. Floor plan and maps would be in dwg, png, pdf or jpg format.

    b. Configure Camera IPs

    c. Drag and Drop camera icons on the floor maps and the cameras should rotate 360 degree and should be able to move the cameras across the maps or floor plans

    d. Set camera as In/Out/Both and also should provide data for multiple lines which is drawn on the camera and should support up to 8 lanes

    e. Set single/multiple zone starting number to start the occupancy count

    f. Set the occupancy reset count for each zone based on the end time "00.00" in 24 hours format.

    g. An option to upload a customer Logo on the dashboard

12. The application will have licensing support to control the number of cameras connected to the backend. The application will only allow to connect the cameras as allowed in the license file.

The data on the dashboard will be coming in from the connected cameras through an API interface and stored into the database. The application dashboard will show following data on the dashboard:

1. People counting

    — a. People In/Out count

    — b. Occupancy level
        i. Zone wise occupancy
        ii. Multiple zones occupancy (sum of all zones occupancy)
        iii. Set zones active people count in real-time
        iv. Send an alert to the user when the maximum occupancy count exceeds, send alerts by email and send CGI command to the cameras in that zone

    — c. Zone wise IN/OUT occupancy

    — d. People Attribute (Gender /age)

    — e. People with Mask or without mask
      f. Safety protector (helmet, vest etc.) with or without

    — g. Slip and fall detection

    — h. People In/Out camera based.

2. Vehicle detection and counting
a. Vehicle detection by type
b. Vehicle counting by type
c. Vehicle Entry/Exit Zone wise
d. Vehicle direction

e. Stopped vehicle; object left on the road

f. Traffic congestion, speed detection, traffic flow analysis

1. Integration with Crowd MGMT ApI
2. Integration with Queue MGMT API
3. Integration with Heat Maps APi should show the heat maps on the floor plans and particular zones
4. Back up we need to have two backup options in the system settings.

   A. Configuration backup (required upload option)

   B. DB Backup (required upload option)

5. The dashboard should be fit in single screen using 16:9 Ratio as wide screen, with scrolling options and should be able to move the widgets on place to another should be dynamic.
6. Each widget should have an option to full screen mode/enlarge the widget.
7. Able to create FoV for the cameras in floor plans and google Maps.
8. All the camera should be able to rotate 360 degrees on the floor plans and maps.
9. Multipoint options while creating zones.
10. Need to have zone-based counting and should be able to select or unselect the zones in all zones to show accurate counting.
11. Camera search icon required
12. Set camera for people counting, vehicle counting and both from the manage camera screen.
13. Multisite configuration setup to view all the remote site.
14. Multisite should show difference between remote site and generate a report/show in the widgets yesterday vs today and also should have week, month and selectable intervals, for remote sites.
15. For Multisite there should be filtration to select the widgets and show the difference between, Full site, single zone and Multizone as well
16. Alexa/siri integration for voice-based popups on the screen
17. Option to input the current occupancy count manually at any given point of time. This was demonstrated during our remote session initially.
18. Crowd Counting needs to integrated.
19. Traffic AI Pack integration
20. Retail AI Pack Integration
21. AI Box Integration
22. Factory AI Pack Integration
23. Existing web-based license issuing should be enhanced with latest tools.

Details

1. The Existing application should be user friendly installation using exe. While installing it can verify the pre request like ISS and DB, and once the application is installed there should be app on the dashboard once we click on that it should redirect to web browser and start keying the username and password. We should have default username and password to login and this should be editable in the user mgmt. (Default Username: Admin and Password: Admin@12).

2. License Keys- on the settings we need to have License info details where we can see how many licenses has been used and how many are balance.

A. Server Based it should be linked to MAC Address (so that customer cannot used in any other PC)

B. Device Based this is for number of cameras.

C. Client Licenses – Server based license comes with 4 client access as default, for more than that customer has to purchase additional licence for accessing the dashboard. This information also should be shown on the license info.

D. ==Separate web application== for issuing license which should have an option for all the customer details and regenerating the lic keys as option.

3. Static Google map integration including 3D view, this should have an option for zoom in/out able to add cameras and Fov on the maps similar to floor plans.
4. Solar Power and Battery Utilization details to be shown on the dashboard through SNMP/API integration with the BMS and MPTT Controller.

5. The web-based application design and database should support at least 20000 cameras, per site.

6. ==Failover features should be part of the implementation.==

7. The design of the system should be very light and user-friendly GUI to avoid high computer resource requirement.

8. The system should be tested for cyber security Vulnerability

9. Both the BI Dashboard and License issuance application should be SSL Certificate to use https

10. Need to have Event reporting details with filtration with separate widgets or separate page for this and when the event reported need to have pre and post video of 5 sec each.

11. Need to have ==SMTP setup== for email reporting. With schedule

12. Support plan for the entire development

13. Need to have dedicated support team to support the application issues, bugs and errors.

2.2 System features

GUI Based Dashboard to show all the events and alerts with different filtering options.
Advanced reporting options (with minutes to hrs. 24hrs, 7 days, 1month, and selected intervals) search options. Should be able to enlarge when ever we zoom.
==Customize== Realtime reports to be provided
Graphical pichart, bar chart representation in the UI. With latest gradient colours and dark and light mode
All the reports should be able to export in pdf, exls and csv format

Create users and user rights assignments.

2.3 Non-functional Requirements

Dedicated team should be provided to work on the application,
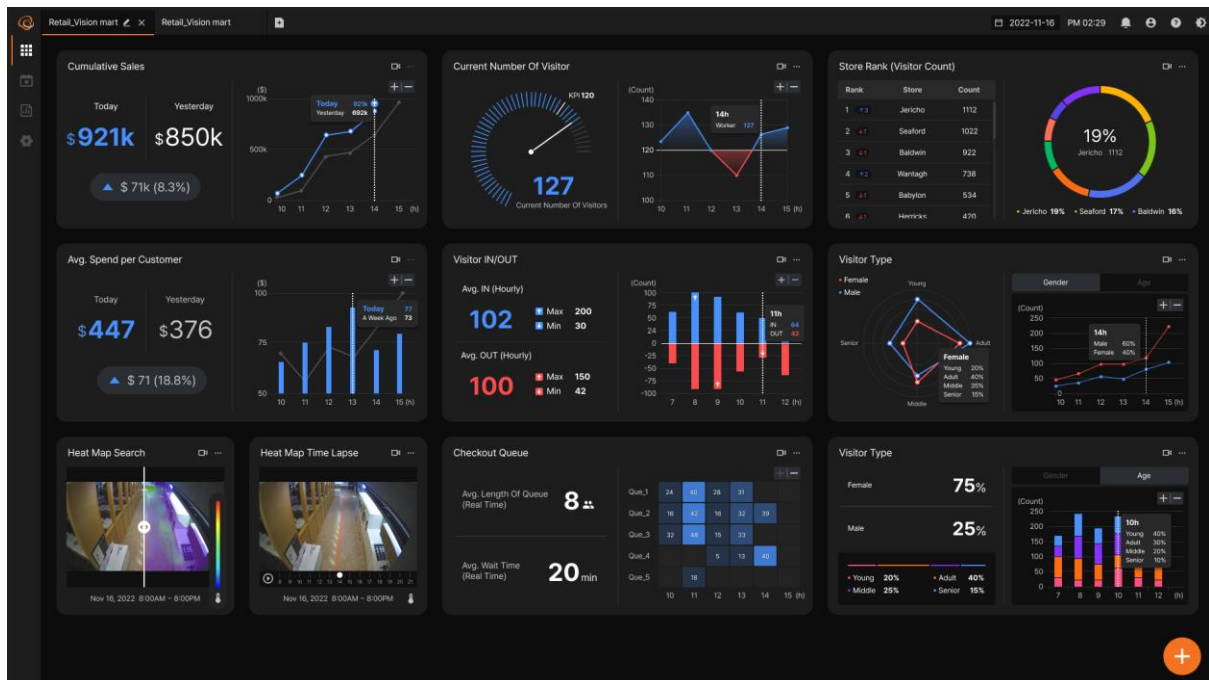Able to customize the application as per customer requirement.
Project Timelines 3-4mothns
The first release beta version should be presented to us immediately once the data collected.
Need to provide training on the BI dashboard, configuration and operation.
Need to share all the instruction manuals related to the BI dashboard.
Once the Dashboard is UAT complete, need to share the IP to us with Codes with proper written agreement with two parties.

Reference BI Dashboard Look and fell

Sales Transaction

Number Of Transactions **985**

Avg. Transaction Value **$ 952**

Transaction Rate **110%**

Area Traffic

(Count) 400 / 300 / 200 / 100 / 0

Mens
Stay Time 22
Count 200

Checkout Queue

Avg. Length Of Queue (Real Time) **8**

Avg. Wait Time (Real Time) **20** min

Que_1
Que_2
Que_3
Que_4
Que_5

Que_2
Count 12
Time 12:00
State Medium

Visitor IN/OUT

Avg. IN (Hourly) **102**   Max 200   Min 30

Avg. OUT (Hourly) **100**   Max 150   Min 42

15h
IN 42
OUT 84

Vision Mart 1F

Total Sales **$ 3,200,500**   Number Of Visitors **1,270**

Dairy
Auto / Paint / Home Office / Electronics / Pet / Cleaning / Adult Beverages / Deli / Snacks
Sporting Goods / Storage Laundry / Furniture / Girls / Baby / Grocery / Meat
← 284
Crafts / Boys / Mens
↓ 391
Home / Celebrate / Shoes / Sleepwear / Panties / Frozen / Bakery
Toys / Beddi ↓ 571 / ↑ 346 / Seasonal / Jewelry & Accessories / Ladies' / Bread
Garden / Bath / Dining / Kitchen / Deli
Garden / Cosmetics / Health / Health & Wellness / 25 / Fresh Product

West Entrance A **586**   **684**
IN 586 OUT 492

• Maximum • High • Medium • Low

POS list

POS_01: POS Camera_01 — Date 01/11/2023 (20:22:15) — Status Refund — Sales $1,900

POS_02: POS Camera_02 — Date 01/11/2023 (20:21:38) — Status Discount — Sales $ 100

POS_01: POS Camera_01 — Date 01/11/2023 (20:20:06) — Status Refund — Sales $ 43,100

POS_01: POS Camera_01 — Date 01/11/2023 (20:15:59) — Status Refund — Sales $ 11,900

POS_07: POS Camera_07 — Date 01/11/2023 (20:13:22) — Status Discount — Sales $ 16,591

POS_06: POS Camera_06 — Date 01/11/2023 (20:09:48) — Status Discount — Sales $ 100

POS_11: POS Camera_11 — Date 01/11/2023 (20:05:11) — Status Discount — Sales $ 28

Staying visitors (repeated widgets)

Today **42** Max : 21   Yesterday **20** Max : 20   ▲ 22 (110%)

(Count) Today / Yesterday — 10 11 12 13 14 15 (h)

Visitors Entries/Exit (repeated widgets)

Entrance average **102**   Max 200   Min 30

Exit average **100**   Max 150   Min 42

(Count) — 10 11 12 13 14 15 (h)

15h In 92 Out 85

Event Reporting