AeroSense: Phase 1 Documentation

Phase Title: Problem Understanding & Industry Analysis
Objective: To lay the foundation for the AeroSense project by formalizing purpose, identifying key players, and mapping the business workflow.

1. Project Charter

• Project Title: AeroSense

• Industry: Environmental Monitoring / IoT & Smart Cities

• Problem Statement: Current air quality monitoring systems are fragmented, with manual data collection, poor reliability, and lack of real-time visibility. This creates challenges for citizens, governments, and researchers to take timely action.

• Proposed Solution: Build AeroSense, a Salesforce-based system that centralizes sensor data, computes AQI automatically, generates alerts, and provides executives with dashboards to monitor pollution levels and take corrective measures.

• Key Use Cases:

- Volunteers onboard new sensors and upload data.

- Sensor readings are automatically processed to compute AQI.

- Alerts are triggered when thresholds are crossed.

- Executives and Researchers review dashboards to track pollution trends.

2. Identified Stakeholders & Users

• Volunteers: Collect and upload sensor data from the field.

• Data Engineers: Manage sensor validation, calibration, and trust scores.

• Executives: Monitor high-level dashboards and hotspots for decision-making.

• System Administrator: Builds and maintains AeroSense on Salesforce.

3. Core Business Process Map

1. Sensor Onboarding: Volunteer registers a new sensor in Salesforce.

2. Data Ingestion: Readings are uploaded or ingested via API.

3. AQI Calculation: System computes AQI using Apex or Flow.

4. Alert Trigger: If AQI exceeds threshold, an Alert record is created and notification sent.

5. Dashboard Review: Executives log in to review dashboards for pollution levels and trends.