PACT Analysis: Traffic Guidance TUIO Objects

**People**

The primary users are traffic managers who oversee and control the traffic flow in a busy city. These users:

- Are highly skilled in traffic management and crisis response.

- Need to respond quickly to accidents, congestion, and weather disruptions.

- Require an intuitive, real-time interface to monitor and adjust traffic flows.

- Need to integrate data from multiple transportation modes (cars, buses, trains) and respond to real-time events like accidents or weather changes.

**Activities**

- Monitoring Traffic: Traffic managers monitor the city’s road network for congestion using cars, bus, and train objects. They interact with the system by holding and moving these objects in front of a camera.

- Responding to Incidents: Managers respond to accidents by holding the accident object in front of the screen, which triggers the system to display the accident's impact and suggest alternate routes.

- Weather Management: When anticipating a storm or other severe weather, managers use the weather object to visualize the storm’s effect on traffic and adjust transport schedules.

- Traffic Coordination: Multiple objects (cars, buses, trains, accidents, weather) can be used together, allowing traffic managers to optimize city-wide traffic flow in real time, balancing priorities across transportation modes.

**Context**

- The system is used in a traffic control center during peak times (like rush hour), or when emergencies (accidents, severe weather) occur.

- The interaction happens in a high-pressure environment, where decisions need to be made quickly to avoid traffic gridlock or ensure public safety.

- The system integrates real-time data (e.g., current traffic flow, live accident reports, weather conditions), allowing for immediate responses to changing conditions.

- The interface must support collaborative work, where multiple managers may work together to manage traffic across the city.

**Technology**

- Screen and Camera Setup: Instead of an interactive table, traffic managers use a screen displaying a real-time map of the city, with a camera that tracks TUIO objects.

- The camera detects objects as they are held or moved in front of the screen.

- The TUIO protocol identifies the type of object (e.g., car, bus, accident, weather) and its position, enabling the system to display relevant traffic data and visualize impacts on the screen.

- The objects can be moved and rotated in front of the camera to update the system dynamically (e.g., moving a car object to check traffic in different areas, or rotating a weather object to simulate different storm intensities).

- The system provides real-time feedback on traffic conditions, showing congestion areas, rerouting suggestions, and emergency response plans.

- Physical Objects (TUIO): Managers hold small physical objects that represent different elements (cars, buses, trains, accidents, weather). These objects are tagged or shaped so that the system can recognize them through the camera and update the screen based on their movement or rotation.