

Problem Statement :

1. Inadequate hygiene: Public toilets often suffer from poor cleanliness, posing health risks to users.
2. Limited accessibility: Not all public toilets are easily accessible to individuals with disabilities or special needs.
3. Maintenance challenges: Traditional toilets require frequent manual checks and maintenance, which can be costly and inefficient.
4. Resource wastage: Water and energy resources are often wasted in public toilets due to outdated systems.
5. Inefficient management: Lack of real-time data makes it challenging to manage and optimize public toilet facilities effectively.
6. Insufficient capacity: High-demand areas may lack enough public toilet facilities, leading to long queues and inconvenience.
7. Security concerns: Safety issues can arise in poorly maintained or poorly lit public toilets.

Design thinking :

Design thinking for a smart public toilet involves considering user needs and experiences. Here are 10 points for designing a smart public toilet:

1. User-Centric Approach: Start by understanding the needs, preferences, and pain points of potential users, including people with disabilities and special requirements.
2. Accessibility: Ensure the toilet is universally accessible, complying with ADA guidelines and including features like ramps, handrails, and Braille signage.
3. Hygiene and Cleanliness: Prioritize cleanliness with automatic sanitization systems, touchless fixtures, and real-time monitoring for cleanliness levels.
4. Sustainability: Implement eco-friendly practices such as water-saving fixtures, energy-efficient lighting, and waste management systems.
5. Technology Integration: Use IoT sensors for real-time occupancy monitoring, predictive maintenance, and smart alerts for maintenance staff.
6. Safety and Security: Incorporate features like well-lit areas, emergency buttons, and surveillance cameras for user safety.

Project idea :

- Automated Cleaning and Maintenance: Implement a system with sensors and automation to monitor and maintain cleanliness, ensuring public toilets are always in optimal condition.
- Inclusive and Eco-Friendly Design: Create gender-neutral, family-friendly, and environmentally sustainable public toilets with accessible features and eco-friendly fixtures.