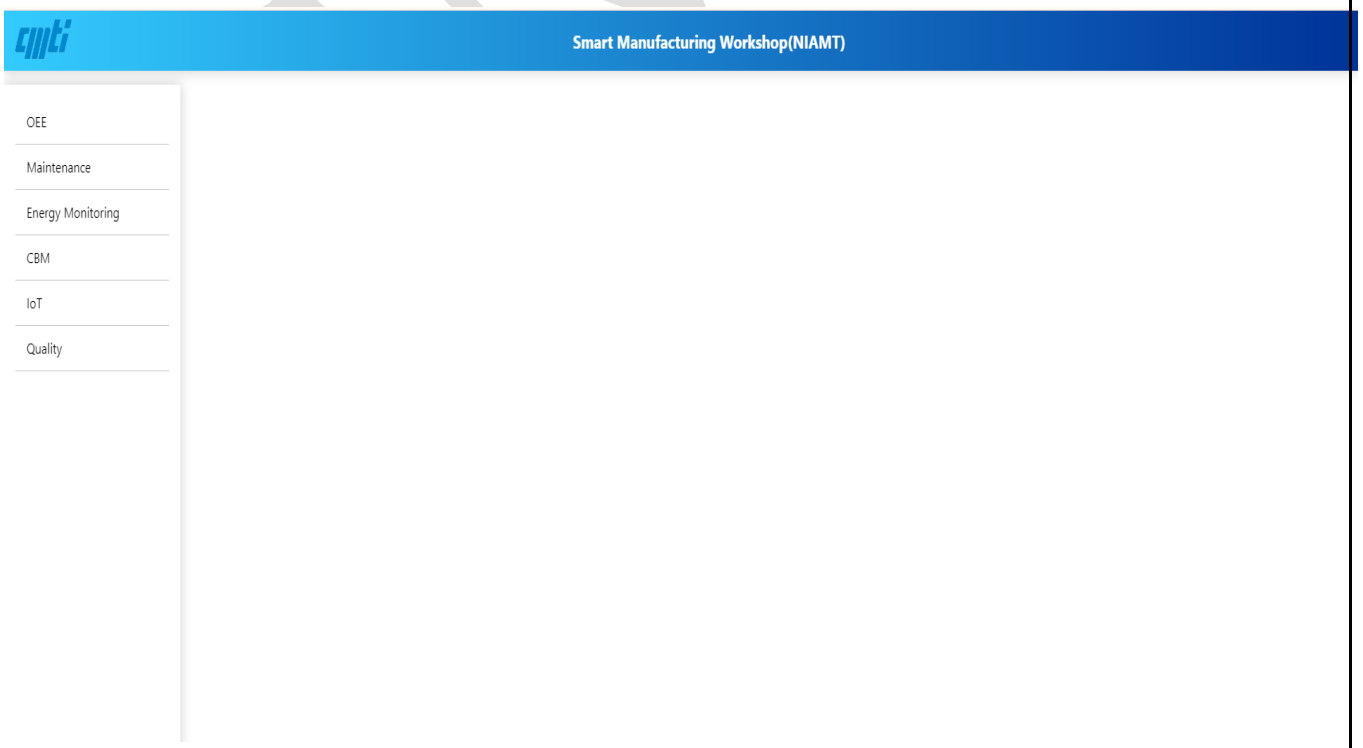
Overall equipment Efficiency of Machines

Based on the navigation menu shown in below image, here are the key points about the different modules and their routing:

1. OEE (Overall Equipment Efficiency)
   - Route: http://172.18.100.214:8080/oee
   - Primary module for monitoring equipment efficiency and performance metrics
2. Maintenance
   - Route: http://172.18.100.214:8080/maintenance
   - Module for managing equipment maintenance schedules and activities
3. Energy Monitoring
   - Route: http://172.18.100.214:8080/energy-monitoring
   - System for tracking and analyzing energy consumption patterns
4. CBM (Condition Based Monitoring)
   - Route: http://172.18.100.214:8080/cbm
   - Module for monitoring equipment conditions and predictive maintenance
5. IoT & Quality
   - IoT Route: http://172.18.100.214:8080/iot
   - Quality Route: http://172.18.100.214:8080/quality
   - Modules for IoT device management and quality control monitoring

Note: It appears this is part of a Smart Manufacturing Workshop (NIAMT) system, with each module accessible through the same base URL but different endpoints. When implementing navigation, ensure proper routing and access controls are in place since this appears to be an internal system (based on the IP address).



1. Dashboard Overview:

- The dashboard is designed to monitor the Overall Equipment Effectiveness (OEE) of machines.
- Key performance indicators (KPIs) such as OEE, Performance, Quality, and Availability are prominently displayed using gauge charts.

2. User Interface Elements:

Header Section:

- The header includes the company logo, a settings icon, navigation tabs (Home, Analytics, Daily, Weekly, Monthly, Download), and a machine selection dropdown.

3. Machine Selection:

- Users can select different machines from the dropdown menu to view specific data for each machine.

4. KPI Displays:

- OEE, Performance, Quality, and Availability metrics are shown as gauge charts with percentage values.

5. **Status Indicators**:
    - Indicators for machine state, run time, idle time, and off time are displayed with corresponding color codes (green, blue, orange, red).

6. **Parts Count**:
    - Total parts, good parts, and bad parts counts are shown prominently.

7. **Data Visualization**:

- The dashboard uses various charts and graphs to visualize machine performance and state trends.
- **Gauge Charts**:
    - Display OEE, Performance, Quality, and Availability metrics.
- **Runtime Data**:
    - A pie chart shows the distribution of run time, idle time, and off time.
- **Machine State Trend**:
    - A bar chart visualizes the machine state trends over a period, showing on time, idle time, and off time.

8. **Interactivity**:

- The dashboard allows users to add machines and view data for selected machines.
- The interface is designed to be user-friendly and provides a clear overview of the machine's performance metrics.

9. **Additional Features**:

- A section for adding new machines is available.
- Navigation tabs allow users to switch between different time periods (daily, weekly, monthly) and download reports.

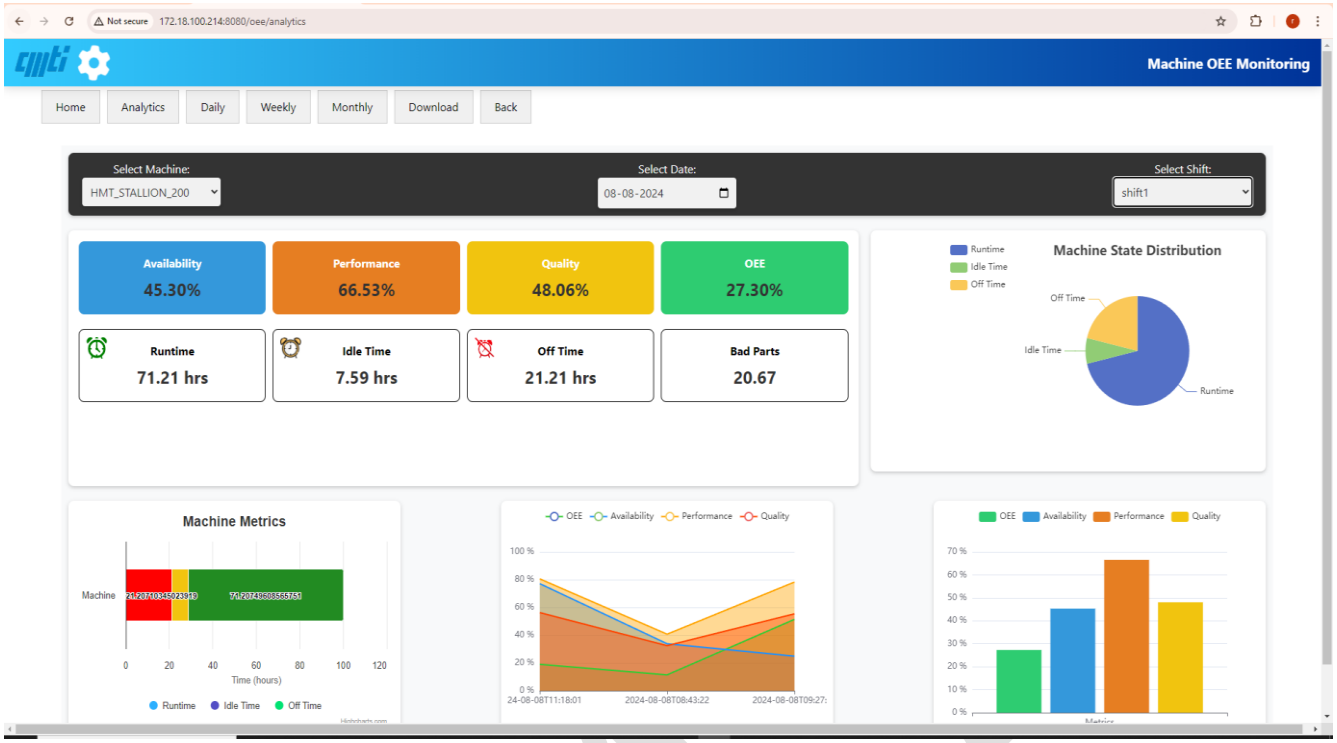
10. **Styling and Responsiveness**:

- The dashboard uses a consistent color scheme and layout.
- Elements are designed to be responsive, ensuring usability on different screen sizes.

11. **Potential Enhancements**:

- Implement real-time data updates for machine metrics.
- Add tooltips or detailed information pop-ups for each chart and metric.
- Provide export options for individual charts and data tables.

2. Analytics User Interface (for Daily, Weekly, Monthly):

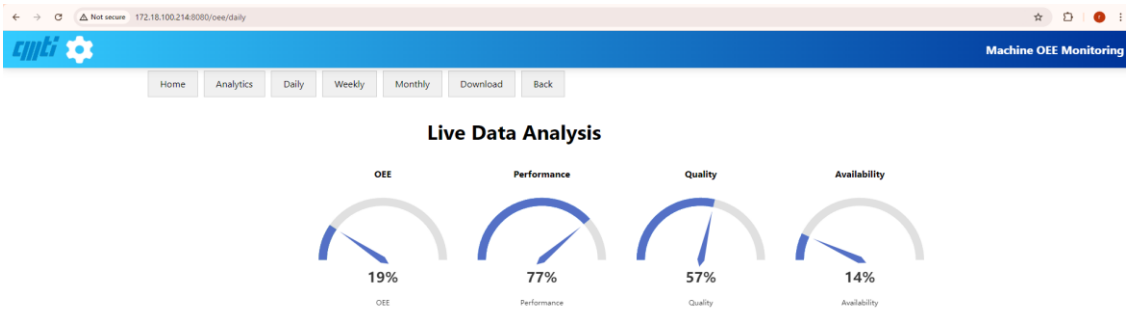


1. **Analytics Page Overview**:
   - The Analytics page provides detailed insights into machine performance metrics for a selected date and shift.
   - Similar dashboard layout is used for Daily, Weekly, and Monthly pages, with data fetching based on the selected time frame.
2. **User Interface Elements**:
   - **Header Section**:
     - The header includes the company logo, a settings icon, and navigation tabs (Home, Analytics, Daily, Weekly, Monthly, Download).
   - **Machine Selection**:
     - Dropdown menu to select different machines.
   - **Date and Shift Selection**:
     - Date picker to select the specific date.
     - Dropdown menu to select the shift (e.g., shift1).
3. **Performance Metrics**:
   - **Key Metrics**:
     - Availability, Performance, Quality, and OEE metrics are displayed as colored boxes with percentage values.
     - Additional metrics such as Runtime, Idle Time, Off Time, and Bad Parts are displayed below the key metrics.
   - **Detailed Metrics**:
     - Availability
     - Performance

        - Quality
        - OEE
        - Runtime
        - Idle Time
        - Off Time
        - Bad Parts

4. **Data Visualization**:
    - **Machine State Distribution**:
        - Pie chart showing the distribution of runtime, idle time, and off time.
    - **Runtime vs Off Time**:
        - Bar chart visualizing runtime and off time cycles.
    - **OEE Trend**:
        - Line chart showing the trend of OEE over the selected time period.
    - **Runtime and Off Time**:
        - Line chart displaying the runtime and off time percentages over the selected time period.
5. **Interactivity**:
    - Users can interact with the dashboard by selecting different machines, dates, and shifts.
    - The charts and metrics update dynamically based on the selected parameters.
6. **Styling and Layout**:
    - Consistent color scheme and layout are maintained across all pages (Analytics, Daily, Weekly, Monthly).
    - The interface is designed to be user-friendly and provides a clear overview of machine performance metrics.
7. **Time Frame Data Fetching**:
    - **Daily Page**: Displays data for the selected date.
    - **Weekly Page**: Displays data from the current date to the previous one week.
    - **Monthly Page**: Displays data from the current date to the previous one month.
8. **Potential Enhancements**:
    - Implement tooltips or detailed information pop-ups for each chart and metric.
    - Provide export options for individual charts and data tables.
    - Allow users to customize the date range for data fetching.

3. <u>Daily Analysis:</u>

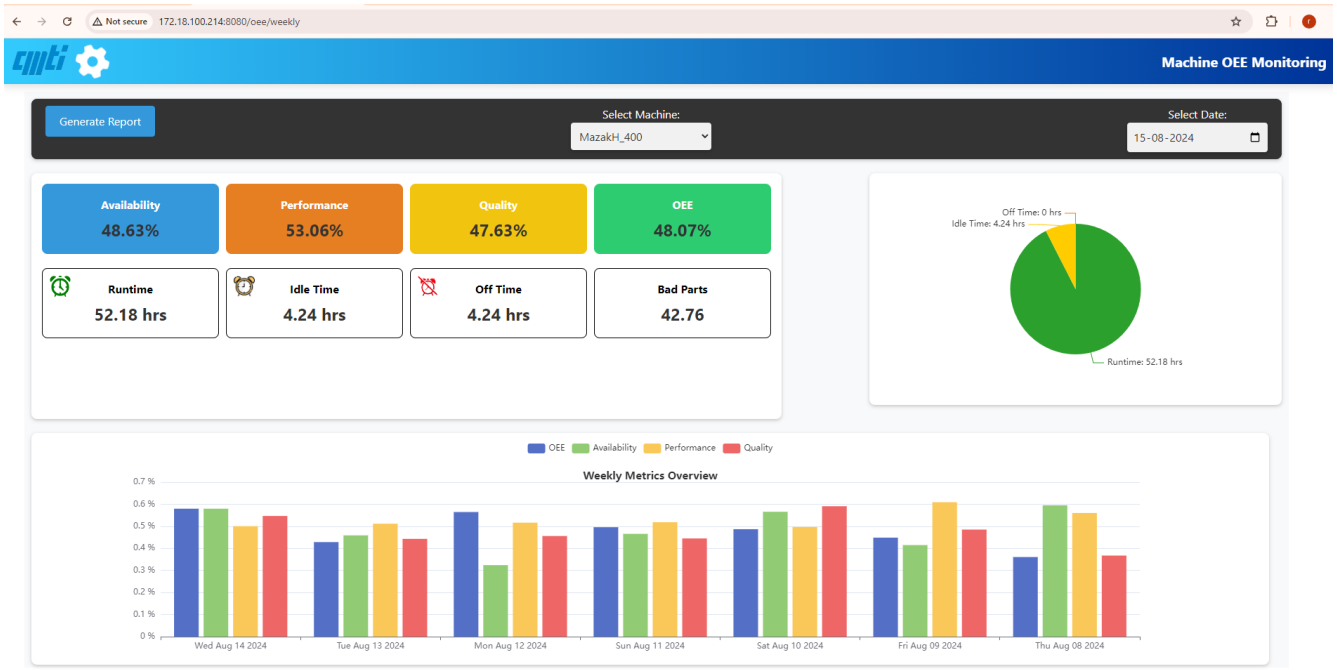


Here are key points for documentation based on the Machine OEE Monitoring interface shown in the above image:

1. Navigation Structure
    - The system features a comprehensive navigation bar with Home, Analytics, Daily, Weekly, Monthly, Download, and Back options
    - Clear hierarchical organization allows users to access different time-based views of the data
2. Live Data Analysis Dashboard
    - Displays four critical KPIs through gauge visualizations:
        - Overall OEE
        - Performance
        - Quality
        - Availability
    - Each metric is clearly labelled and shows percentage values
3. User Interface Elements
    - Clean, modern interface with a blue gradient header displaying "Machine OEE Monitoring"
    - Gauge visualizations use blue indicators against Gray backgrounds for clear visual contrast
    - Located at URL path "/oee/daily" indicating daily view of OEE metrics
4. Data Visualization
    - Uses semi-circular gauge charts for intuitive representation of percentages
    - Consistent design across all four metrics enables easy comparison
    - Real-time/live data updates as indicated by the "Live Data Analysis" heading

These points cover the essential aspects of the interface that should be documented for users and maintainers of the system.

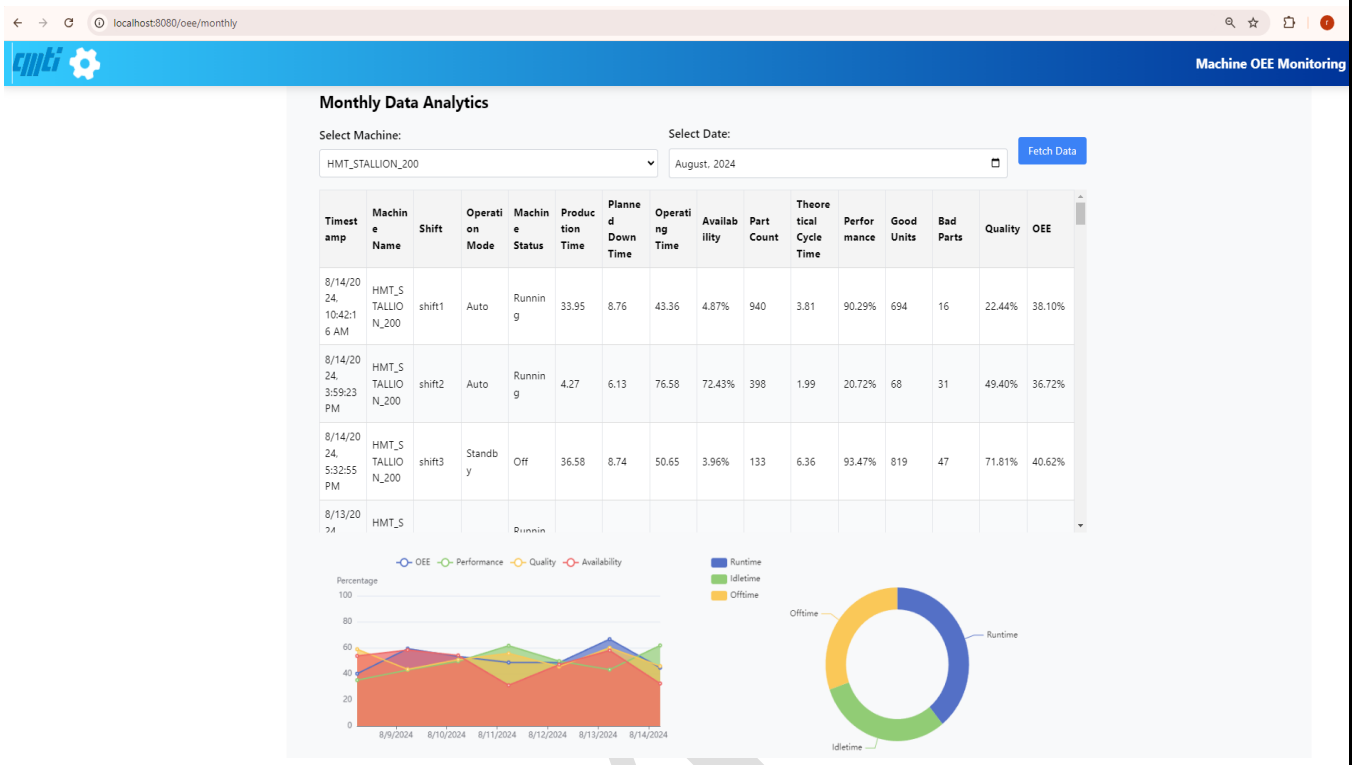
4. Weekly Analysis:



Here are 5 key points for above image based on the weekly OEE Monitoring interface shown:

1. Page Header and Controls
    - Features a "Generate Report" button on the left
    - Machine selection dropdown (currently showing "MazakH_400")
    - Date picker with calendar interface (set to "15-08-2024")
    - Clear machine-specific tracking functionality
2. Key Performance Metrics Display
    - Four color-coded metric cards showing current values:
        - Availability (Blue)
        - Performance (Orange)
        - Quality (Yellow)
        - OEE (Green)
3. Time Distribution Metrics
    - Runtime
    - Idle Time
    - Off Time
    - Bad Parts count
    - Includes a pie chart visualization of time distribution
4. Weekly Metrics Overview Graph
    - Bar chart showing daily trends from Thursday to Wednesday
    - Color-coded bars for OEE, Availability, Performance, and Quality
    - Y-axis scaled from 0% to 70%
    - Shows week-over-week performance comparisons
5. Visual Design Elements
    - Consistent color scheme throughout (blue, orange, yellow, green)
    - Clear metric categorization and labelling
    - Interactive elements (dropdowns, date picker, report generation)
    - Responsive layout with both numerical and graphical representations

5. Monthly Analysis:



6. Download: