2020

SMART CLEAN TECHNOLOGIES

TECHNICAL BROCHURE

SENSORS

DISPENSER MONITORING ()
ODOUR DETECTION (OD-WF-1901)
PEOPLE COUNTER (PC-WF-1901)
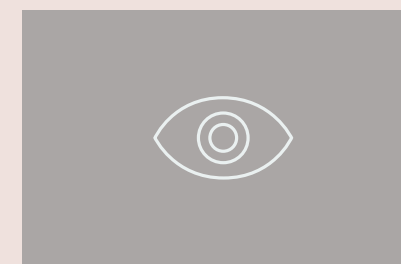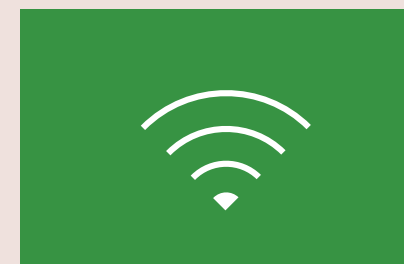**WETNESS DETECTION (WD-WF-1901)**

01

SmartClean has designed a set of wireless, contact less sensors suitable to be installed in any part of your facility. The array of functions carried out by these sensors make your facility's cleanliness easy to monitor and cleaning operations extremely seamless. Our patented technology is already being adopted by commercial property owners and facility managers and aiding them to increase their productivity and optimise day to day operations.

Features of the Sensors

The devices arecompatible with SmartClean's cloud based OptimusTM software, which analyses the air quality data and alerts the facility's cleaning personnel of odour levels which need immediate remediation. Also they use Wi-Fi® (IEEE 802.11 b/g/n) based wireless communication module with an integrated chip antenna for communication with SmartClean's cloud-based services.

" *Odors have a power of persuasion stronger than that of words, appearances, emotions, or will.* "
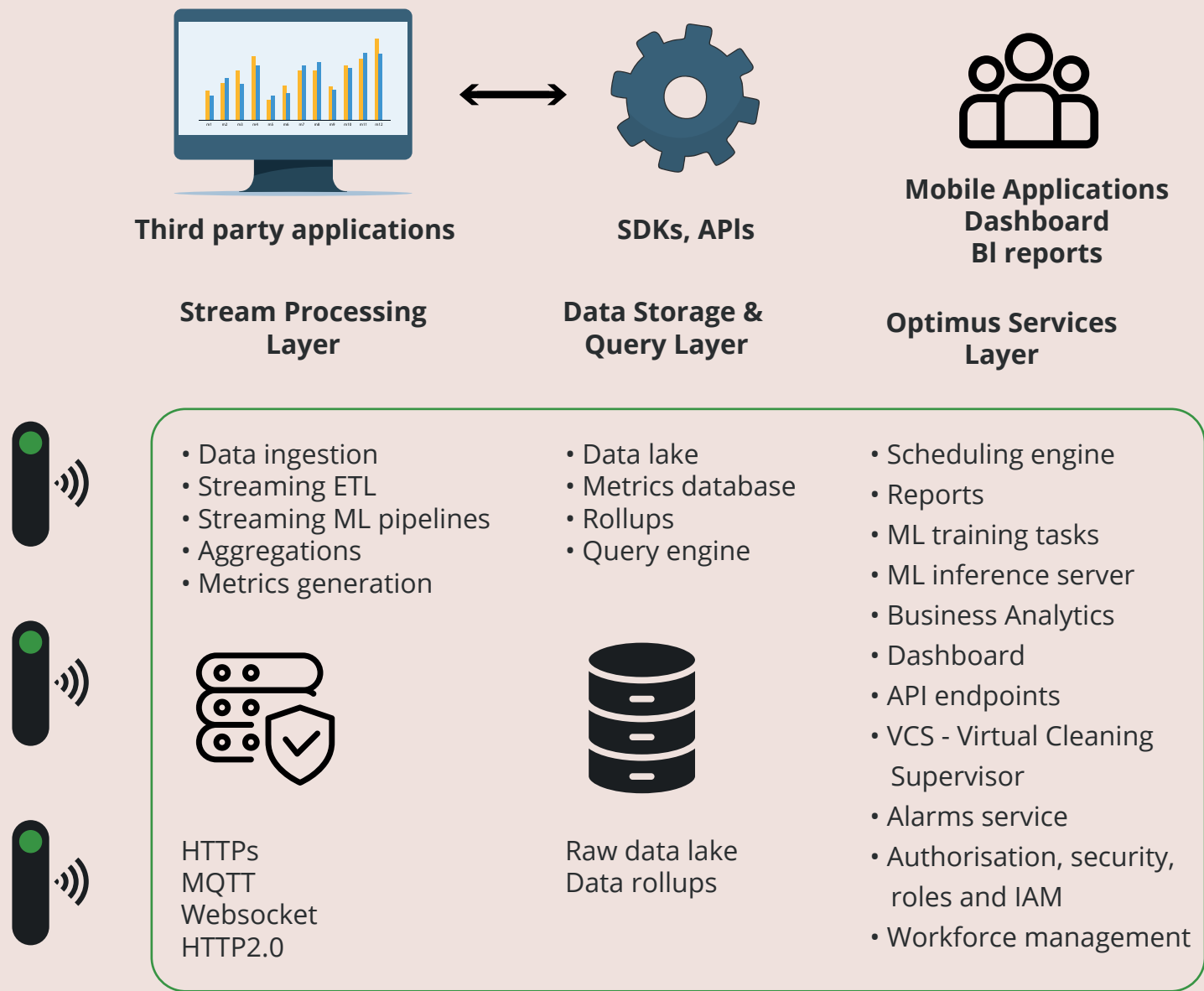
TECHNOLOGY STACK

The technology stack and it's different layers used at Smart Clean.

Third party applications

SDKs, APIs

**Mobile Applications
Dashboard
BI reports**

**Stream Processing
Layer**

**Data Storage &
Query Layer**

**Optimus Services
Layer**

- Data ingestion
- Streaming ETL
- Streaming ML pipelines
- Aggregations
- Metrics generation

- Data lake
- Metrics database
- Rollups
- Query engine

- Scheduling engine
- Reports
- ML training tasks
- ML inference server
- Business Analytics
- Dashboard
- API endpoints
- VCS - Virtual Cleaning
  Supervisor
- Alarms service
- Authorisation, security,
  roles and IAM
- Workforce management

HTTPs
MQTT
Websocket
HTTP2.0

Raw data lake
Data rollups

SmartClean Cloud

SmartClean cloud comprises various proprietary core and business modules that help drive multiple aspects for the digital cleaning platform, allowing stakeholders to optimise their cleaning operations.

TECHNICAL BROCHURE

02

DISPENSER MONITOR
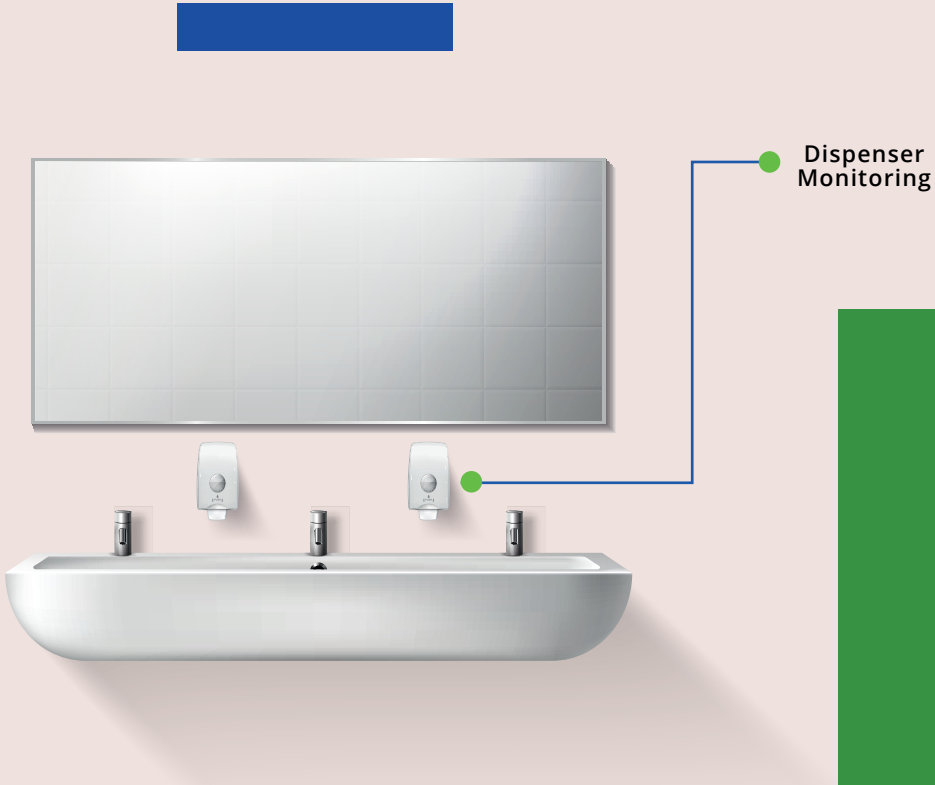
The first of the 4 fold sensing system developed by Smart Clean.

● Dispenser Monitoring

Features of the Sensor

• Monitors fill-levels in real-time
• Tracks usage and automates inventory management
• Alerts cleaners on low levels
• Easy to install inside the casing of current dispensers with 2 years lifetime on a single coin cell battery

● Dispenser Monitoring

Dimension and Weight	Sensor Type
13mm height x 36mm diameter	Time of Flight distance sensor
Connectivity (BLE)	Range of Measurement
IEEE 802.15.1 (Bluetooth®)	Measures range from 0 to 20cm

03

Dispenser Monitoring

Our Dispenser Monitoring Sensors are capable of monitoring usage of consumables such a paper towels, toilet papers and hand-wash levels on a real time basis. The sensors can predict when your consumables fall below a given threshold and require replenishment. Ensuring a well stocked washroom boosts your user experience. Designed by SmartClean, the sensor is compatible with most of the dispensers allowing your existing dispensers to be retrofitted and ready to use in minutes.

ODOUR DETECTION

The second of the 4 fold sensing system developed by Smart Clean.

04

Features of the Sensor

• Detects Gases like Nitrogen Dioxide, Ammonia, Ethanol, and Carbon Monoxide and helps you meet WHO's guidelines for indoor air quality

• Calculates real-time indoor Air Quality Index (AQI) that quantifies the smelliness of the installation location

Odour
Detection

Dimension and Weight	Sensor Type
101 x 54 x 25 mm (w/ ceiling mount), 130 grams (w/o packaging)	MEMS and Electromechanical.
Connectivity (Gateway)	Max Power consumption
WiFi / LPWAN (2.4~2.5 GHz)	2.5W

Odour Detection

Our Odour Detection Sensors are capable of measuring multiple gas concentrations that add to the facility's unpleasant odour. It converts your toilets and urinals into a smart device while dynamically adjusting the concentration thresholds of various gases, to adjust to the facility's unique characteristics and learning from behaviour patter of the location. The information collected by the sensors can be used to alert the cleaning staff to take prompt action.

PEOPLE COUNTER

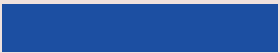The third of the 4 fold sensing system developed by Smart Clean.

05

People
Counter Sensor

Features of the Sensor

• Automatic adaptive background subtraction.
• Counts 2 people simultaneously
• Automatic count error correction.
• Tracks valuable data about usage. density over time and usage per minute.
• Uses integrated cloud services for Over the Air (OTA) updates.

Dimension and Weight	Sensor Type
101 x 54 x 25 mm (w/ ceiling mount), 130 grams (w/o packaging)	Infrared Array Sensor
Connectivity (Gateway)	Max Power consumption
WiFi / LPWAN (2.4~2.5 GHz)	2.5W

People Counter

Our People Counter Sensor can assist you in optimising operations by providing you with invaluable insights about the usage and trends of the sensors' installation location. It does so by closely monitoring and recording the number of people moving in and out of a location at any point in time.

WETNESS DETECTION

The final of the 4 fold sensing system developed by Smart Clean.

Wetness Detection Sensor

Features of the Sensor

• Field of View: 50 degrees
• Optimum Placement Height: 10-12 feet
•Non-contact sensing methodology
•Operating temperature: 0 – 60 degree Celsius
• Accuracy of water detection at 30-degrees: 90%
• Can also detect people falling on the floor.

Dimension and Weight	Sensor Type
101 x 54 x 25 mm (w/ ceiling mount), 200 grams (w/o packaging)	Long-Wave Infrared Sensor
Connectivity (Gateway)	Max Power consumption
WiFi / LPWAN (2.4~2.5 GHz)	10W

06

Wetness Detection

Washrooms are prone to spillages and wetness conditions. To maintain the highest standards of cleanliness, cleaners need to detect and clean the facility promptly. Our patented technology is a first in kind that allows non contact detection of spillages accurately. This will also be able to prevent slips in indoor facilities.

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