**development of smart public restrooms:**

**1.Touchless Fixtures:**

Automated faucets, soap dispensers, and flush mechanisms to reduce contact with surfaces.

**2.Occupancy Sensors:**

Sensors to detect when a stall or urinal is in use, helping users find available facilities.

**3.Real-time Cleanliness Monitoring**:

Sensors or cameras to monitor cleanliness levels and alert maintenance staff when cleaning is needed.

**4.Energy Efficiency:**

Smart lighting and HVAC systems that adjust based on occupancy, reducing energy consumption.

**5.Accessibility Features:**

Enhanced facilities for individuals with disabilities, including wider stalls and support bars.QR Code or App Access: Use of QR codes or mobile apps for entry, payment, and information about nearby restrooms.

6.Water Conservation:

Low-flow toilets and urinals to reduce water usage.Hygiene Stations: Dispensing sanitizing wipes, tissues, and hand sanitizers within the restroom.

**7.Smart Maintenance Scheduling:**

Predictive maintenance based on usage data to prevent breakdowns.

**8.Sustainability**:

Use of eco-friendly materials and technologies to reduce the environmental impact.These innovations aim to make public restrooms more user-friendly, efficient, and hygienic.