SMART PUBLIC RESTROOMS

Sensors:

- *IR Sensors*
- *Occupancy Sensors*
- *Proximity Sensors*
- *Water flow sensors*
- *Motion Sensors*
- *Air Quality Sensors*
- *Temperature Sensors*

Datasets:

Usage Data: Collect data on restroom usage, including the number of visitors, peak usage times, and average visit duration. This can help in optimizing cleaning schedules and resource allocation

Environmental Data: Gather data on temperature, humidity, and air quality within the restroom. This can be used to control heating, ventilation, and air conditioning (HVAC) systems for comfort and energy efficiency

Occupancy Sensing Data: Implement occupancy sensors to detect when restroom stalls are in use. This data helps in providing real-time information about stall availability and can be useful for crowd management.

Toilet Paper and Soap Dispenser Data: Install sensors on toilet paper and soap dispensers to monitor usage and refill requirements. This helps in efficient maintenance and avoids running out of essential supplies.

Cleaning and Maintenance Records: Keep a digital record of cleaning and maintenance activities, including when cleaning was last performed, what products were used, and any issues that were resolved

Feedback and Ratings: Allow users to provide feedback on the cleanliness and functionality of the restroom. Analyze this data to improve the overall restroom experience.

Water Usage Data: Monitor water usage in sinks and flushes to identify water-saving opportunities and detect leaks

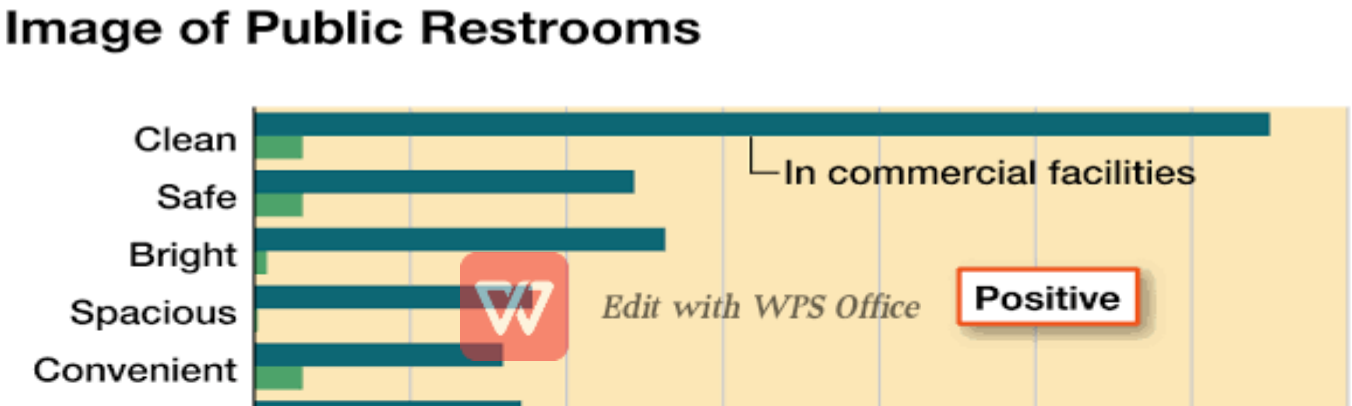
Energy Consumption Data: Track energy consumption of lighting, HVAC, and other electrical systems to optimize energy usage.

Security Camera Footage: Install security cameras to monitor security and safety within the restroom area. Ensure privacy and data protection measures are in place.

User Behavior Analytics: Analyze user behavior, such as traffic flow within the restroom and user preferences, to optimize restroom design and resource allocation.

Inventory and Supplier Data: Keep track of inventory levels for restroom supplies (toilet paper, soap, etc.) and establish data connections with suppliers for automated restocking

Local Events and Calendar Data: Incorporate local events and public calendar data to predict rooms.



MODEL RESULT:

***Automated Cleaning**: Implement sensors and robotics to monitor restroom cleanliness and initiate cleaning when needed.*

***Occupancy Monitoring**: Use occupancy sensors to track restroom usage and display real-time occupancy information for users.*

***Water and Energy Efficiency**: Incorporate low-flow fixtures and energy-efficient lighting to reduce resource consumption.*

***Touchless Fixtures:** Install touchless faucets, soap dispensers, and flush systems to minimize germ transmission.*

***Smart Maintenance:** Implement predictive maintenance systems to monitor restroom equipment and ensure timely repairs.*

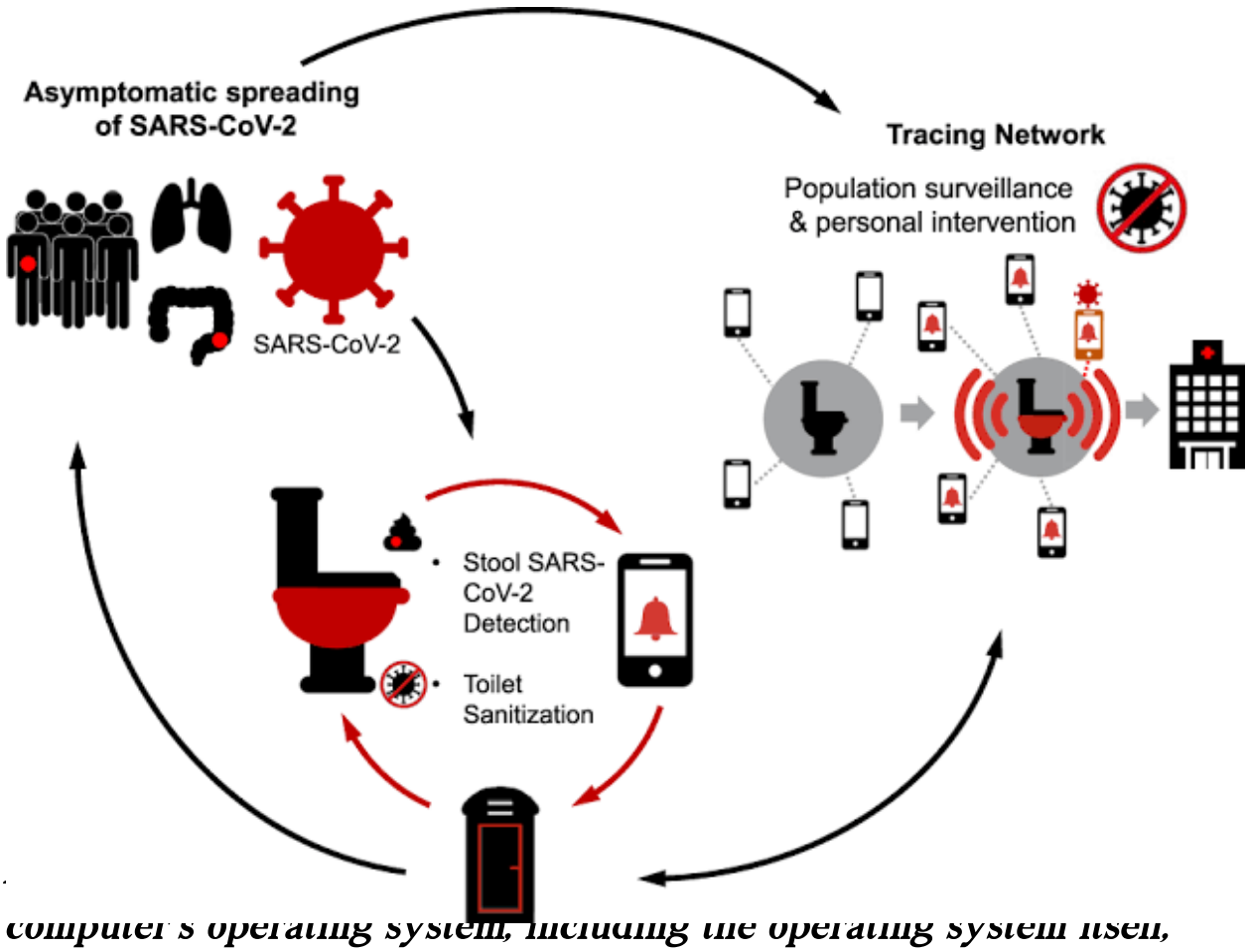
***User Feedback**: Collect feedback through mobile apps or kiosks to improve restroom conditions and service.*

***Accessibility Features**: Ensure ADA compliance with features like grab bars, accessible sinks, and changing stations.*

***Hygiene Stations**: Offer hand sanitizing stations and hygiene supplies within the restroom.*

***Security**: Use security cameras and alarms for user safety.*

***Real-time Updates:** Enable users to check restroom availability and conditions via a mobile app or website.*



computer's operating system, including the operating system itself,

system files, installed applications, user data, and system configurations.

TABULATION:

In this example, we have various parameters and their corresponding readings. These readings represent data collected from different sensors or measurements in a given environment or system.

Model No.		P700	P770
Rated Voltage		AC 120V, 60Hz	
Rated Power Consumption		703W	
Power Cord Length		1.5m (5feet)	
Toilet	Water Consumption	full flush : 6ℓ / Small Flush : 4ℓ	
	Flushing System	Siphon jet, Tornado flushing	
Wash Unit	Posterior Wash	Max 0.31gal / min	
	Feminine Wash	Max 0.31gal / min	
	Enema	Max 0.31gal / min	
	Water Temperature	Adjustable 93°F - 104°F	
	Water Tank	0.31 gal	
	Heater Capacity	600W	
	Safety Device	Thermal cutoff, Overheating prevention circuit, Temperature sensor	
Heated Seat	Seat Temperature	Adjustable 93°F - 104°F	
	Heater Capacity	55W	
	Safety Device	Thermal cutoff, Temperature sensor	
Dry	Hot Air Temperature	Adjustable 93°F - 104°F	
	Heater Capacity	250W	
	Safety Device	Thermal cutoff, Temperature overheat preventer (manual recovery bimetal)	
Deodorization		Automatic deodorizer	
Lighting		LED light	Auto LED light
Auto lid		–	Auto lid
Water Pressure		Min : 1.5kgf/㎠(0.15Mpa) [with 20ℓ/min flow] Max : 7.5kgf/㎠(0.75Mpa)	
Waterproof rating		IPX4	
Inlet water Temperature		41°F - 95°F	
Ambient Temperature		41°F - 104°F	
Dimension		W 410mm x L 720mm x H 525mm	
Weight		58 lbs (Bidet: 16 lbs, Toilet: 42 lbs)	59 lbs (Bidet: 17 lbs, Toilet: 42 lbs)