AIR QUALITY ASSESSMENT TN

Phase 2 : Innovation In this phase you need to put your design into innovation to solve the Problem. Explain in detail the complete steps that will be taken by you To put your design that you thought of in previous phase into Transformation.

ALGORITHM OR STEPS TO PERFORM THE AIR Q ASSESSMENT TN ON A GIVEN DARASET USING iOT

ALGORITHM Assessing air quality using IoT (Internet of Things) in Tennessee or any location typically involves sensors, data collection, and analysis. Here's a simplified overview of the algorithm you can use:

Sensor Deployment: Deploy air quality sensors at strategic locations across Tennessee to measure key air pollutants like PM2.5, PM10, NO2, CO, SO2, and O3.

Data Collection: Continuously collect data from these sensors, including pollutant levels, temperature, humidity, and GPS coordinates. Ensure data is time-stamped and transmitted securely to a central database or cloud platform.

Data Preprocessing: Clean and preprocess the data to remove outliers, missing values, and errors. Normalize or standardize the data as necessary.

Data Fusion: If using multiple sensors at a single location, fuse the data to obtain a more accurate representation of air quality at that specific point.

Quality Index Calculation: Calculate an Air Quality Index (AQI) based on pollutant concentrations. There are various AQI formulas and standards; you can follow EPA guidelines for the United States.

Threshold Alerts: Set threshold levels for different AQI categories (e.g., Good, Moderate, Unhealthy) and trigger alerts or notifications when air quality crosses these thresholds.

Historical Data Storage: Store historical air quality data for trend analysis, reporting, and research purposes.

Visualization: Create user-friendly dashboards or mobile apps to display real-time and historical air quality data. Users can access this information for informed decision-making.

Machine Learning Models: Implement machine learning models to predict air quality based on historical data, meteorological factors, and other relevant features.

User Engagement: Engage with the community by sharing air quality information through websites, apps, or social media. Encourage public awareness and participation.

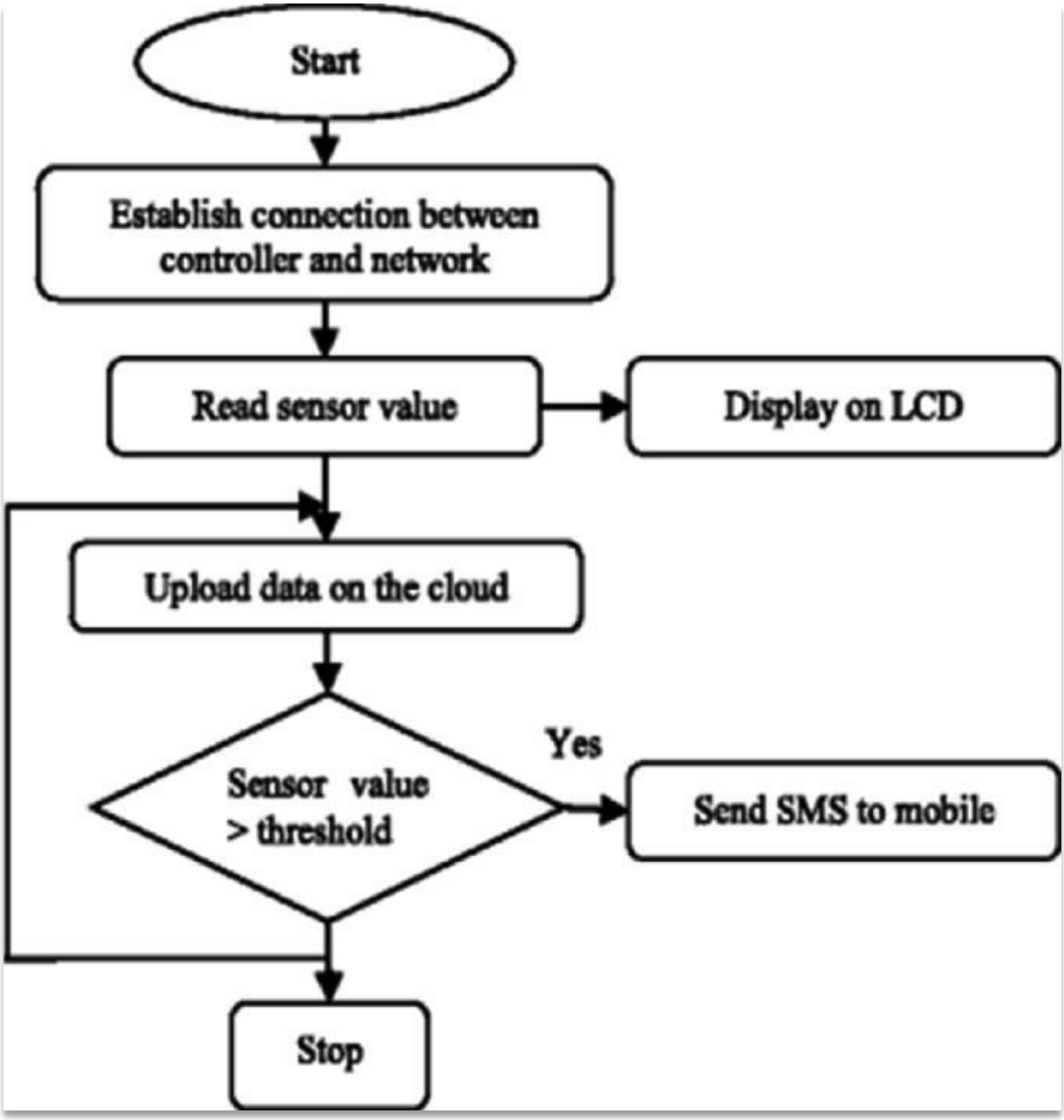
Regulatory Compliance: Ensure compliance with local, state, and federal regulations for air quality monitoring and reporting.

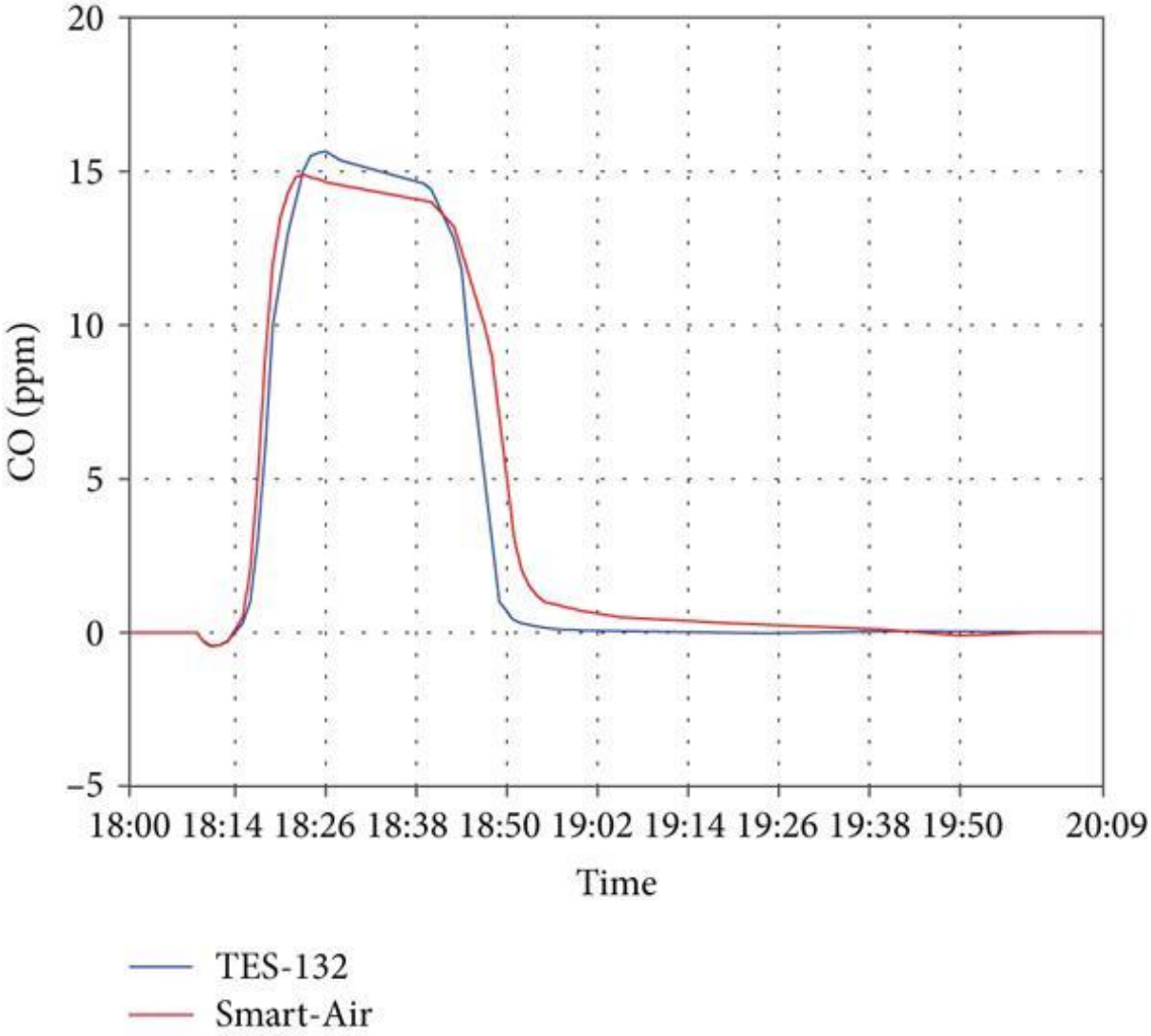
Maintenance: Regularly maintain and calibrate sensors to ensure accurate data collection.

Data Privacy and Security: Implement robust data privacy and security measures to protect sensitive information.

Feedback Loop: Establish a feedback loop to continuously improve the system based on user feedback and changing air quality needs.

FLOWCHART


Start
Establish connection between controller and network
Read sensor value
Display on LCD
Upload data on the cloud
Sensor value > threshold
Yes
Send SMS to mobile
Stop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10
5
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CO (ppm)
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Time
TES-132
Smart-Air