**11/02/25**

**Correct Problem Statement Formation of the Project (Rubric 3)**

**Problem Statement:**The inefficiency of existing delivery route optimization systems results in increased operational costs, longer delivery times, and environmental concerns. Current solutions often rely on static route planning and fail to account for real-time variables such as traffic congestion, weather conditions, road closures, and vehicle constraints.

**Objective of the Project:**The proposed real-time route optimization system aims to enhance delivery efficiency by dynamically adjusting routes based on real-world constraints. This will be achieved through:

1. **Real-Time Data Processing:** Utilizing GPS, traffic monitoring, and weather forecast data to optimize routes dynamically.
2. **AI-Driven Decision Making**: Implementing machine learning models to predict delays and recommend alternative routes.
3. **Multi-Constraint Optimization**: Factoring in vehicle type (electric vehicles, trucks, motorcycles) and their specific needs (charging stations, road restrictions).
4. **IoT Integration**: Using sensors on vehicles to monitor conditions and adjust routes accordingly.
5. **User-Friendly Dashboard**: Providing logistics managers and drivers with real-time route updates and performance analytics.
6. **Personalized Route Preferences**: Allowing users to customize routes based on preferences such as scenic routes, avoiding highways, or prioritizing toll-free roads.
7. **OCR & QR-Based Input for Destination & Stops:** Enabling users to scan images or QR codes to extract location details and seamlessly add them as stops in the route.
8. **Responsive UI with CSS Frameworks**: Ensuring a seamless experience on all devices (desktop, tablet, mobile) by using frameworks like Bootstrap or Tailwind CSS.