SMART PUBLIC RESTROOM

Phase 1 : Problem Definition and Design Thinking

Project Definition: The project aims to enhance public restroom management by installing IoT sensors to monitor occupancy and maintenance needs. The goal is to provide real-time data on restroom availability and cleanliness to the public through a platform or mobile app. This project includes defining objectives, designing the IoT sensor system, developing the restroom information platform, and integrating them using IoT technology and Python.

Design Thinking:

1. Project Objectives: Define objectives such as real-time restroom availability information, cleanliness monitoring, improved user experience, and efficient restroom.

2. IoT Sensor Design: Plan the deployment of IoT sensors (e.g., occupancy sensors, cleanliness sensors) in public restrooms.

3. Real-Time Transit Information Platform: Design a web-based platform and mobile app to display real-time restroom availability and cleanliness data.

4. Integration Approach: Determine how IoT sensors will send data to the restroom information platform.It has been identified that the visitors of the park were suffered a lot due to this following problems.

Creating a smart public restroom:

Creating a smart public restroom using NodeMCU involves integrating various sensors and connectivity options to enhance functionality and provide real-time monitoring. Here's a high-level overview of the components and steps involved:

Components:

1. NodeMCU (ESP8266): This will serve as the main controller to connect to Wi-Fi and control other devices.

Sensors:

1. Occupancy Sensor: To detect when someone enters or leaves the restroom.

Actuators:

1. LED Indicators: Show restroom occupancy status.

Display/Interface:

1.An LCD display or LED matrix to provide information to users (e.g., occupancy status, water-saving tips, etc.).

Cloud Connectivity:

1.Use Wi-Fi to connect NodeMCU to the internet for remote monitoring and control.

Pogramming:

1.Write code for the NodeMCU using Arduino IDE or PlatformIO. Implement logic for sensor data collection, control of actuators, and Wi-Fi connectivity.