Title: Smart Public Restrooms

Abstract:

Problem Statement:

Public restrooms are an essential part of urban infrastructure, but they often face issues related to cleanliness, accessibility, and resource management. Traditional restroom management systems fall short in providing real-time data and intelligent solutions.

Smart Public Restroom:

Our project aims to tackle these challenges by introducing a Smart Public Restroom (SPR) system, leveraging the Internet of Things (IoT) technology. SPR integrates sensors, data analytics, and user-friendly interfaces to transform conventional restrooms into efficient, clean, and user-centric spaces.

Idea of Our Project:

The core idea of our project is to create a network of interconnected public restrooms equipped with IoT devices. These devices monitor various aspects such as occupancy, cleanliness, and resource usage in real-time. Users can access the SPR through a mobile app, ensuring a seamless restroom experience.

Technological Stacks Used:

To bring our vision to life, we employ a range of cutting-edge technologies:

* IoT sensors and devices for occupancy detection, water management, and hygiene monitoring.
* Cloud computing infrastructure for data storage, processing, and analysis.
* Mobile application development for user interaction and real-time alerts.
* Machine learning algorithms for predictive maintenance and resource optimization.
* Blockchain technology for secure and transparent resource tracking.

Use Cases:

Our SPR project offers numerous use cases, including:

* Smart Resource Allocation: Optimize water and cleaning supplies based on real-time usage data, reducing waste and operational costs.
* Enhanced User Experience: Users can locate nearby SPRs, check availability, and receive cleanliness ratings via the mobile app.
* Maintenance Predictions: Predictive maintenance ensures that restroom facilities are always in good condition, minimizing downtime.
* Eco-Friendly Practices: Promote water and energy conservation through intelligent resource management.
* Data-Driven Decision Making: Government authorities can utilize aggregated data to improve public restroom planning and maintenance.

Conclusion:

In conclusion, our project entails the development of a smart public restroom utilizing an IoT approach. We have incorporated various cutting-edge technologies to ensure maximum benefits for users. This brief explanation provides an overview of the features and capabilities of our project.