

Warehouse and Inventory System with eWay Bill Integration

Overview

Afcons Infrastructure Limited is the flagship engineering and construction company of the Shapoorji Pallonji Group. Established in 1959 and headquartered in Mumbai, it is a leading EPC (Engineering, Procurement & Construction) contractor.

The company executes large-scale infrastructure projects in marine works, metros, bridges, highways, tunnels, and oil & gas across India and international markets.

1. Project Overview

The **Warehouse Management System (WMS)** was developed to streamline material movement at project sites by digitizing:

- E-Way Bill integration
- Inward material receipt
- Inspection workflow
- Outward material movement with Gate Pass

The system ensures compliance with Indian logistics regulations while maintaining real-time visibility of material movement inside and outside the project premises.

2. E-Way Bill Process

What is an E-Way Bill?

An **E-Way Bill** is a mandatory electronic document required for the movement of goods in India under GST regulations. It is generated through the **Goods and Services Tax Network** via the **E-Way Bill System** portal.

Problem Before WMS

- E-Way Bills were manually checked.
- No advance visibility of incoming materials.
- High risk of compliance issues.
- Manual data entry errors.
- No centralized record at project site.

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Solution Implemented in WMS

Automated E-Way Bill Fetching

1.Pre-Arrival Visibility

2.Compliance Control

3. Inward Process

Once the vehicle arrives at the project site:

Step 1: Gate Entry Verification

Step 2: Inward Creation in WMS

Step 3: Inspection Workflow

4. Outward Process (Material Moving Outside Project)

Step 1: Outward Request Creation

Step 2: Approval Workflow

Step 3: Gate Pass Generation

Step 4: Security Validation

5. Process Flow Summary

Inward Flow:

E-Way Bill Generation → API Fetch → Gate Verification → Inward Creation → Inspection

Outward Flow:

Outward Request → Approval → Gate Pass Generation → Security Verification → Dispatch

Technology Stack

Blazor | .NET Core APIs | SQL Server | IoT GPS Integration | MAUI

Conclusion

The WMS inward and outward modules created a controlled system for material movement at project sites. By integrating with the E-Way Bill System, it ensures regulatory compliance, real-time tracking, secure gate operations, and full audit transparency—reducing risk while improving efficiency and accountability.

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