**SMART PARKING (TN)**

PHASE2-INNOVATION

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**MODULE 2**

**DATA EXTRACTION:**

Implementing a smart parking system in Tamil Nadu, or anywhere else, typically involves collecting and processing various types of data to optimize parking space utilization and improve the overall parking experience for users.

**Parking Space Information:**

Gather data on the location and capacity of parking spaces in Tamil Nadu. This information may include details on public parking lots, street parking, private parking facilities, and any other available spaces.

**Occupancy Data:**

Use sensors (e.g., ultrasonic sensors, infrared sensors, or cameras) to collect real-time data on parking space occupancy. This data will indicate whether a parking space is vacant or occupied.

**User Data:**

Gather information about registered users, including their contact details, vehicle information, and payment preferences.

**Mobile Apps and Websites:**

Develop a mobile app or website for users to find available parking spaces, make reservations, and make payments. Collect user interaction data to understand user behaviour and preferences.

**Traffic Data:**

Integrate with traffic management systems to obtain real-time traffic data in Tamil Nadu. This data can help users plan their trips and find parking spaces efficiently.

**Weather Data:**

Include weather information, such as forecasts and current conditions, to help users plan their parking and prepare for weather-related issues.

**Security Data:**

Implement security features such as surveillance cameras, license plate recognition, and access control systems. Collect data related to security incidents and access control to ensure the safety of the parking facilities.

**Maintenance Data:**

Track the maintenance schedules and data for parking facilities and equipment to ensure they are in good working order.

**Environmental Data:**

Consider integrating environmental data, like air quality and pollution levels, to promote sustainable transportation and provide additional information to users.

**Analytics and Reporting:**

Use data analytics to generate insights into parking space utilization, revenue, and user behaviour. This information can help optimize parking operations.

**Compliance Data:**

Ensure that the system complies with local regulations and standards related to parking facilities and data privacy.

**Feedback and Surveys:**

Collect user feedback through surveys and ratings in the mobile app or website to continuously improve the smart parking system.

**Data Storage and Management:**

Implement a robust data storage and management system to securely store and retrieve the collected data.

**Data Visualization and Communication:**

Develop dashboards and reporting tools to visualize the data for both administrators and users.

**Machine Learning and Predictive Analytics:**

Use machine learning algorithms and predictive analytics to forecast parking demand, optimize pricing, and improve the overall user experience.

**IoT and Connectivity:**

Ensure that all sensors and devices are properly connected to the central system to enable real-time data flow.

**Scalability:**

Design the system with scalability in mind, as parking facilities may expand or new locations may be added over time.