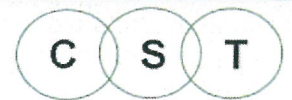




# SMART TOILET SYSTEM

aka Restroom Visitizer System



**CONVERGENT**  
Smart Technologies

www.smarttechnologies.sg



An IoT  
**SMART** technology restroom  
cleanliness management solution

## Real-time Dashboard

- equipped with a sensor transceiver and Cellular / WiFi Ethernet connectivity
- remotely monitors cleanliness status of restrooms
- cleaners can be dispatched as needed instead of fixed intervals
- allows building owners, facilities management (FM) and cleaning companies to monitor usage across multiple restrooms
- using the data to plan resources ahead of time based on usage patterns.

Installed in:

- Brandon Park@ Australia
- Elizabeth Shopping Centre@ Australia
- Hong Kong
- Our Tampines Hub
- Wildlife Reserves Singapore
- City Developments Limited
- JLL Singapore
- Merlion Park
- Marina Bay Sands
- Sentosa Island
- Capital Tower
- The Fullerton Hotel
- Procter & Gamble@The Metropolis
- JTC Corporation
- etc.



### People Counting

Count the number of people entering the restrooms.



### Alert System

Send SMS and E-mail alerts to cleaners and supervisors when restrooms are in poor condition.



### RFID Cleaner Attendance

Cleaner able to acknowledge Smart Toilet alert.



### Increase Productivity

Increase productivity by deployment of manpower to where it needs most.



### Ammonia Sensor

Measures the Odour Concentration level.



### Crowd Density

Shows which restroom gets more usage than others.



### Zero Maintenance

Zero man power and knowledge to maintain the system.



### Gain Insights

Gain insights into the cleanliness of the restrooms at your finger tips. Print Hard Copy if necessary.

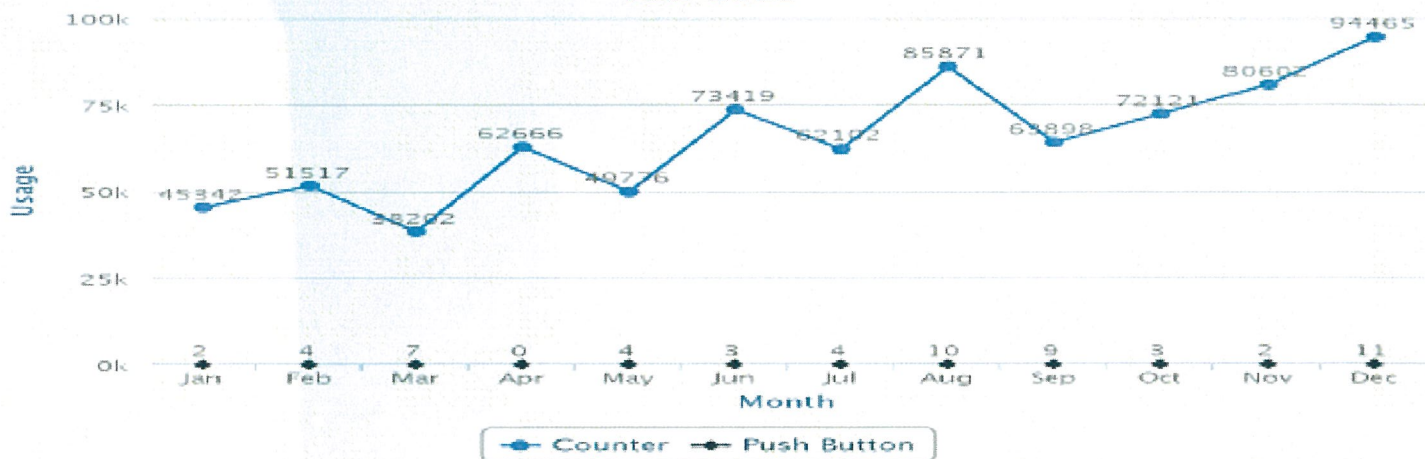
Designed to be maintenance free, cost effective and has a scalable sensor network system.

It comprises hardware with an ultra low power passive infrared (PIR) sensor, algorithms, gateway, server and interface software that performs mesh data collection, data storage and mining, data exploration and visualization.

Through data management and mining, the frequency of usage and the ammonia level can be computed and alerts can be send via email or SMS. A web-based application that provides an extensible suite of tools that allow users to explore and visualize the collected sensor data.

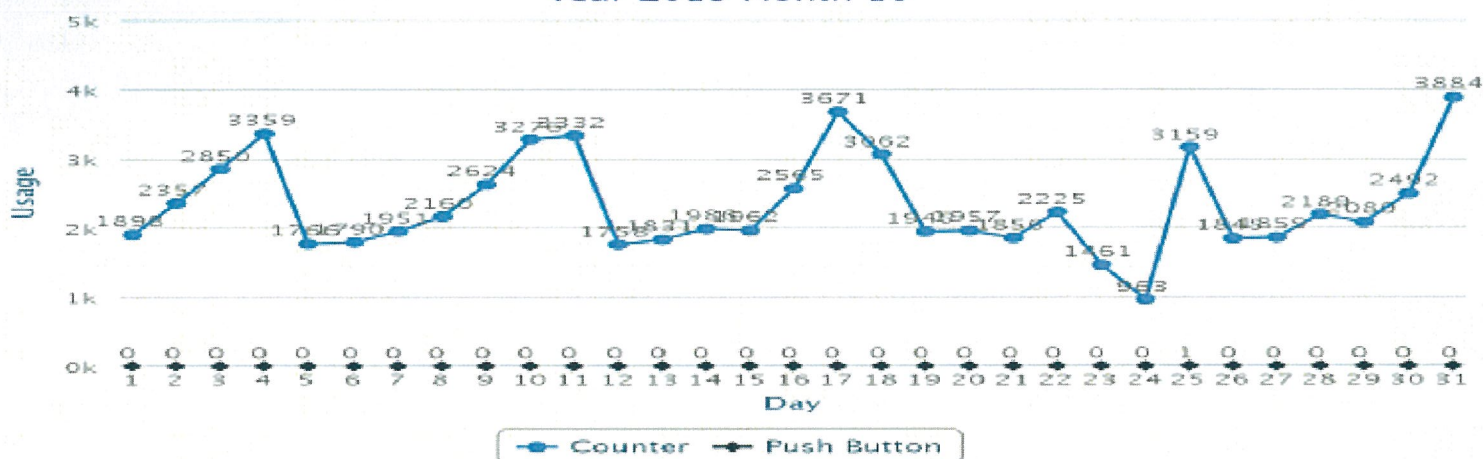
The entire platform can be easily implemented at any toilet fuss-free.

### Monthly Restroom Usage Year 2015



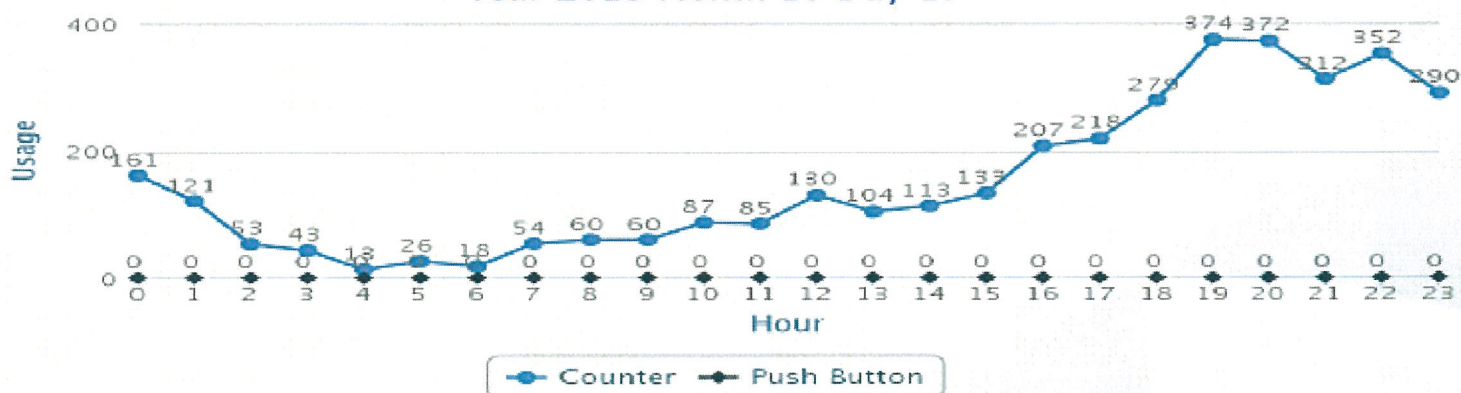
Highcharts.com

### Daily Restroom Usage Year 2015 Month 10



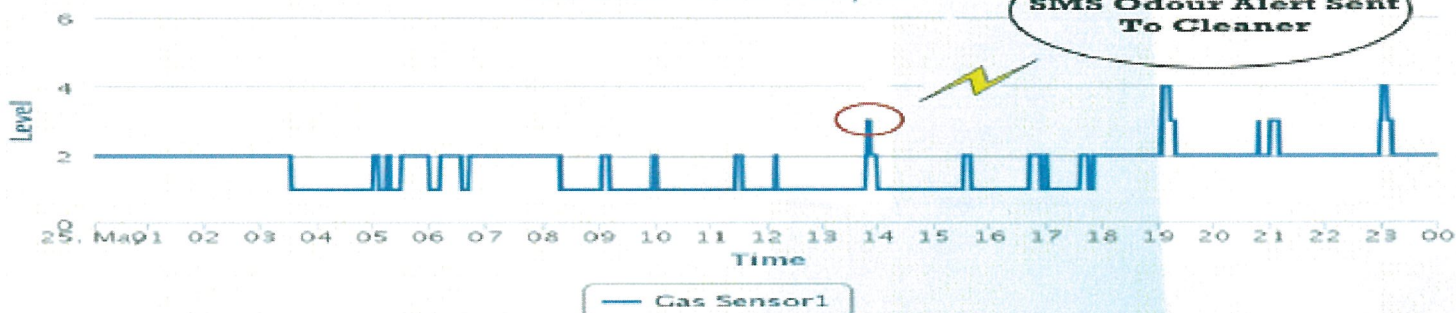
Highcharts.com

### Hourly Restroom Usage Year 2015 Month 10 Day 17

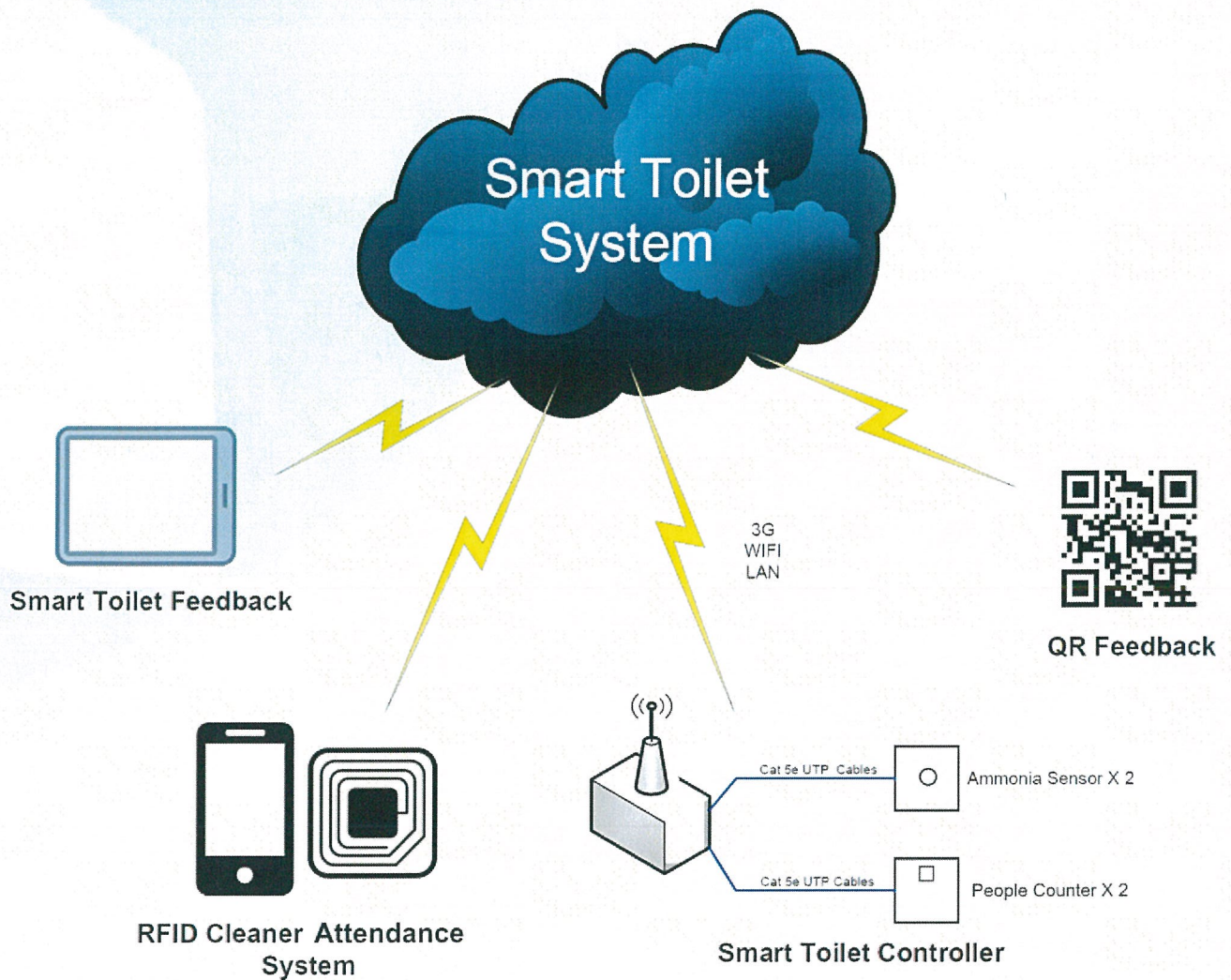


Highcharts.com

### Air Quality Level Year 2015 Month 5 Day 25



Highcharts.com



### System Specification:

People Counter Sensing Height : 250cm to 350cm

Operating Temperature: 0 °C to 50 °C

System Max Power Consumption: 2.5W

Ammonia Sensor Coverage: 16m<sup>2</sup> per sensor

Ammonia Sensor Threshold:

	Odour Intensity				
	1	2	3	4	5
	Barely able to sense odour	Weak odour	Easy to recognize odour	Strong odour	Pungent odour
Substance Name	Odour Concentration (Units: ppm)				
Ammonia	0 - 1.2	1.2 - 2	2 - 5	5 - 20	> 20

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