

KGiSL INSTITUTE OF TECHNOLOGY

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**AIR QUALITY ANALYSIS IN TAMILNADU**

**Problem Definition:**

In this phase, we can explore innovative techniques such as ensemble methods and deep learning architectures to improve the prediction system's accuracy and robustness . This project involves defining objectives, designing the analysis approach, selecting visualization techniques, and creating a predictive model using Python and relevant libraries.

**1.IoT and Sensor Networks** :Implement a widespread network of IoT (Internet of Things) sensors to continuously monitor air quality parameters at various locations across TN. These sensors can provide real-time data on pollutants and contribute to a more comprehensive understanding of air quality trends.

**2.Machine Learning and Predictive Analytics**: Utilize machine learning algorithms to predict air quality levels based on historical data, meteorological factors, and pollution sources. This predictive capability can help residents and authorities take proactive measures to mitigate air pollution.

**3.Mobile Apps for Public Engagement:** Develop mobile apps that provide residents with real-time air quality information, health advisories, and pollution source tracking. These apps can also allow citizens to report pollution incidents and participate in crowd-sourced air quality data collection.

**4.Drone Technology:** Implement drones equipped with air quality sensors to monitor hard-to-reach or remote areas in TN. Drones can capture data from different altitudes, providing a more comprehensive view of air quality in the state.

**5.Data Visualization and GIS Integration:** Create interactive data visualization platforms that integrate geographic information systems (GIS) to help policymakers and the public better understand the spatial distribution of air quality and pollution sources in TN.

**6.Community-Based Monitoring:** Encourage community involvement by providing citizens with low-cost air quality monitoring kits. This grassroots approach can help gather valuable localized data and increase awareness of air quality issues.

**7.Green Infrastructure:** Promote the development of green infrastructure, such as urban forests and green rooftops, which can help absorb pollutants and improve air quality in urban areas.

**8.Air Quality Index (AQI) Enhancement:** Enhance the AQI system with localized and more granular data, including health impact assessments to inform the public about the specific risks associated with different air quality levels.

**9.Policy Integration:** Work closely with government agencies to integrate air quality data into urban planning and development processes. This can ensure that infrastructure projects consider air quality impacts.

**10.Public-Private Partnerships:** Foster collaborations between government bodies, academic institutions, and private companies to leverage expertise, technology, and funding for comprehensive air quality analysis and management.

**TEAM MEMBERS :**

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