

# Smart Toilet

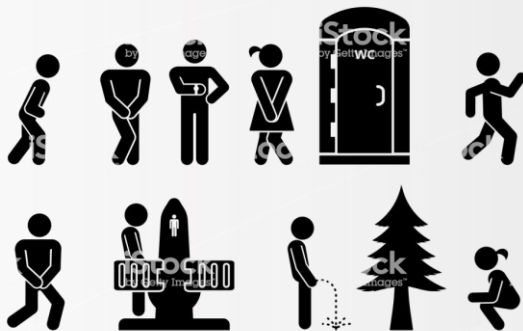
# Scope of Work

- Smart Toilet System
  - Management Platform
    - alert notifications – Cleanliness, Cleaner activation, Desnsity, Toilet Paper, Cubicle Occupation, Temperature, Water Usage, or any other abnormalities
    - analytics tools and a web visualization service
    - Informative dashboard view
    - Toilet usage trend reports
    - Map view
  - Sensors
    - Lora based
    - Real-time monitoring of:
      - Cleaner Activity
      - Human traffic (over crowded or long queue)
      - Odour Level, Air Quality and Temperature
      - Toilet Paper emptiness Detection
      - Water Usage
      - Cubicle usage

# Design Considerations

- Non-invasive monitoring system
- Brand and model agnostic
- Cloud based system
- Data security at rest and in motion
- Northbound API to remote systems

# Challenges





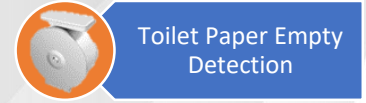
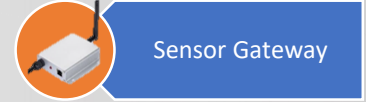
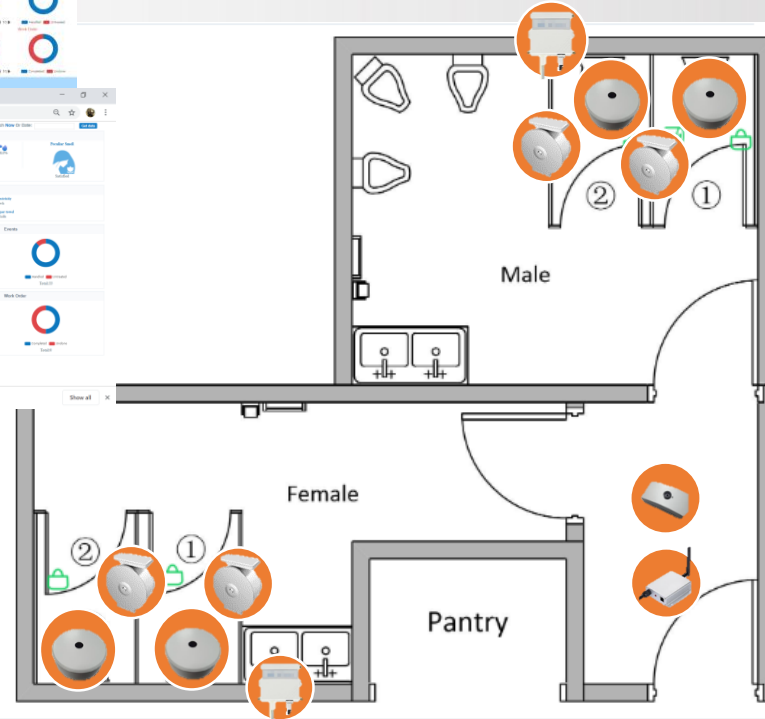
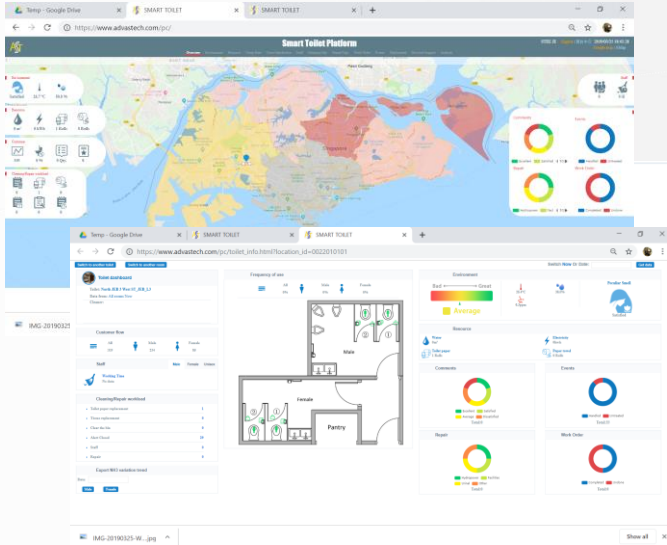
# Smart City Application

## Smart Toilet

Co-confidential

 **ST Engineering**

# Smart Toilet Solutions



# Smart Toilet

## Cleaning-on-demand Service Model

Cleaner can potentially **increase** efficiency by

**30%** Efficiency

## Manpower Productivity

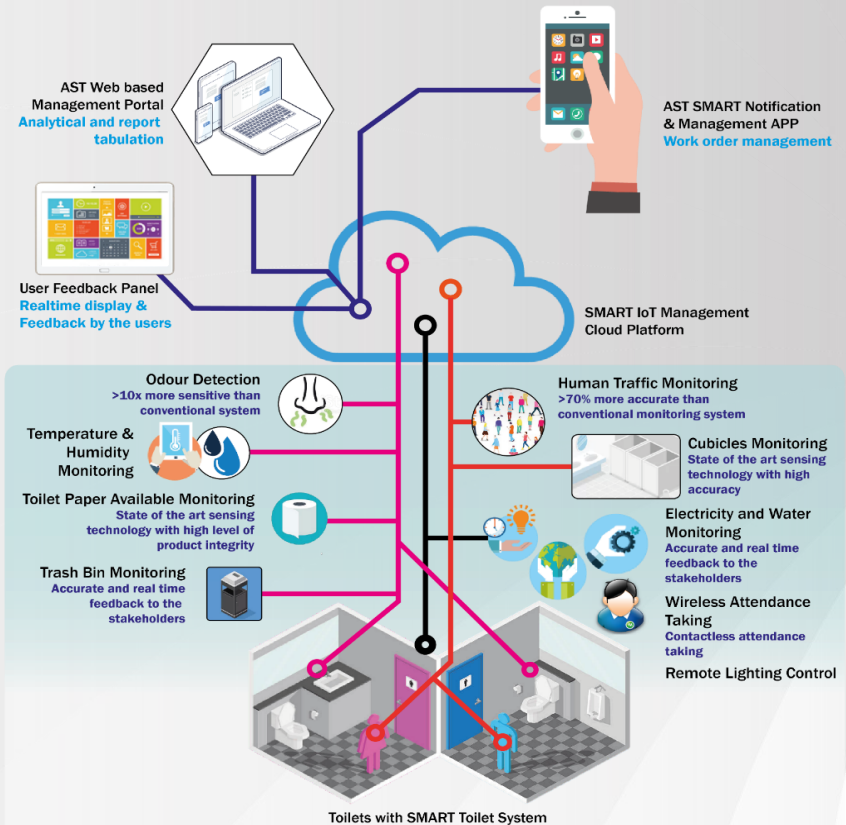
Our unique auto-deployment can potentially **improve** the Supervisor productivity by

**50%**

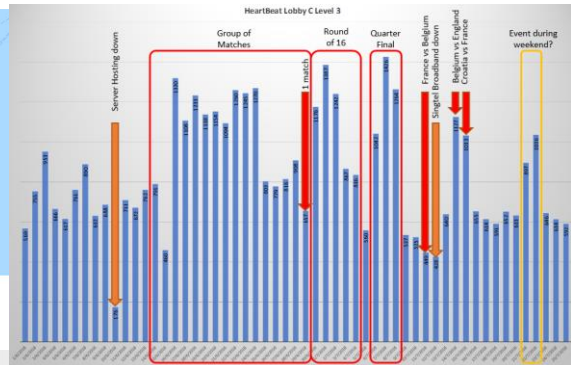
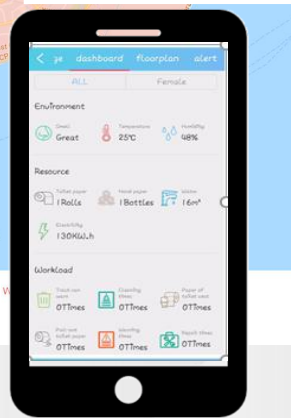
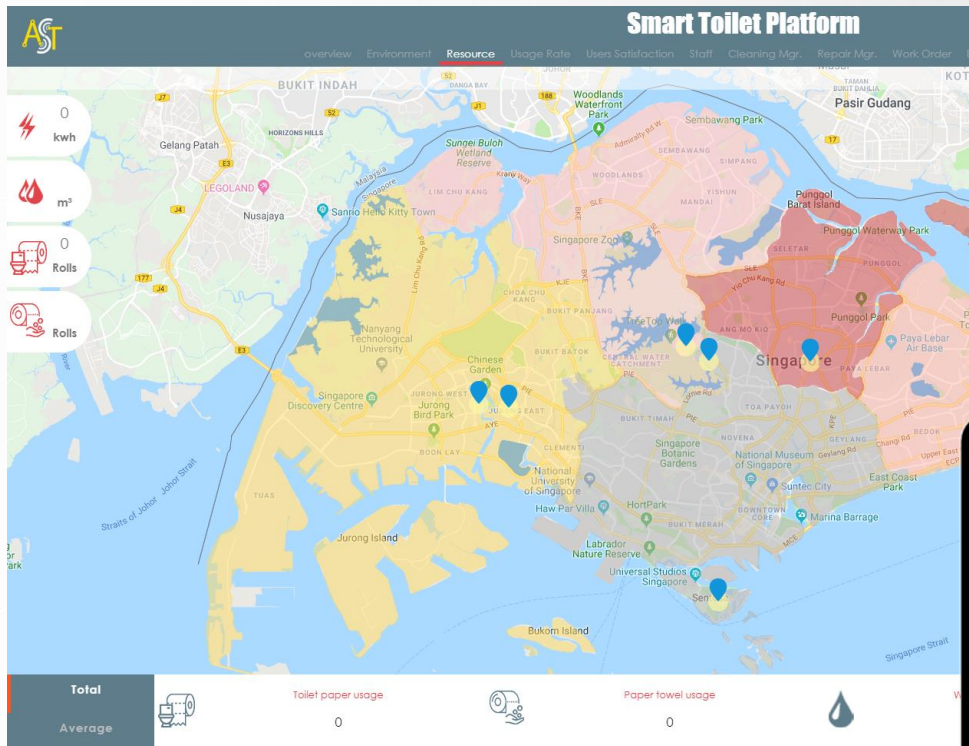
## Value for money

Service Buyers can potentially **save** up to

**1-2 cleaners** cost, subject to premises and workloads



# Smart Toilet





# Thank You