**Phase 2 project**

**Project Title: SMART PUBLIC RESTROOM**

**Project ID:** proj\_223730\_Team\_1

**College code:** 6208

**College:** Gnanamani College of Technology

**Year:** IIIrd year

**Branch:** B.Tech-Information Technology

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**SMART PUBLIC RESTROOM**

**Definition:**

A smart public restroom, also known as an intelligent or connected restroom, refers to a technologically advanced facility designed to enhance user experience, hygiene, and resource efficiency in public restroom environments. It leverages a range of Internet of Things (IoT) technologies and other smart features to provide a more convenient, safe, and environmentally-friendly experience for users.

**Additional Implemention:**

The process of enhancing or extending the features and capabilities of an existing smart public restroom system. This involves integrating new technologies, services, or functionalities to improve the overall user experience, hygiene, efficiency, and sustainability of the restroom facility. Such enhancements can include adding IoT devices, sensors, automation, and user-friendly interfaces to make the restroom smarter, more user-centric, and environmentally friendly. **Components Needed:**

* Ultrasonic sensor
* Weight sensor
* Microcontroller Atmega328
* LCD Display
* Odor Sensor
* IR Sensor
* Dc Power Supply
* Ammonia Sensor
* Water Motor
* RFID Reader Module

**PHASE 2**

**1.Automatic Flush and Faucets:**

Integrate automatic flushing toilets and sensor-activated faucets to reduce water wastage and promote hygiene.

Algorithm: Motion detection and Control algorithm

**2.Voice-Activated Controls:**

Enable voice commands for certain restroom functions like flushing, handwashing, or requesting supplies. This can reduce touchpoints and enhance user convenience.

Algorithm: Automatic Speech Recognition(ASR) algorithm

**3.Odor Control and Air Fresheners:**

Use sensors to detect unpleasant odors and automatically release air fresheners or activate ventilation systems.

Algorithm: Decision tree

**4.Toilet Health Sensors:**

Install sensors to detect issues like leaks, clogs, or malfunctioning flush mechanisms, and alert maintenance staff in real-time.

Algorithm: decision trees, k-nearest neighbors,

**5.Entertainment:**

Offer entertainment options within the restroom, such as music or informative displays, to enhance the user experience.

**6.Integrated Payment System:**

Implement a payment system for premium amenities like shower facilities, premium toiletries, or additional services.

**7.Waste Management:**

Install smart waste bins that can compact trash and send alerts when they are full, optimizing collection routes.

Algorithm: Random Forest algorithm