**User Interface :**

Control and

Automation

System

Touchless

Fixtures

Sensors and

Occupancy

Detection

de

Maintenance

And

Alerts

Communication

Network

Central

Processing

Unit(CPU)

Energy

Efficiency

System

**Explanation of each component:**

**1.User Interface (Touchless Fixtures):**

This component includes touchless fixtures such as automatic flush toilets, sensor-activated faucets, soap dispensers, and hand dryers that provide a hands-free user experience.

**2.Sensors and Occupancy Detection:**

These sensors detect user presence and usage patterns within the restroom. They can include occupancy sensors, motion detectors, and environmental sensors (for temperature, air quality, etc.).

**3. Control and Automation System:**

This system processes data from sensors and controls various restroom functions, such as flushing toilets, adjusting lighting, activating ventilation, and monitoring supply levels (e.g., toilet paper and soap).

**4. Central Processing Unit (CPU):**

The CPU serves as the brain of the smart restroom, coordinating data processing and system control. It may run software for real-time monitoring and automation.

**5. Communication Network:**

This component connects the smart restroom to a broader network, allowing for remote monitoring, maintenance, and data collection. It can include Wi-Fi, cellular, or wired connections.

**6. Maintenance and Alerts:**

Automated systems can send alerts to maintenance staff or facility managers when issues arise, ensuring timely maintenance and replenishing of supplies.

**7. Energy Efficiency Systems:**

These systems aim to reduce energy consumption and promote sustainability. They may include LED lighting, energy-efficient HVAC (Heating, Ventilation, and Air Conditioning), and sensors that optimize energy use based on occupancy and environmental conditions.