

Phase 1:

Public restrooms are frequently plagued by issues related to cleanliness, resource management, and accessibility. These challenges can lead to unsatisfactory user experiences and inefficient use of resources. Addressing these problems requires a solution that leverages IoT technology to enhance the management and usability of public restrooms, ensuring they meet hygiene standards, operate efficiently, and are easily accessible to the public.

Problem Description:

Public restrooms often suffer from inadequate cleanliness and maintenance, which can deter users and lead to sanitation concerns. Furthermore, inefficient resource management, including excessive water and paper towel usage, results in unnecessary costs and environmental impact. Additionally, finding available public restrooms can be a frustrating experience for individuals, especially in crowded urban areas. These issues collectively underscore the need for a smart public restroom system that integrates IoT technology to monitor and optimize cleanliness, resource usage, and accessibility.

Design Thinking:

To tackle the challenges of public restrooms effectively, a design thinking approach should prioritize user-centric design, IoT integration, and sustainability. Begin by understanding user needs through feedback and surveys, then design restrooms with features like touchless fixtures for enhanced user comfort. Integrate IoT sensors to monitor occupancy and resource levels in real-time, allowing predictive maintenance to schedule repairs before issues worsen. Implement resource optimization strategies such as water-saving technologies, and develop a mobile app for users to locate nearby smart public restrooms and provide feedback. Sustainability should be a core principle, with eco-friendly features and data analytics to reduce the environmental footprint of each restroom. Collaborate with local authorities and organizations to fund, implement, and maintain these smart public restrooms, ensuring their success and accessibility for all.