Urban-Sweeper S2.0 Autonomous

Proven Technology. Guaranteed Performance.

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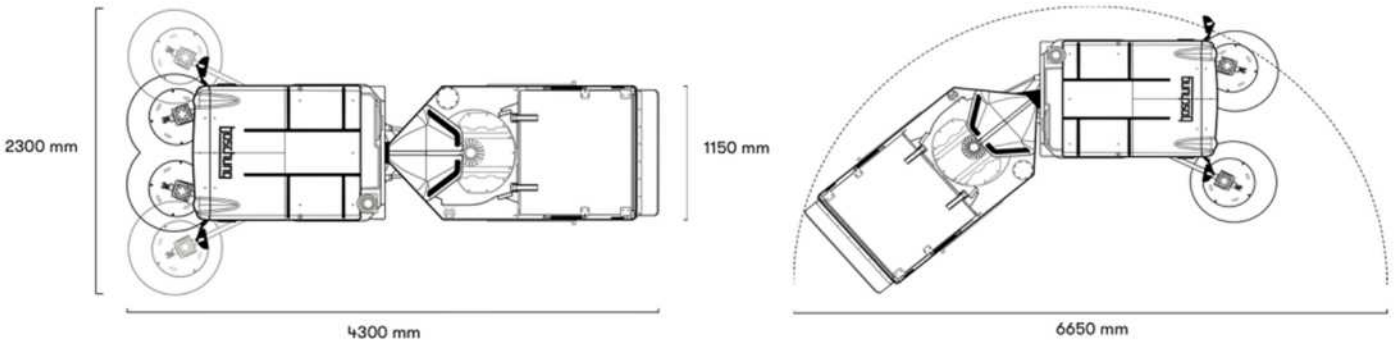
Designed to perform with style and elegance

Street-smart, intuitive, and compact, the Urban-Sweeper S2.0 Autonomous was engineered and designed for maximum performance in urban landscapes, fully powered by electricity and releasing 0 (zero) CO2 emissions. Its ingenuity allows it to follow a pre-programmed cleaning path with the utmost accuracy before returning to its base. When obstructed by a human being, an animal, a moving or static object, the driverless sweeper will alter its path to avoid any collision. With its narrow width and incredibly light weight the sweeper can easily perform where others can't. When switched to manual driving mode, the sweeper offers comfort and ease with its panoramic cabin and intuitive one-handed operating system.

Specification



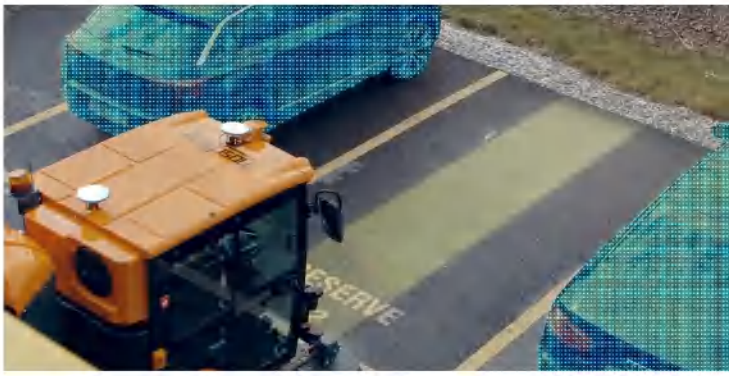
Item	Measurement
Hopper capacity	2.0 m^3
Cleaning width with standard brooms	2.3 m
Dimensions	W: 1,150mm/H: 1,990mm/L: 4,300mm
Empty weight (incl. driver, without options)	2.3tons
Payload	1,200 kg / 1,500 kg
Gross vehicle weight	3,500 kg / 4,000 kg

Features

Enhanced Safety

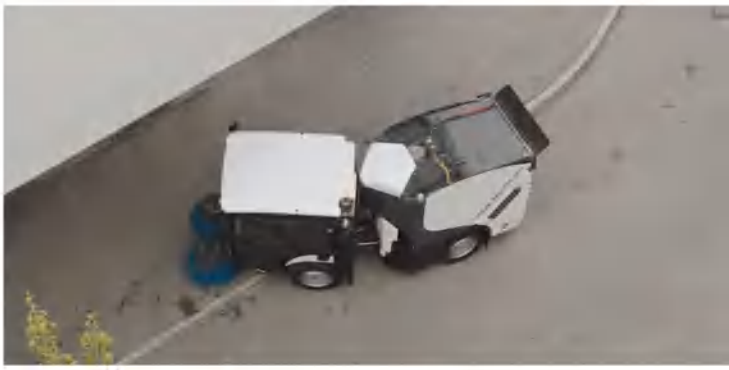
The all-electric front wheel drive powered by 2-wheel motors allows a manual driving speed of 40km/h and is locked at 7 km/h when in autonomous mode ensuring safe manevurability around sharp corners, bends, or obstacles.

Whether the sweeper is approached by a human being, an animal, moving, or static object, the driverless sweeper will detect and adjust its path to avoid to avoid collisions.



Articulated Steering

The agility of the articulated steering dexterity with a sweeping width up to 2300mm and 3.3m turning radius, allowing the sweeper to perform a range of cleaning operations such as curbside cleaning, scrubbing, and dirt suction.

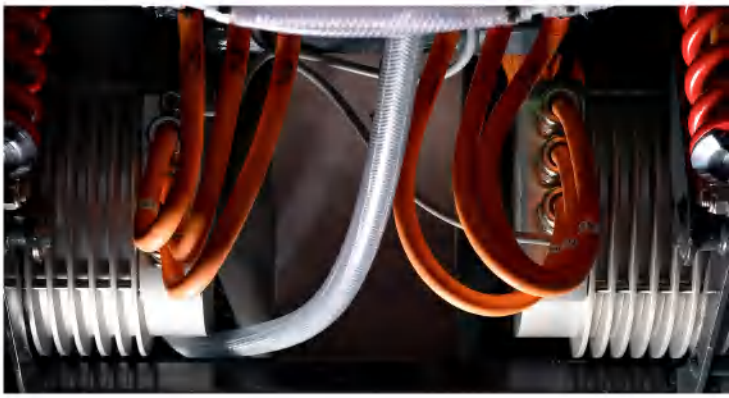


Intuitive Controls

The double joystick control unit gives drivers the ability to handle multiple operations with just one hand.

Touchscreen Interface Terminal

Displaying the vehicle's status, information and intelligent functionalities, the touchscreen control unit of the Urban-Sweeper S2.0 Autonomous also gives an operator an overview of the battery management system.



Green Technology

Fully electric powered, the Urban-Sweeper S2.0 Autonomous does its part for the environment by guaranteeing 0% emissions.

Advanced Battery Technology

54.4kWh lithium-ion battery with 12 modules, 4320, and 24 temperature sensors engineered to guarantee that the battery operates at peak performance. Located directly under the waste hopper compartment providing power to the sweeper and components such as:

·Powertrain engines
·Broom
·Turbines
·Airconditioner and heater

FastCharger:

AC Charger

9 hours charging
10 hours of work

FastCharger:

Super Charger

3 Phases 400V
2 hours charging
10 hours of work

Panaramic Cabin

Transparent floor panel with a direct view of the suction mouth, brushes, and floor.

High-volume Hopper:

New intelligent electric sweeper with hopper capacity far exceeding similar products.

4G Network:

Integrated cellular sim card ensures that the sweeper transmits data to the cloud regardless of a WIFI signal.

Vehicle Equipment

Scrubber

Handle the heavy-duty cleaning and disinfecting process with the Urban-Sweeper S2.0 Autonomous Urban-Sweeper and the mounted scrubber.

Hand suction hose

Reach for small areas around the street sweeper with the swivelling hand suction hose stored above the hoper.

3rd Brush

Enlarge the sweeping reach of your Urban-Sweeper S2.0 Autonomous by adding a 3rd brush in the front.

Weed Brush

Remove unwanted weeds without the use of chemicals with the Urban-Sweeper S2.0 Autonomous weed brush.

Autonomous Driving System (ADS)

The ADS of the Urban Sweeper S2.0 is made up of four key technological modules: perception, localization, planning, and implementation.

Perception

·Multi-sensor arrangement with 360° coverage of surroundings

·Accurate and efficient recognition algorithm

Implementation

·Data processing and distributed data storage with the Integration of vehicle layer, data layer and user layer to execute instructions more efficiently

Planning

·Real-time optimization algorithms that control key vehicle operations in autonomous mode

Localization

·Centimeter level precise positioning

·Automatic HD-map generation

Autonomous Components

All models are supported by key components that gather data required to perform autonomous operations. The Urban Sweeper S2.0 components are as follows:

Millimeter Radar

Determines the range, velocity, and angle of the objects from the sweeper.

Global Navigation satellite system (GNSS)

Uses a constellation of satellites to transmit positioning and location of the sweeper.

Live streaming camera

Used for real-time video streaming of the vehicle's surroundings.

Perception camera

Used to gather and collect images necessary for creating visual recognition algorithms.

Light Detection and Ranging equipped (LIDAR)

uses eye-safe laser beams to create a 3D representation of the surveyed environment.

Onboard Computing System

Uses data from the LIDARS, cameras, millimeter radar, and GNSS to create HD maps and algorithms.

Collision sensor

Sends out an alert to the engineers if an object hits the vehicle.

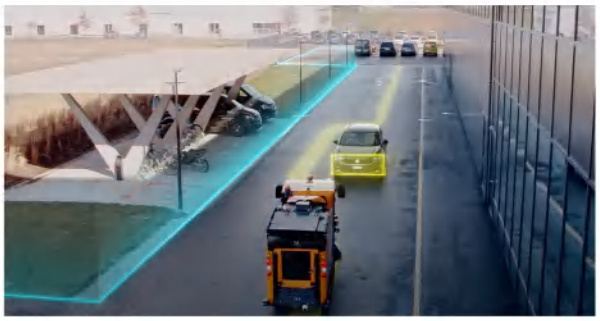
Ultrasonic Radar

Uses radio waves to measure the range, distance, and velocity of moving objects.

Safety Features

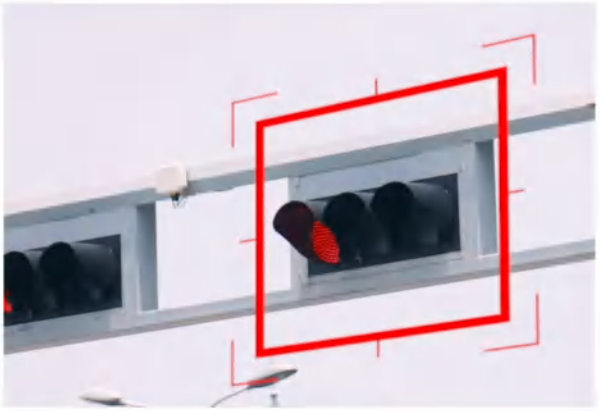
Blind Spot Detection

BSD uses ultrasonic and radar sensors on the side and rear of the car to track traffic in the adjacent lane or front of the sweeper, or directly alongside the sweeper.



Electronic Stability Control (ESC)

The ECS uses data from the onboard cameras, and millimeter wave radar to monitor, and keep the sweeper securely positioned within its designated traffic lane.



Traffic Light Recognition

Integrated algorithms and cameras allow the vehicle to identify traffic lights. This allows the sweeper to start on red and go on green.

Emergency Stop

An onboard electronic control unit (ECS) is always running and designed to bring a sweeper to an emergency stop if it detects a failure of the onboard computing system.

Autonomous Emergency Braking (AEB)

The WIBOT AEB system uses sensors to measure the distance of the sweeper from objects, pedestrians, and surrounding traffic. Thereby, engaging the brakes if there is a threat of collision. In manual mode, AEB will also alert a driver to an imminent threat of a collision.

Anti-collision

The onboard computing system uses the data from LIDARS, millimeter radars, and cameras to detect the distance of the sweeper from an object. The data determines how close the sweeper should get to an object, or how close another vehicle to the sweeper.

Dynamic Cruise Control System (DCCS)

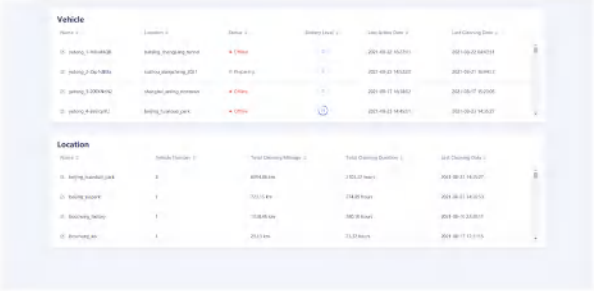
DCCS slows down the speed of the sweeper and speeds up automatically to keep pace with the vehicle in front of it.

Machine Learning

Advanced programmed algorithms and data from the LIDARS and millimeter radar allow each sweeper to recognize human beings, animals, moving and static objects in its pathway. If obstructed, the sweeper will automatically adjust its route to avoid a collision

2-Factor Authentication (2FA)

Users are prompted to log into the vehicle control platform with their username and password. Additionally, a security code is sent to a mobile phone or email address.

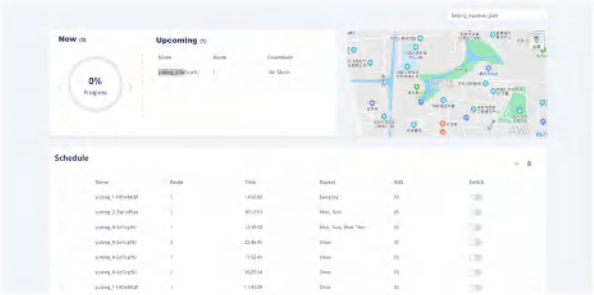


System Logs

Each sweeper has a stored log file that contains key events such as component health status, software upgrades, or system changes.

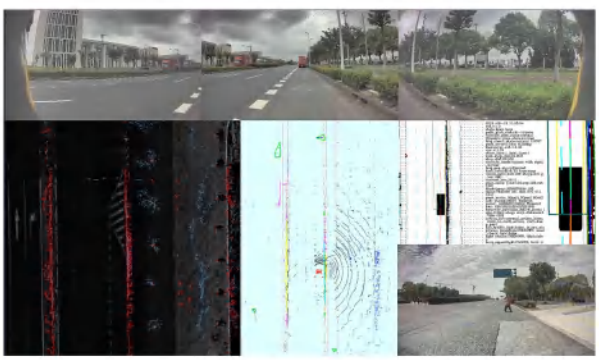
System Diagnostics

Automatic system checks to determine the operating status of vehicle systems, modules, and components of the Urban-Sweeper S2.0 Autonomous.



Backup Computing System

An offsite secondary computer acts as a backup for the onboard computing system and ECS. If the onboard computing system crashes, the secondary computer takes over its functions.



WIBOT Vehicle Management Platform

The WIBOT Vehicle Management Platform allows users to access, monitor, or control sweepers. Users can also view decisive information such as planned routes, sweeping functions, HD maps, and operational schedules.

Multi-Cam View

Simultaneously view the live footage from all onboard cameras.

Route Update

Manually modify points on the HD map, or alter the route and destination of the sweeper.

Remote Control

Access the management control platform and remotely start, stop, or control the sweeper.

Advanced notification

View notifications about the operational status of the vehicle, battery status, collisions updates, or system health checks.

Operational Data

View component status, weekly, daily, or month performance status, vehicle fleet deployment, vehicle task completion, mileage, duration, speed, or historical performance.

User Authorization

You can log into the management platform as a standard user or engineer. Each user profile can view different operations on the management control platform.

Function View	Standard Users	Engineers
Performance	√	√
Basic Vehicle Control	√	√
Advanced Vehicle Control		√
Coding Interface		√
Dispatch Information	√	√
Vehicle Positioning	√	√
Multiple Component Status		√
Multi-Cam	√	√
Extended Access Range		√
System Health Check	√	√

Our Projects

The Urban-Sweeper S2.0 Autonomous is currently deployed on roads, highways, tunnels, factories, and manufacturing plants.

·Phoenix, America
Supermarket Parking Lots

·Marl, Germany
Metal Recycling Plant

·Duisburg, Germany
Manufacturing Plant

·Shanghai, China
Local Government Services

WBOT

Contact Us

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