Smart Public Restroom

* Phase-1 Project Definition:

The project aims to enhance public restroom management through the implementation of IoT sensors. These sensors will monitor occupancy and maintenance needs in real-time. The primary goal is to provide the public with instant access to restroom availability and cleanliness information via a platform or mobile app. This project encompasses several key components

1. Defining Objectives: Define clear project objectives, including:

* Real-time restroom availability information.
* Continuous cleanliness monitoring.
* Improved user experience for restroom visitors.
* Efficient restroom management.

**Design Thinking:**

1. Project Objectives:

To achieve the stated objectives, it's essential to have a clear understanding of what needs to be accomplished. Begin by detailing each objective and its significance:

* Real-time Restroom Availability Information: Users should be able to check the current status of restroom availability before visiting a facility. This helps reduce wait times and enhances the overall user experience.
* Continuous Cleanliness Monitoring: Monitoring cleanliness in real-time ensures that restrooms are maintained at a high standard. This can lead to increased user satisfaction and efficient maintenance scheduling.
* Improved User Experience: The project should prioritize the convenience and satisfaction of restroom users. Consider features like wait time estimation and cleanliness ratings in the app or platform.
* Efficient Restroom Management: The data collected through IoT sensors should help facility managers make informed decisions about maintenance and cleaning schedules. This leads to cost s

2. IoT Sensor:

The IoT sensor deployment is a critical aspect of this project. Consider the following when designing the sensors:

* Sensor Types: Identify the types of sensors needed, such as occupancy sensors (to detect restroom usage) and cleanliness sensors (to monitor hygiene).
* Sensor Locations: Determine optimal sensor placement within restrooms to ensure accurate data collection. This may involve considering different restroom layouts.
* Data Collection Frequency: Decide how often data should be collected and transmitted by the sensors to ensure real-time updates.

3. Real-Time Transit Information Platform:

Design a user-friendly platform and mobile app that will provide restroom information to the public:

* User Interface (UI): Create an intuitive and visually appealing interface for the platform and app.
* Functionality: Ensure that users can easily check restroom availability, view cleanliness ratings, and receive notifications or alerts when restrooms are clean or available.
* Data Presentation: Consider how restroom data will be presented to users, including maps, lists, or other visualizations.

4. Integration Approach:

Determine how IoT sensors will send data to the restroom information platform:

* IoT Technology: Choose the appropriate communication protocols and technologies for sensor data transmission (e.g., Wi-Fi, Bluetooth, LoRa, etc.).
* Data Processing: Define how sensor data will be processed, stored, and made accessible to the platform and app.
* Security: Ensure that data transmission is secure and that user information is protected.