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industry.AI | BLP
Group Company

Predict.AI

Customer Name

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1. **Project- Introduction**

Predict.AI is essential to predict or monitor the health status of each asset (parts of single machine) , Performance of machines in Wind, Turbines, Solar Plants. By using the Predict.AI products we can reduce the major damages and time for shutting down the plants for longer time in replacing the damaged machines and can estimate the lifetime of machines.

Many projects come under the Predict.AI Product.

Customer is an industrial powerhouse with a dominant presence in steel, power, mining and infrastructure sectors. Customer is a leading Indian conglomerate that aims to strengthen the future of the nation and works towards building a better world**.** The company's enviable success story has been scripted essentially by its resolve to innovate, set new standards, enhance capabilities, enrich lives and to ensure that it stays true to its cherished value system.

Customer having a product under Predict.AI which is basically monitoring the maintenance, health status of the machines and to reduce the downtime in the plant.

2. Challenges

As one of the leading economies of the world, India is expected to grow at a significant pace in the coming years, the steel and power sector will play a pivotal role in India's growth story.

At Customer site, they are poised to create superior value for the stakeholders by meeting their customers' needs, maximising free cash flows from their world-class assets, and allocating capital with discipline. We are working towards building the furnace of India's growth. Considering 65% of their portfolio, that consists of margin-strong long products, we hold a unique position among their Indian peers and substantiate the growth agenda of the world's fastest growing large economy.

Customer faces challenges in maintaining the Standards in Quality and Defects in the machines as being a big plant and lack of proper safety and maintenance in the plant for the machines. They are facing more downtime in the plant due to which plant will go to shut down for longer time. With the rise in production, the industries would also face severe environmental and societal constraints. They have recognised climate change as one of the most pressing problems that is being felt across the globe. They are striving hard to avoid and manage climate-related risks and reduce our carbon emissions. Maintaining the machines is also difficult as it is made manually.

3. Solution

BLP proposed a solution with the help of Web Application. The Solution will be used to monitor the machine's performance, maintenance of the machines as well as employees and reducing the downtime.

We have proposed the model with different modules like Monitoring, Safety, Checklist, Alerts, Maintenance modules for different assets and individual parts in the plant.

BLP application is capable of handling data for different timestamps, check the defects in the machines, try to monitor the health status of machines by generating alerts in the assets through the application. By using the JSPL application we can check the safety measures machines in the plant and give the maintenance details of the same. Before the maintenance of machines is done manually, now it has been made dynamical through the application such that the time and risk factor have been reduced. The downtime is also slightly reduced after using the BLP-JSPL application.

4. Benefits

With our application, the customer was able to:

- Monitor the health status of the machines and replace the machines if there are any problems in the machines in time without wastage of time for keeping the plant shut down for more time.
- Increased the Productivity of the plant.
- Able to find the safety of the machines and take necessary actions within the time.

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- Alerts are generated based on the active status and functionality of machines such that the customer can act upon it.
- Can control the breakdown of machines.
- Downtime can be reduced.
- Maintenance made dynamic by which time and energy for doing the maintenance of machines is reduced.
- There will be less chances of getting the asset or plant shut down for longer time.

5. Customer PHASE 1 ,KPIS

- ### Running Hours = 60 - delay

(delay = bloom discharging time from RHF(if it takes more than 5 minutes) – 5)

- ### Average Rate of Production = Total Blooms / Running Hours
- ### Running status = Which shift is running at that time(A/B/C)
- ### Hourly Charge & Discharge = (Total_Shift_Charging/Total_Shift_Discharging) at that hour - (Total_Shift_Charging/Total_Shift_Discharging) previous hour
- ### Shift wise Charge & Discharge = Max(Total_Shift_Charging/Total_Shift_Discharging) – Min(Total_Shift_Charging/Total_Shift_Discharging)

- ### Fuel Consumption

   HFO consumption = Max(Total_Hfo_Consumption)-Min(Total_Hfo_Consumption)

   BFG Consumption = Max(Total_ BFG _Consumption)-Min(Total_ BFG _Consumption)

6.Architecture:
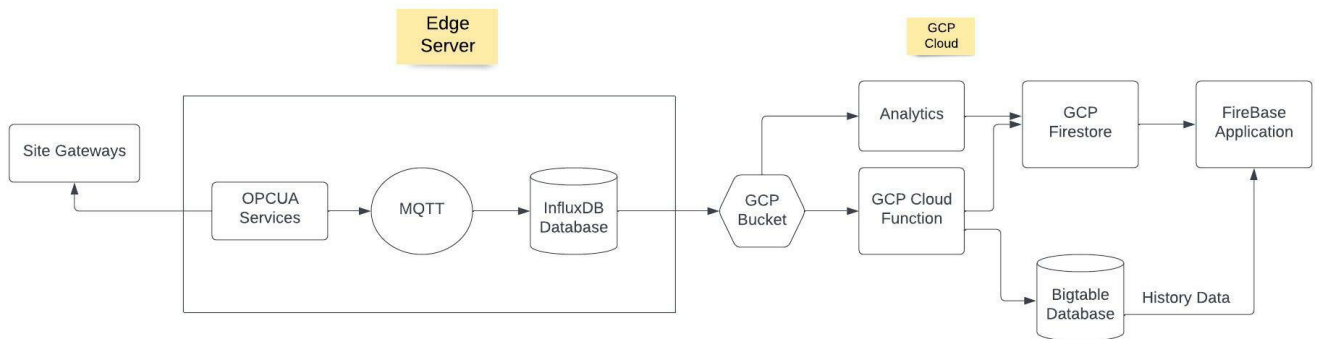
7. Functionality of Application

7.1 Login Screen:
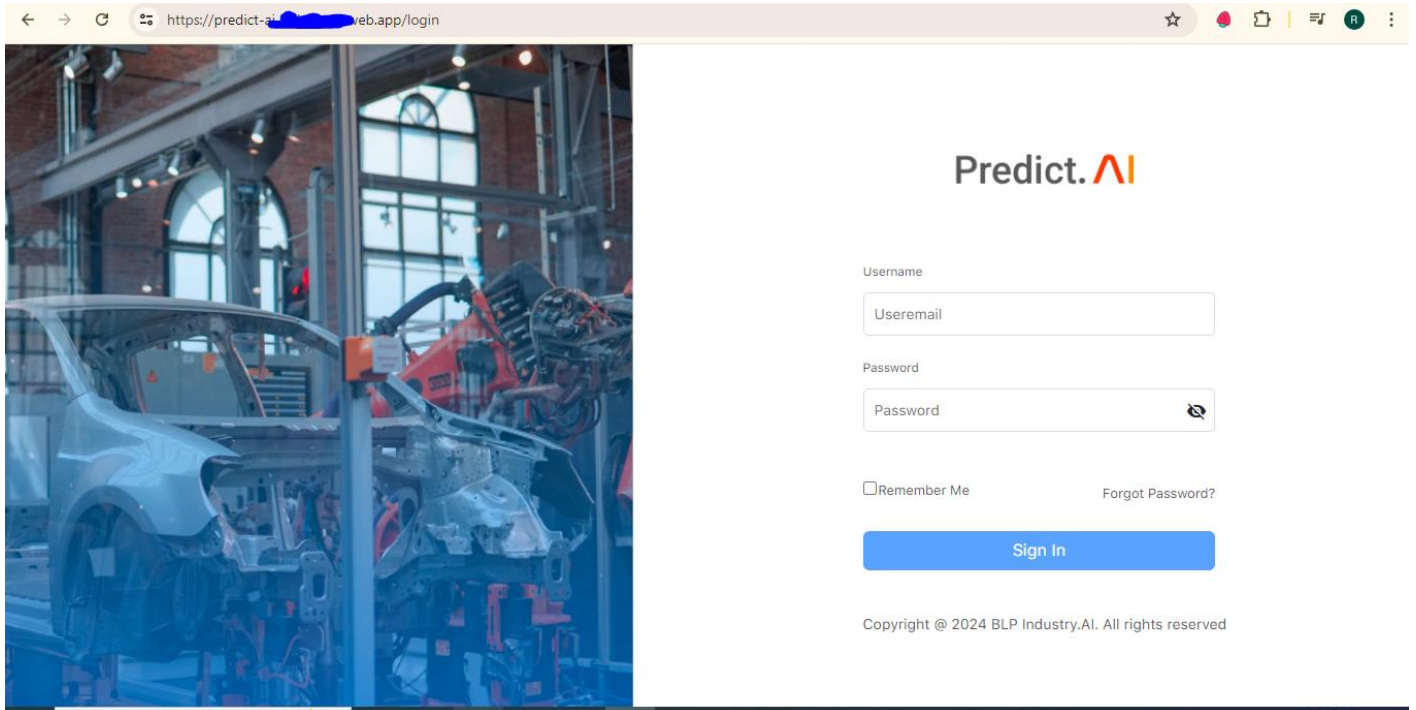
Step 1: Enter URL in the web browser.

Step 2: Enter the Username and password in both fields.

Step 3: Click on Remember me check box (If the "remember me" checkbox is checked while logging in, the browser should remember user credentials. The website homepage should load directly next time. And if the "remember me" checkbox is unchecked while logging in, the browser should not remember user credentials. The website should go to a login page for next time.)

Step 4: Forgot password functionality. Click on Forgot password if user forgot the password, enter username and User will be able to set new password.

Step 5: Click on the Sign In button and it will redirect to the dashboard page.

Credentials

URL: URL will be provided here for each customer

User Name: user detail

Password: password

7.2 Profile:

- If a user wants to logout, they need to click on their profile and click logout. It will redirect to the login page
- For user management, only super admins have access.

7.3 Dashboard:
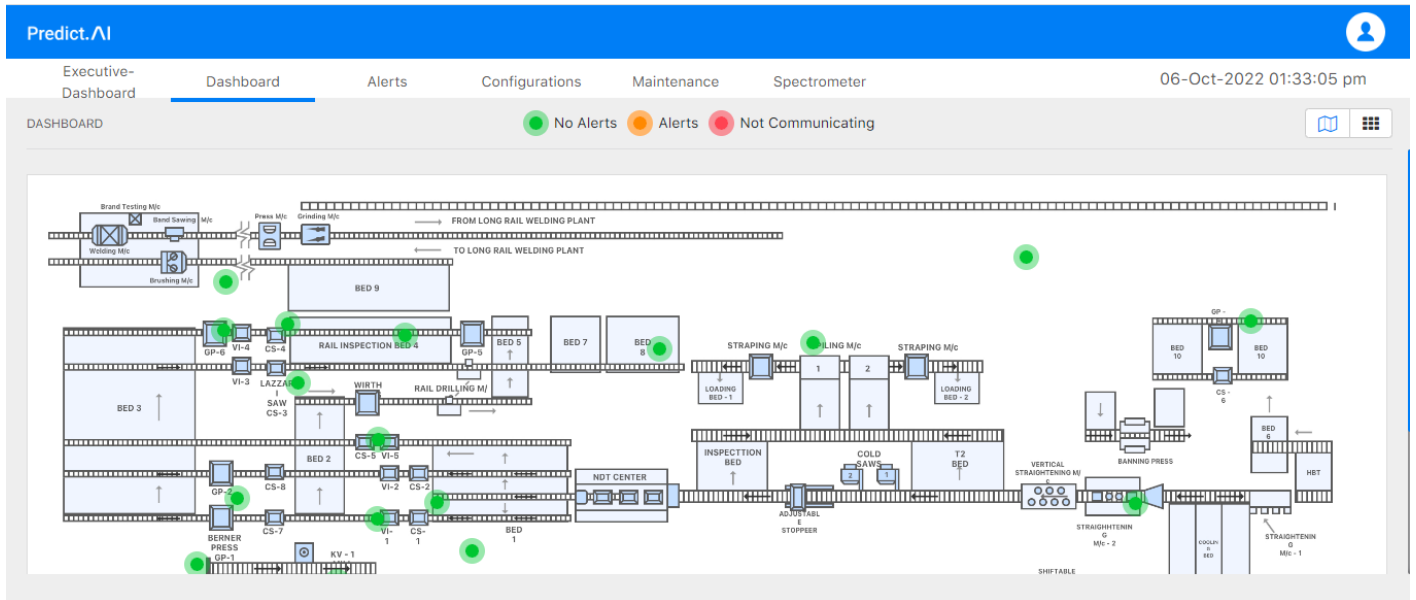
- User can view all the assets in Map View configured on the plant design.
- In the Grid View, User can see the details of each asset.

On click of any of the asset in the plant design, user will be taken to asset details page
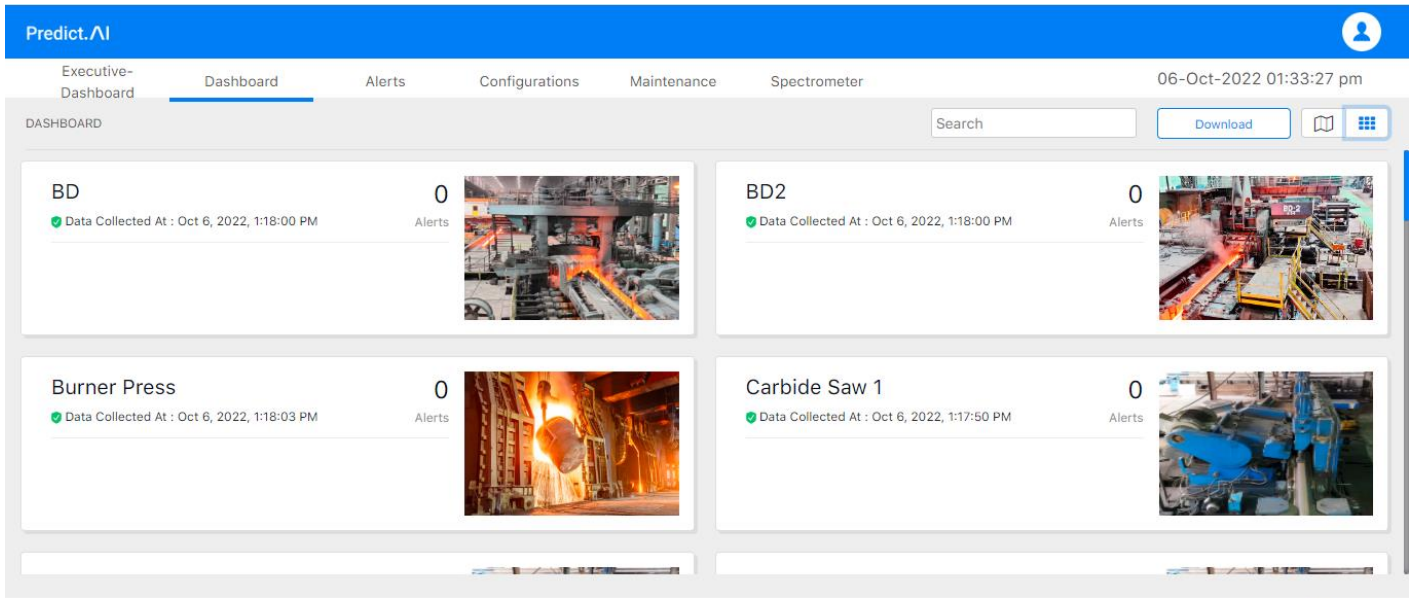
- In Grid View, the User can see all the assets with their respective images and the timestamp of the last data collected.
- Customer can search the asset.
- By clicking on the download functionality, user can see all the asset details as shown in the below image.
- By Clicking on any asset, user will be navigated to asset detail screen.
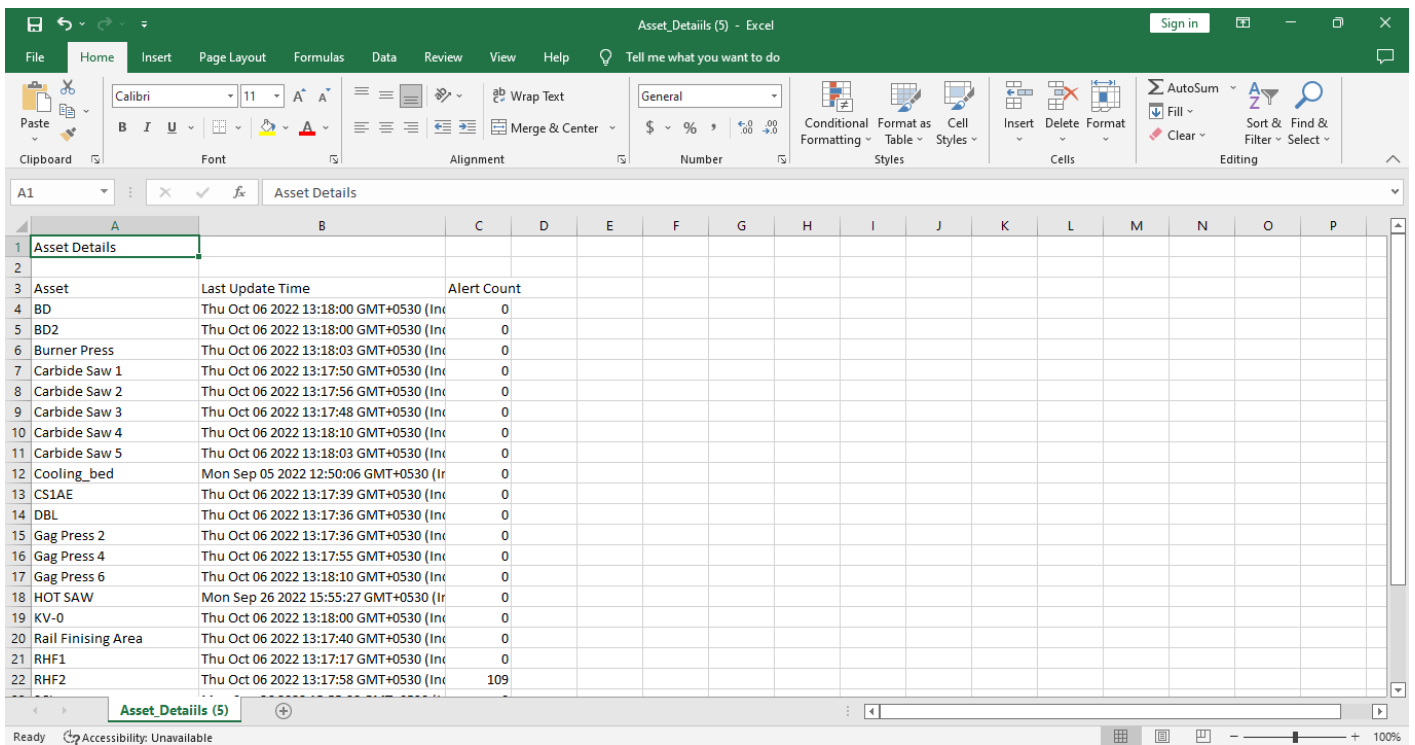
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| Executive-Dashboard | Dashboard | Alerts | Configurations | Maintenance | Spectrometer | 06-Oct-2022 01:35:29 pm |

DASHBOARD / BD

BD ▾ | Live Tags | Monitor | Add Widget

- Overview
- Trends Monitor
- KPI Monitor

BD

Alerts (0)   More Alerts

⚠️
No Alerts Found

Last Updated : 12:59 pm 06-Oct (10pm - 10pm)

| Total Blooms | | Rate of Production | |
| 185 Nos | 🕐 | 14.84 blooms/hour | ⏱️ |

Previous Shift: C

| Total Blooms | |
| 104 Nos | 🕐 |

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| Executive-Dashboard | Dashboard | Alerts | Configurations | Maintenance | Spectrometer | 06-Oct-2022 01:37:18 pm |

DASHBOARD / ASSET DETAIL / LIVE DATA

Search | BD ▾ | Download

S.No ⇕	Tag ⇕	Tag Description ⇕		Value ⇕	Timestamp ⇕
1	MD_GEN_DR_STATUS	General_Drive_Status	✏️	8	Oct 6, 2022, 1:33:06 PM
2	10K2_A3_2	Primary_Descaler_Booster_Pump_1_Running	✏️	0	Oct 6, 2022, 1:33:05 PM
3	11K2_A3_3	Primary_Descaler_Booster_Pump_2_Running	✏️	1	Oct 6, 2022, 1:33:05 PM
4	21K5_A2_4	Primary_Descaler_Hp_Pump_A_Running	✏️	0	Oct 6, 2022, 1:33:05 PM
5	21K6_A2_5	Primary_Descaler_Hp_Pump_B_Running	✏️	1	Oct 6, 2022, 1:33:05 PM
6	3101_TEMP1_ALARM	Bd_Aux_Gr_Tr_73101_Temp_1_Alarm	✏️	0	Oct 6, 2022, 1:33:05 PM
7	7204_73ATS_1	Bd_Tilter_Tilting_Angle_Sel_0_Deg_Ts	✏️	0	Oct 6, 2022, 1:33:05 PM

< 1 2 3 4 5 ... 14 >

- Asset details screen consists of Overview, Trends Monitor and KPI Monitor.
- User can filter the asset.
- By clicking on Live Tags icon user will be able to see all the live data with respective tag name and tag descriptions.
- By clicking on Add Widget user will be able to create Add and Edit widget details in Widget manager pop up screen.
- By clicking on More alerts user will be navigated to alerts screen.

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- Total Blooms, Rate of Production and Total Blooms of Previous Shift data is displayed on Dashboard details screen. It is calculated only for BD, BD2, RHF2, HOTSAW, TANDEM assets.
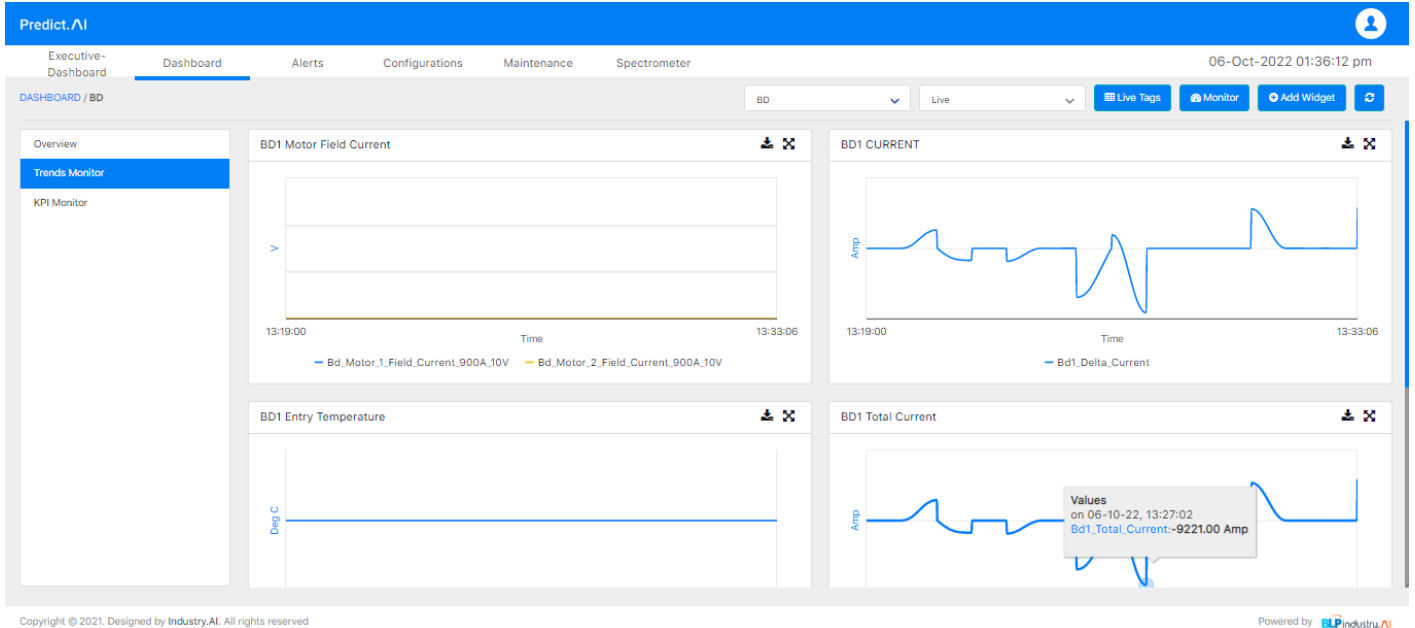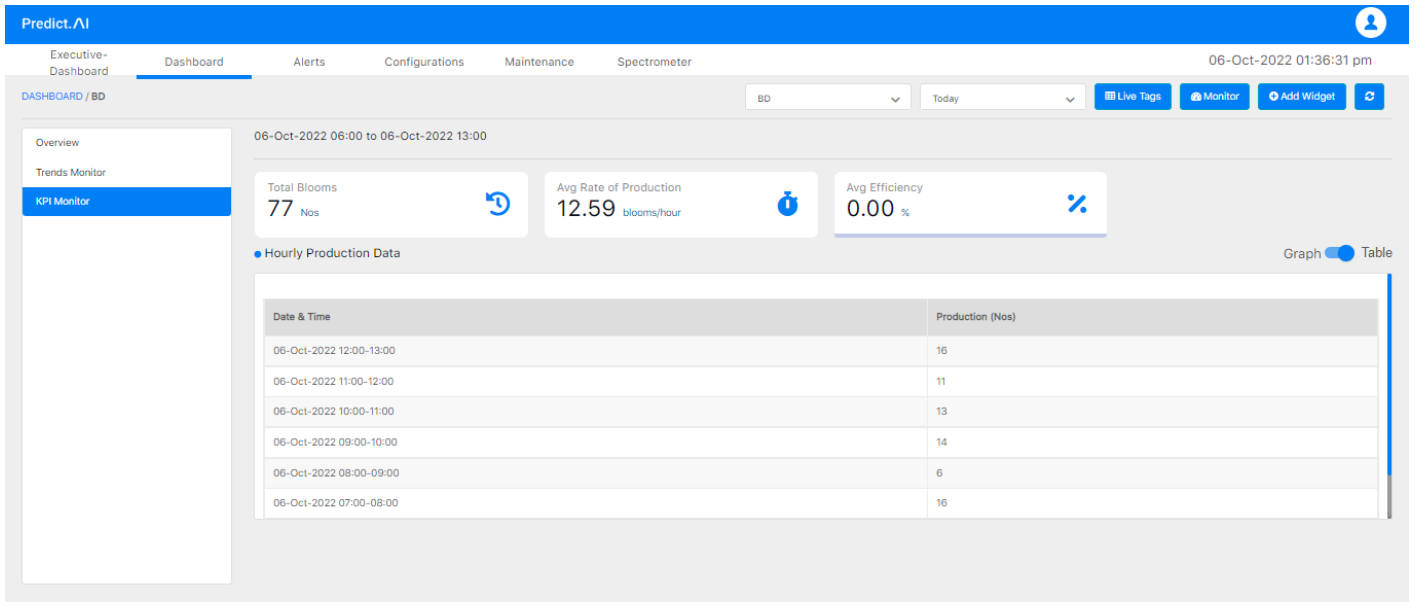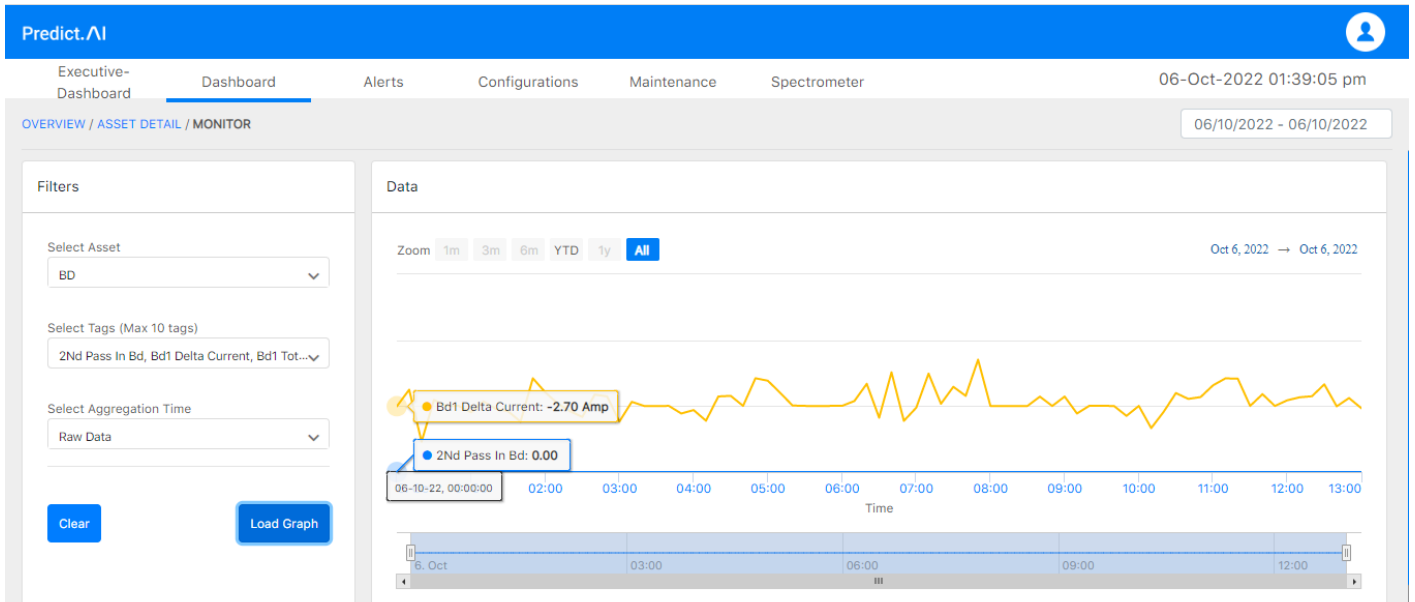
- In the filters department, user can see the options Date range selection, Select Asset, Select tags, Select Aggregation time graph type option.
- In the date range selection, the user can get the date picker for date selection. Based on date selection trends load.
- On this page, users can see both raw data and KPI data. By default, raw is selected.
- On the KPI page, users can see the tag in the centre graph navigation bar.
- In the select asset dropdown, user can select which asset they want to see the trend for. Based on the selection, trends will be displayed. And the aggregation dropdown has two options 10 min. & 60 min.
- Select graph type. User can use this option to change the graph trend.
- In raw data, In the asset, user can select what tag they want to load in the Select tag fields. And click on load graph to load tags in the trends (Max 10 Tags)
- And user can select the aggregation time of 10 min or 60 min in the Select aggregation time dropdown.
- When a user hovers their mouse over a trend, they will see a data with the tag name, tag values, and unit.
- And then click on Asset Detail at the top, it will be redirecting to Asset details page.

7.4 Alerts:

- Threshold can be set for different parameters. On crossing, those values alerts will be generated.

- By clicking on filter icon User can select alert type, Acknowledge and Relevance.

7.5 Configurations:

- Threshold can be set for different parameters. On crossing, those values alerts will be generated.
- User can set upper and lower threshold value and criticality (Low, Medium, Moderate and High).
- Datatype can be selected either as analog or digital.
- User can download threshold value document for any asset by clicking on the download icon.

- In Machines, All the asset with asset code is displayed here.
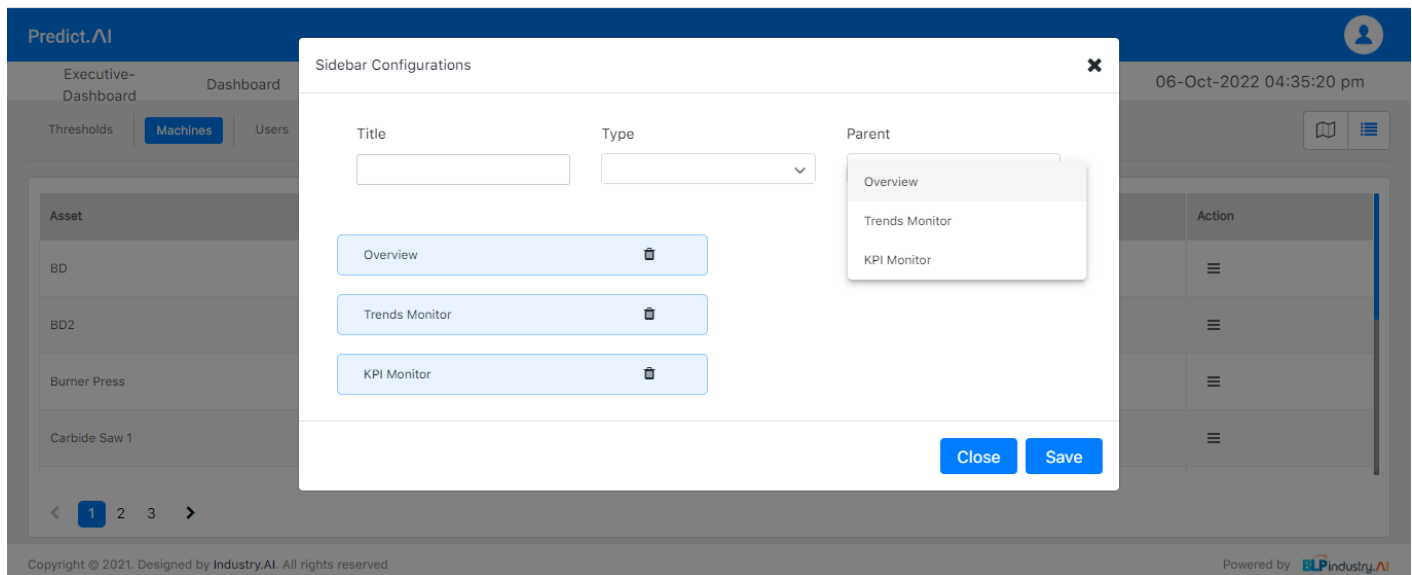
- By clicking on Action icon, user can add or edit the sidebar title, type and parent type.

- User can add or create user and edit the user information by clicking on the edit icon.
- By clicking on Settings icon, user will be navigated to access permissions and will be able to checkmark any of the assets and screen.
- By clicking on delete icon, we can delete the user.

- Shift In charge name and their area name information is displayed here.
- User can Edit and delete details by using edit and delete icon.
- User can click on Add In charge icon and add shift incharge details.

7.6 Maintenance:
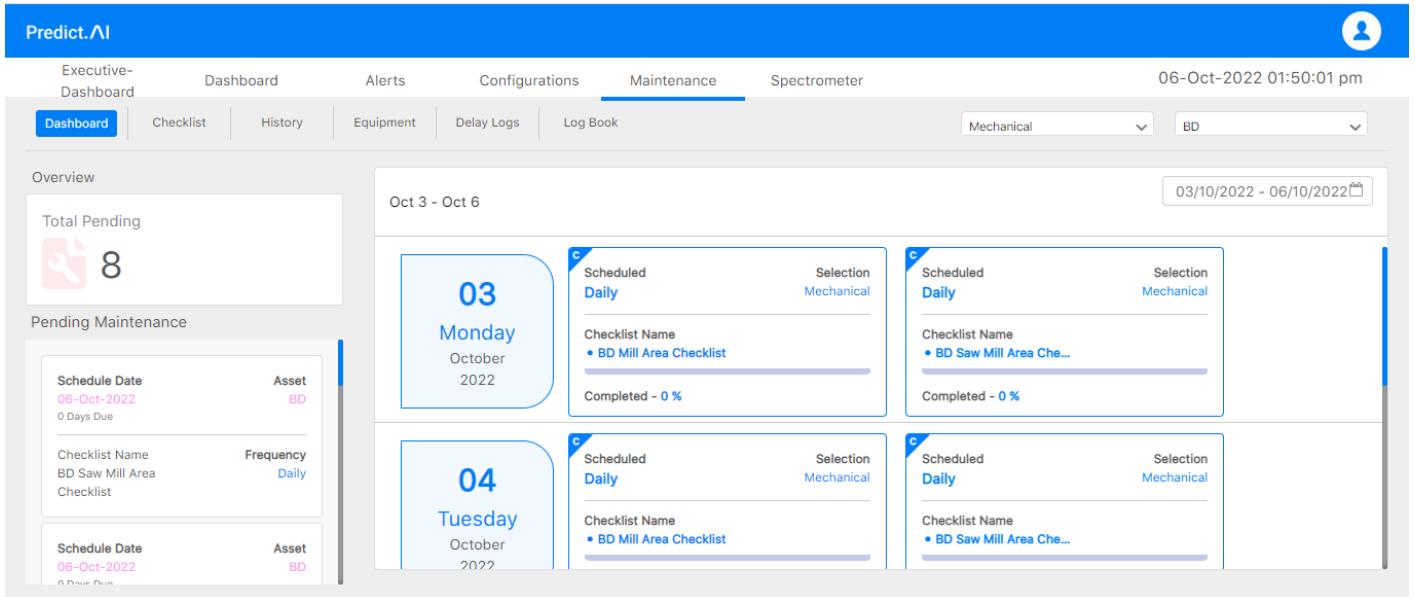
- Maintenance dashboard consists of mechanical, electrical, hydraulic, operations and miscellaneous asset type.
- User can see the details of checklist, Total pending and Pending maintenance of the selected asset in filter dropdown.
- User can select the date range in date picker.
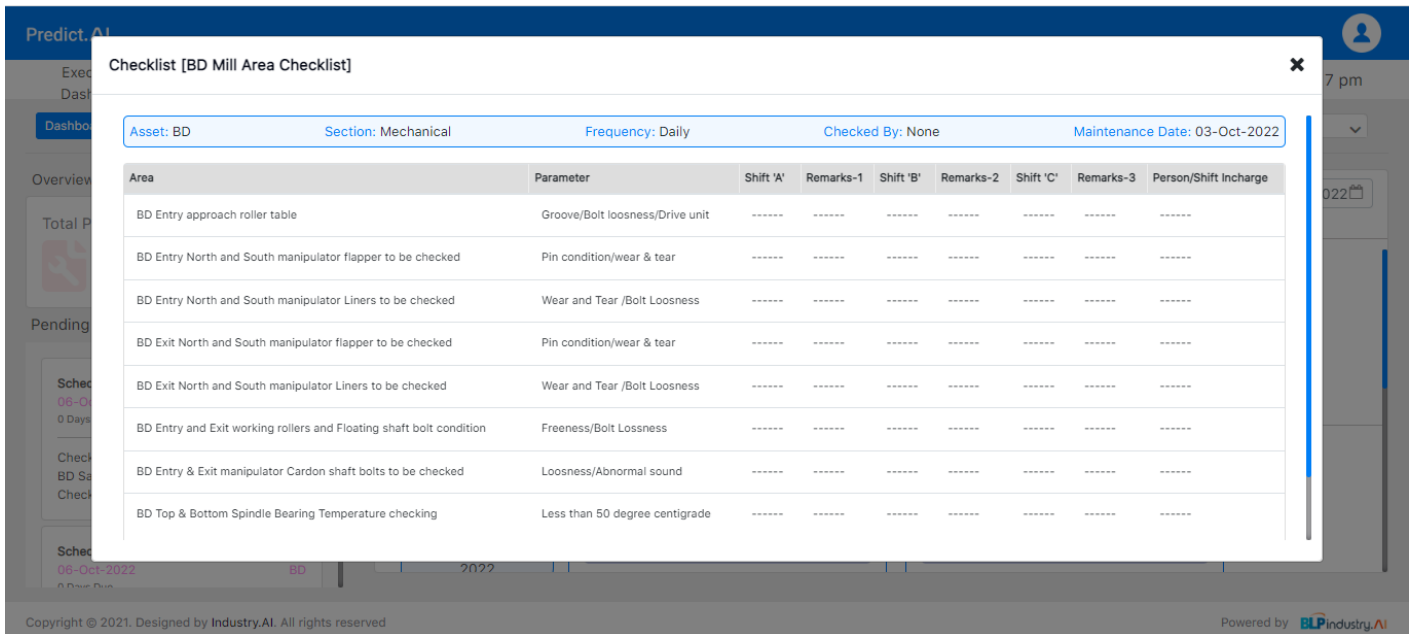
- By clicking on view, user can see the checklist details.

- On checklist tab, user can see all checklist details that have been created by the customer.

- User can select the asset type in the dropdown.
- By clicking on Add icon, customer can enter all the checklist details and save it.
- The added details will be displayed under selected asset and selected asset type.

- Each asset will be having different parts, that defect will be added in equipment page.
- By clicking on add equipment, user can add all the details of equipment.

- Breakdown Maintenance: If there is any sudden damage. Damage is fixable for short period of time. All the details can be added in breakdown maintenance.

- Preventive Maintenance: Complete action for repair or change of the component. All the details can be added in preventive maintenance.

- Delay Logs: The Logging Delay Detail report gives information about the delays the job step experiences because of the details logging environment. All timings are based on elapsed time (in milliseconds). Logging Delay Detail report.
- User can add all log by clicking on Add log.

- A log book is a book in which user or customer records details and events relating to maintenance and equipment.
- User can add all log details by clicking on Add log.

7.8 Analytics

Here we are showing 3 different page called Dashboard, Section and delay page. All 3 pages contain many use KPI's
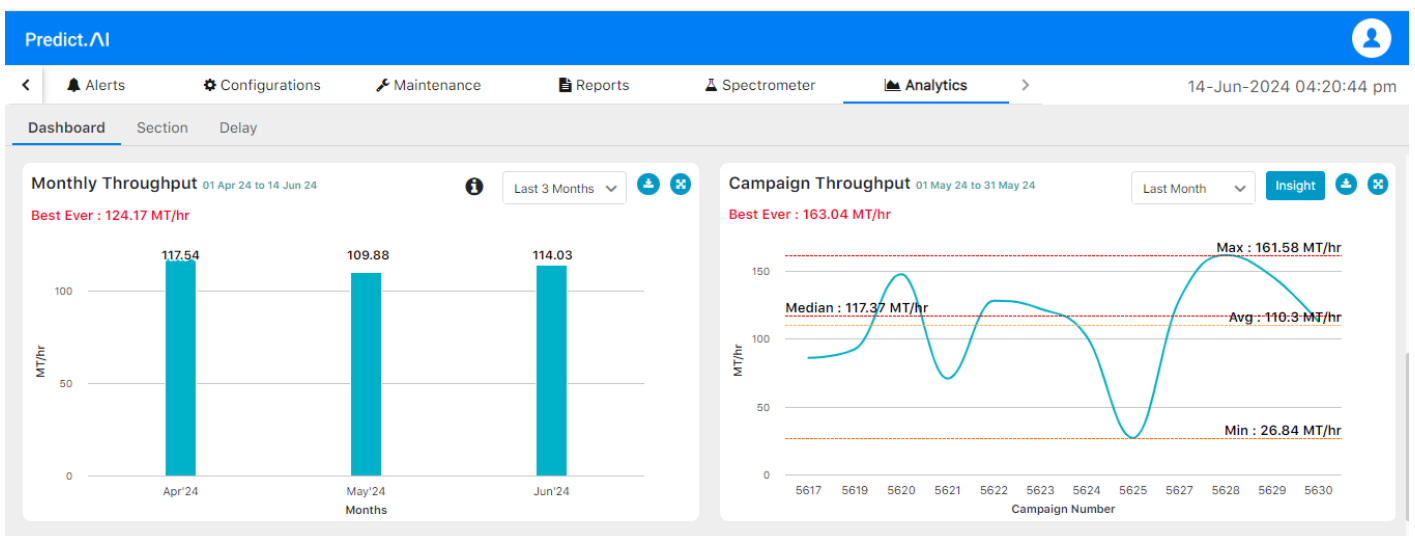
Like Total Production, Total Runtime, Total Delay and Throughput.

In Dashboard We are showing Daily Throughput, Machine throughput, Campaign Throughput, Monthly Throughput and Specific Energy consumption
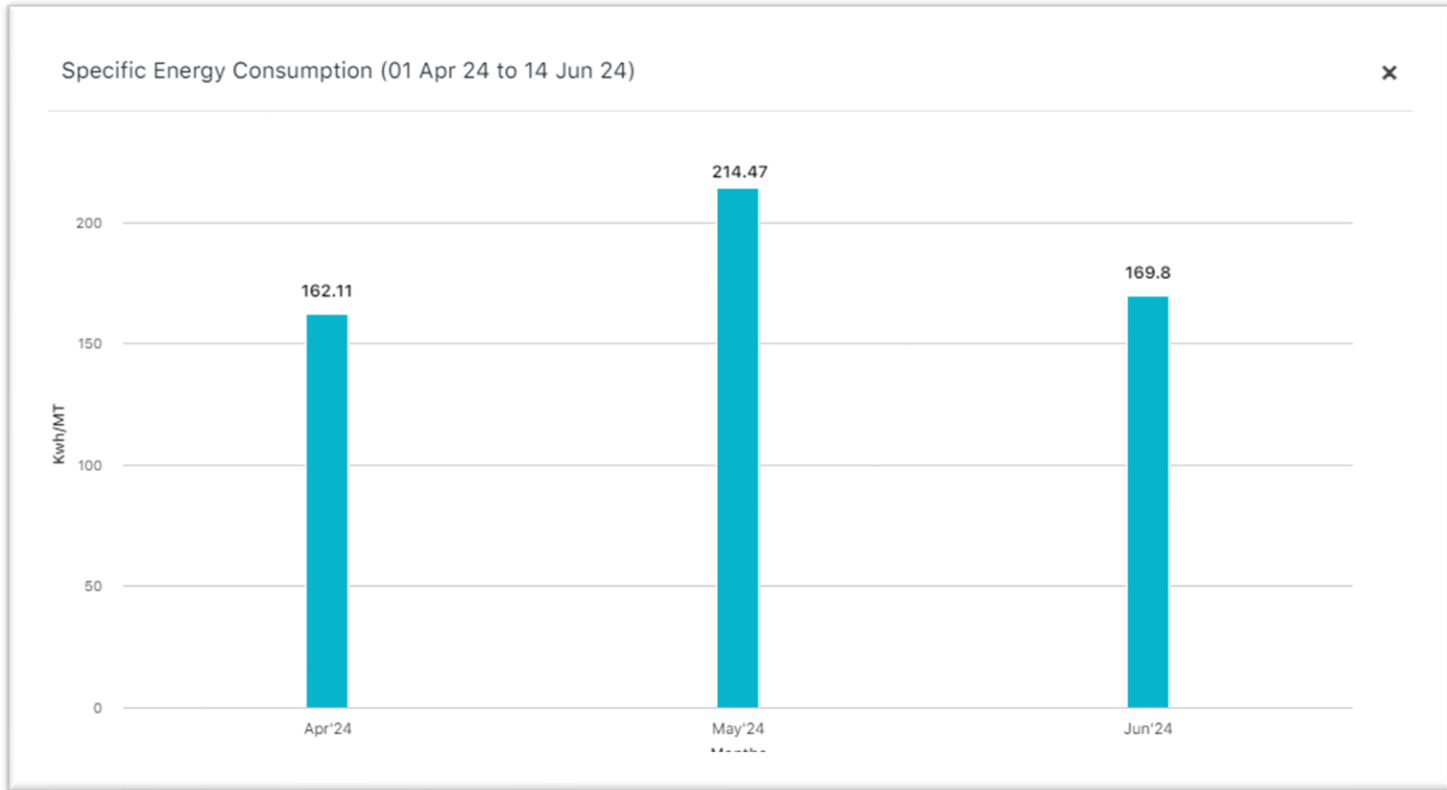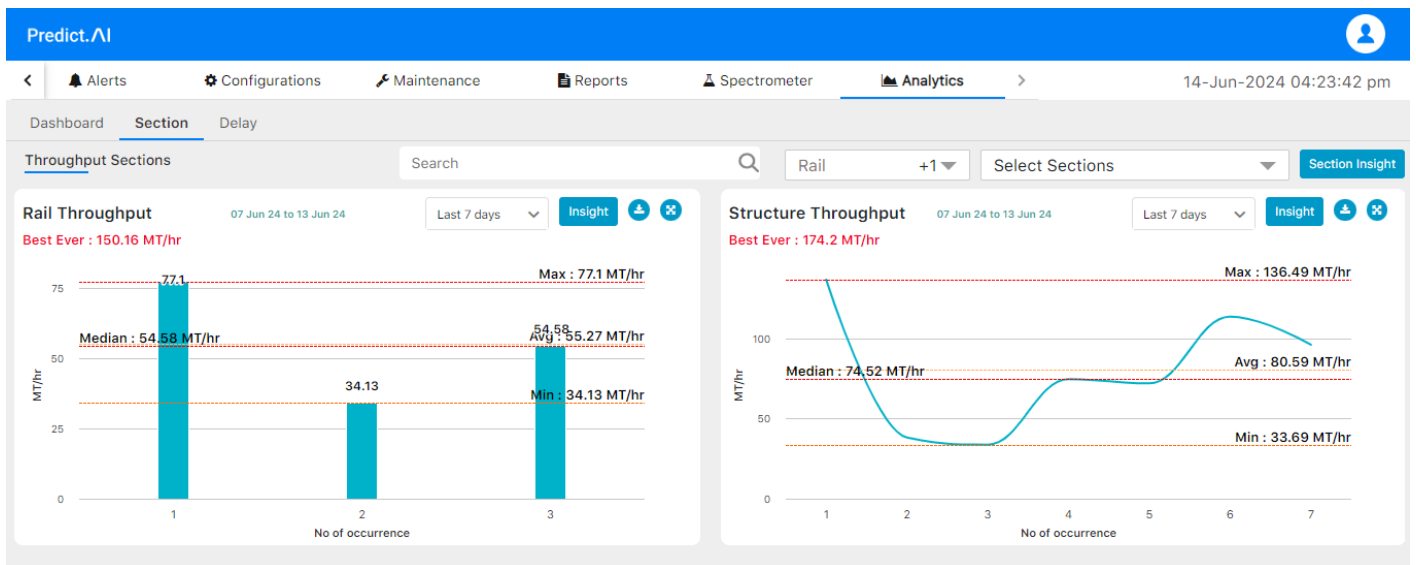
Screenshot for the graph is below:
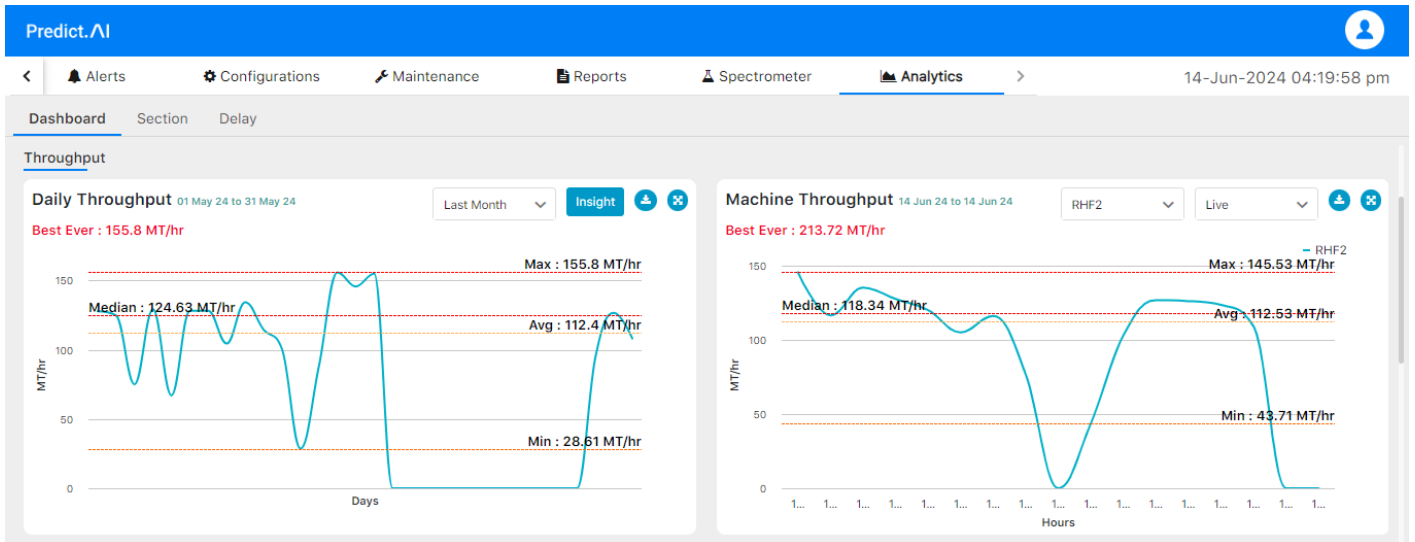
Monthly and Campaign Throughput:

Specific Energy Consumption:

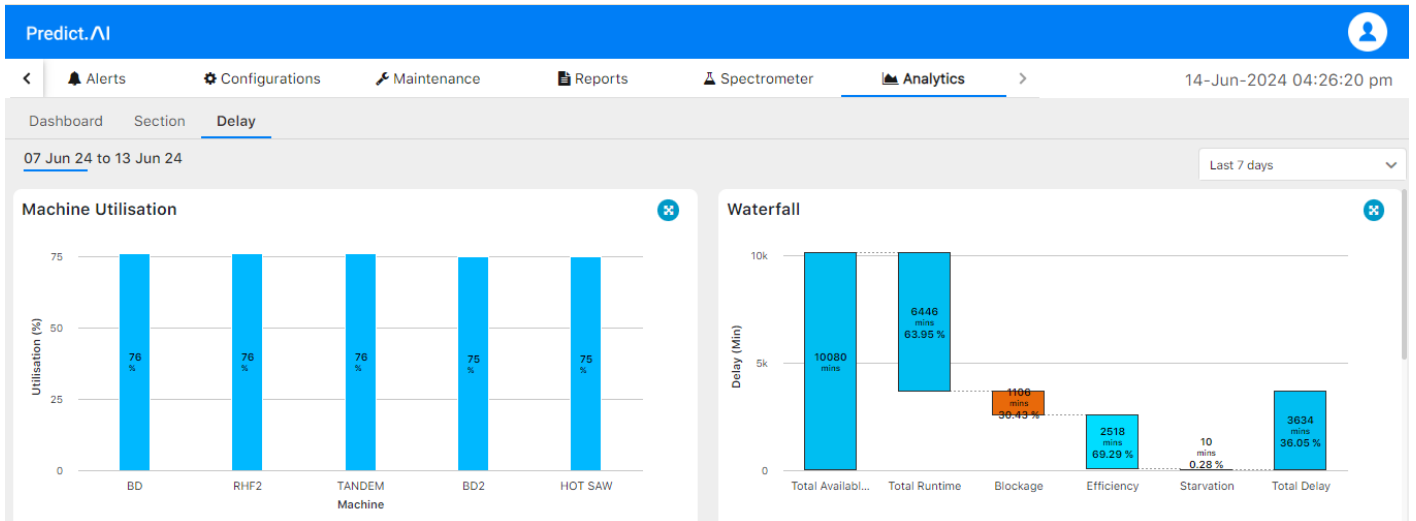**Specific Energy Consumption (01 Apr 24 to 14 Jun 24)**

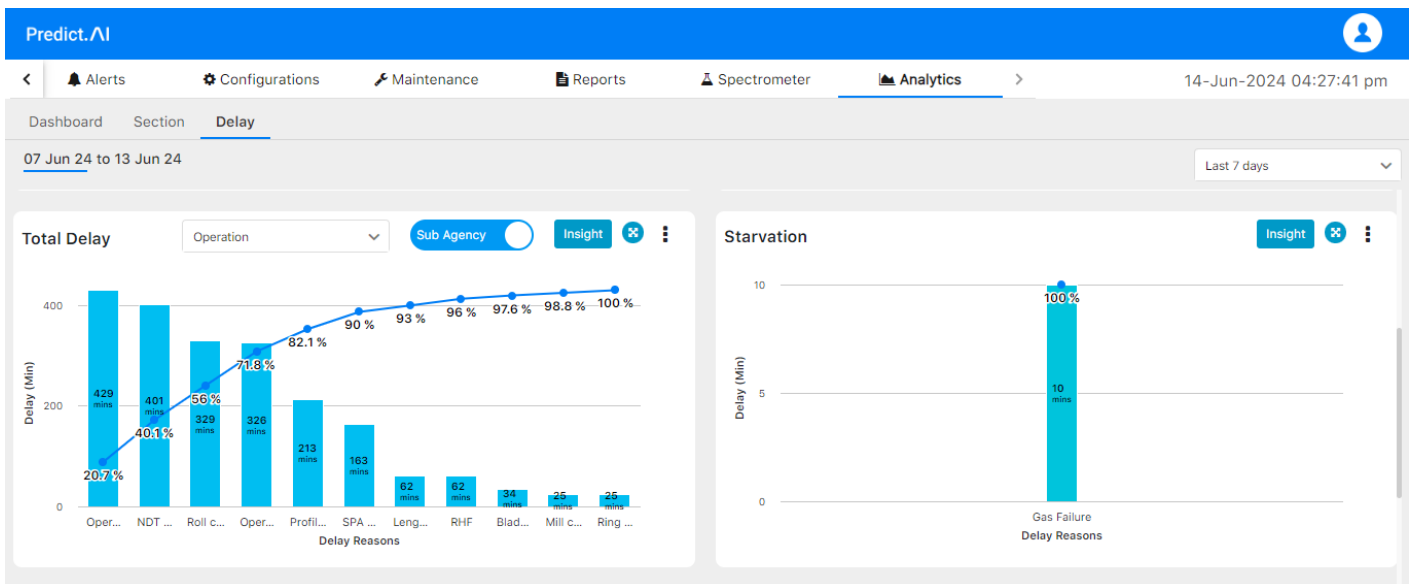**Section: Here we are showing two types of throughput**

Delay: In this page we are showing 6 types of information in graphical format:

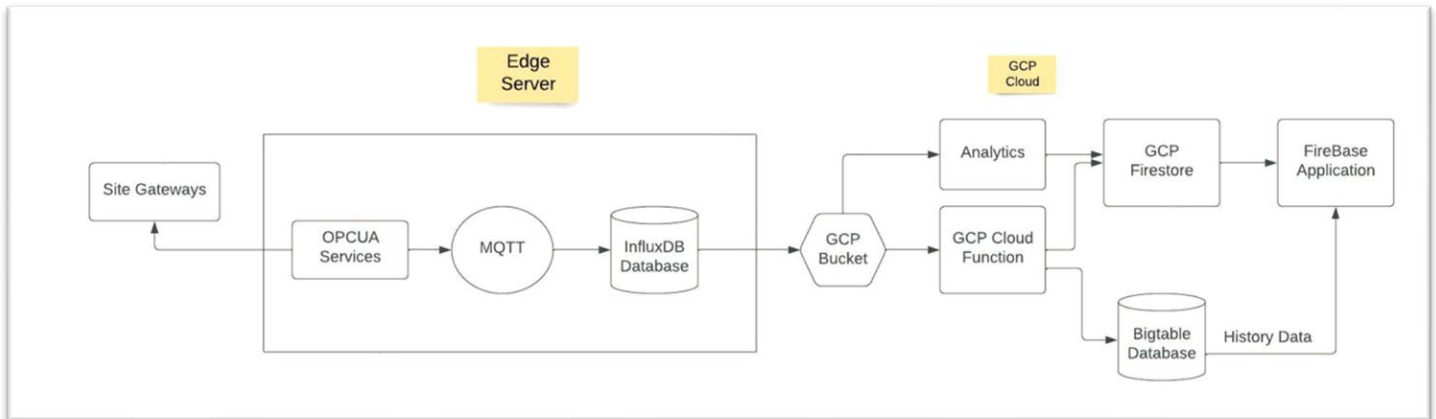Machine Utilization and Waterfall chart:

Total Delay and Starvation:

Blockage and Efficiency:

7.9 Architecture of Predict.AI

....................Thank You......................

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