# Logicore

## Smarter Packing Starts Here

In the evolving world of e-commerce and logistics, efficient packaging and delivery have become essential for both sustainability and customer satisfaction. Our platform leverages artificial intelligence to revolutionize the packaging process by optimizing material use, routing, and forecasting. This documentation outlines the core features and components of our AI-powered package recommender and logistics optimization platform.

## System Overview

Our system consists of three core modules:

1. **Smart Package Recommendation**
2. **Redistribution Center Routing**
3. **Packaging Material Demand Forecasting**

## 1. Smart Package Recommendation

This module recommends the most suitable packaging for an item based on:

* **Weather conditions**: Ensures protection against rain, humidity, or heat.
* **Item size and weight**: Determines structural requirements and cushioning needs.

### Key Features:

* Real-time weather data integration
* Size and weight classification using machine learning
* Packaging type selection from a dynamic materials database

## 2. Redistribution Center Routing

To enhance delivery speed and reduce logistical costs, this module:

* Identifies the **nearest active redistribution center** to the delivery location
* Routes packages and customers based on **geolocation and network optimization**

### Key Features:

* Location-based center mapping
* Optimization algorithms for minimal delivery time and cost
* API for integrating with third-party delivery platforms

## 3. Packaging Material Demand Forecasting

This module helps packaging companies forecast future material needs based on historical trends and current demand signals.

### Key Features:

* Time series analysis for forecasting demand of materials (e.g., cardboard, bubble wrap)
* Inventory tracking and predictive analytics
* Custom dashboards for data visualization and decision-making support

## Technology Stack

### Backend

* Python
* Ollama

### Frontend

* HTML
* CSS
* JS