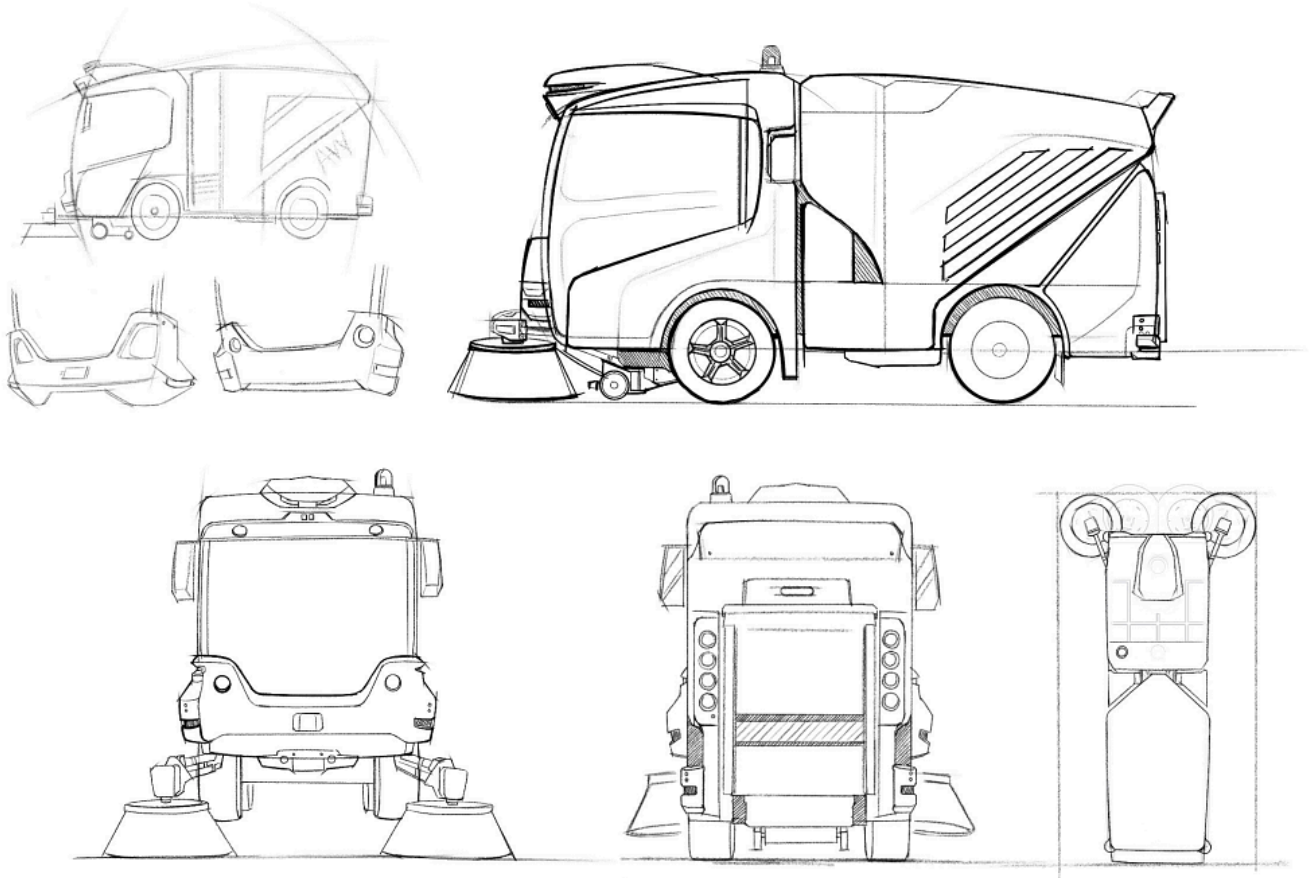
Autonomous
Road Sweeper

Autowise V3


autowise.ai

Introduction Autowise V3

Autowise V3 is a fully autonomous compact road sweeper developed by Autowise.ai for smart sanitation. With a combination of lidars, cameras, millimeter wave radars, and GNSS antennas, Autowise V3 has a 360° coverage of its surrounding environment, making it safe and reliable. Autowise V3 is equipped with larger freshwater tank, wastewater tank and adjustable cleaning structure, which can support multi-functional and longtime cleaning operation. Equipped with an intelligent central control panel with the appearance of a great sense of technology. You can use the Vehicle Management Platform for remote start, task setting and data analysis to support smart sanitation.



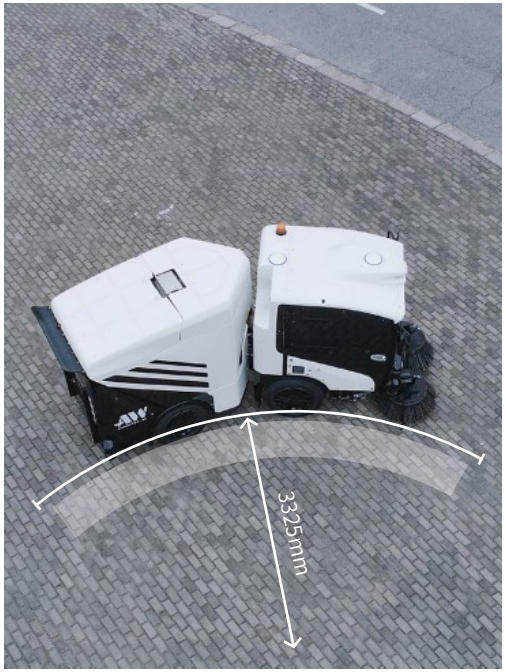
Flexible Design

The width of Autowise V3 is only 1280 mm, which is suitable for cleaning scenarios such as narrow roads, park walkways and side roads. The sweeper has a spacious interior, making it easier to equip autonomous driving equipment.

Autowise V3 adopts an articulated steering design with a minimum turning radius of 3325 mm, turning flexibly.

The cleaning width ranges from 1200 mm to 2400 mm. The size of suction nozzle can be adjusted by wire control, being able to absorb large volume of garbage (stone, debris etc.) .

Autowise V3 is flexible and customizable. Water recycling system, snow sweeping/shoveling equipment are available and can be customized.



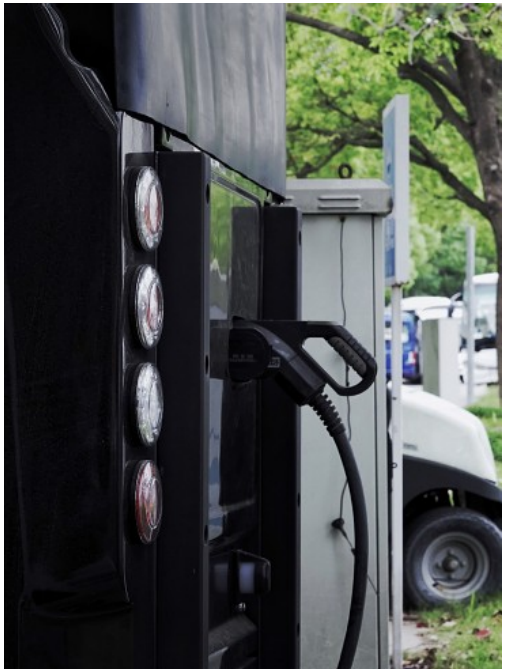
High Efficiency

The maximum working speed is 20 km/h, and the maximum driving speed is 40 km/h, which can improve the cleaning efficiency.

The battery capacity and motor efficiency are much higher than similar products. The longest operating time is up to 8 hours.

The hopper capacity is 2000 l and the fresh water tank capacity is 300 l. Autowise V3 can realize very smooth and stable water spray. There is no need to add water within 5 hours during a single cleaning operation.

Autowise V3 is powerful. Its gradeability is 20 %, reaching the standard of passenger vehicles.



Autonomous Driving

Global Navigation Satellite System(GNSS/INS)

GNSS provides the basic positioning data for the sweeper, integrates with the data of radar and camera for fusion positioning.

LiDAR

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

Perception Camera

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

Millimeter Wave Radar

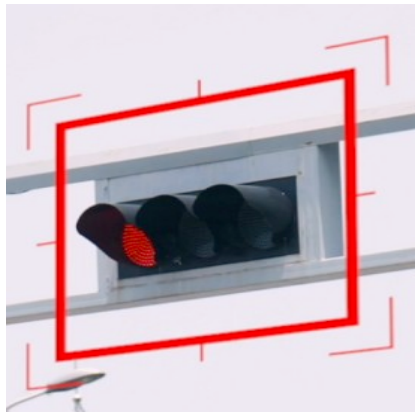
Uses electromagnetic waves of a short-range wavelength to measure the range, distance, and velocity of moving objects. Located at the front and the back of the vehicle.

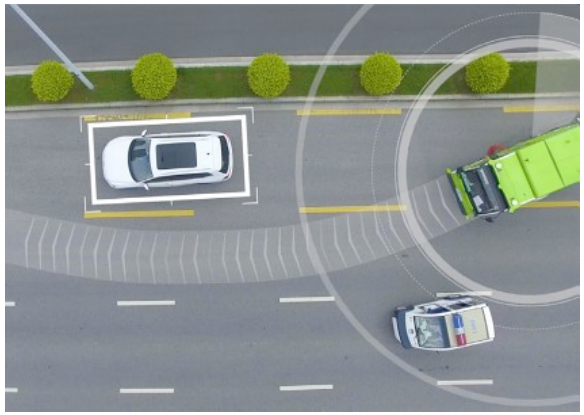
01

Highly adaptable to autonomous driving system: It is equipped with EIC System specially designed for autonomous driving and reaches L4+ autonomous driving ability in key performance such as braking and steering.

02

The sensor solutions are front-loading, which can meet the demand of mass production.





Safe and Reliable

Automatic Emergency Braking System (AEB)

The 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.

Blind Spot Detection

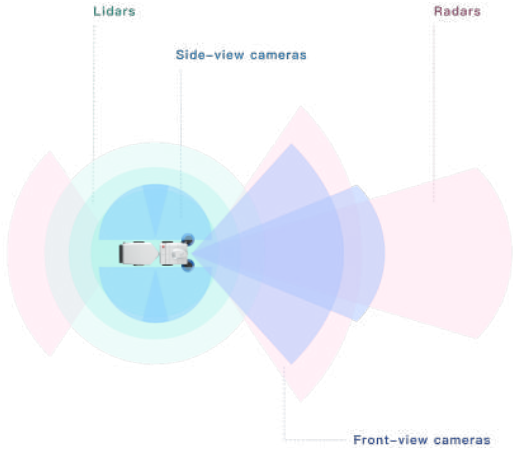
BSD uses ultrasonic and radar sensors on the side and rear of the car to track traffic in the adjacent lane or front of the sweeper, or directly alongside the sweeper. It can avoid blind spots of vision and ensure driving safety.

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.

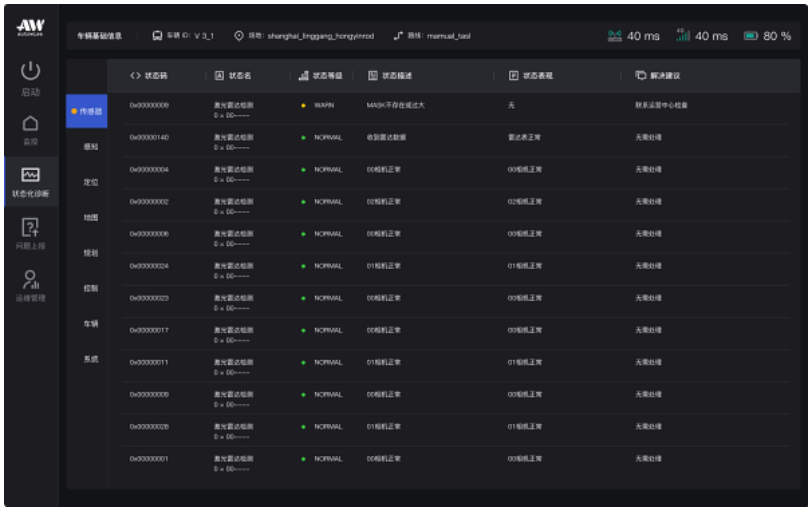
System Logs

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

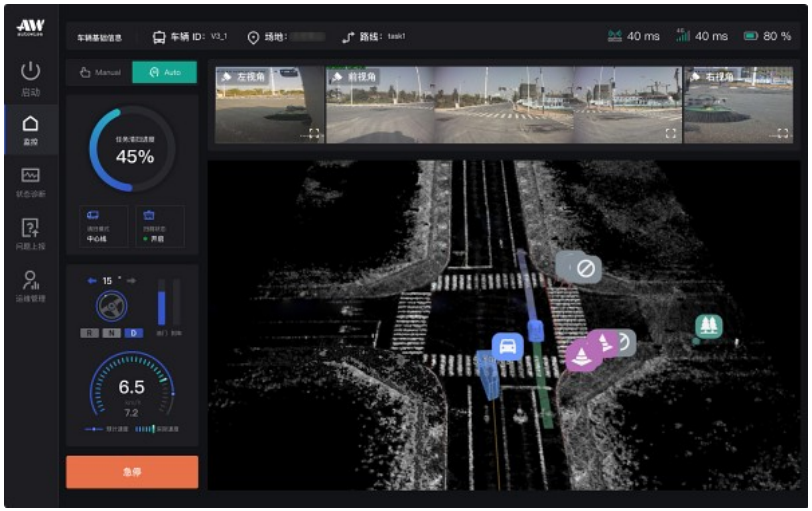


The sensor solution and its coverage of Autowise V3

Vehicle Management Platform



(Vehicle Management Platform)



Autonomous Route Planning

·Locate, detect and classify obstacles around the vehicle in real time, and predict the potential moving tracks of other road users.
·Real-time loading of semantic information, such as lane lines and traffic lights, enables the system to deal with complex road conditions accurately and make optimal decisions when faced with uncertain traffic.

24 Hours Service

Monitor and diagnose of steering wheel, brake, throttle, the hardware and software status of ADS in real time. In case of abnormal conditions, the 24-hour remote operation center can provide solutions timely to ensure the safety of the vehicle.

Intelligent Vehicle Control

In addition to real-time detection of operation conditions, you can also control the ADS, washing equipment, and the air conditioner through the platform, which makes it more convenient to control the vehicle.

Technical Specifications

Size

Dimensions (L*W*H/mm)	4080 * 1280 * 2155 mm
Front and rear tracks	894 mm
Wheelbase	1740 mm
Minimum turning radius	3325 mm

Weight & Capacity

Gross vehicle weight	3.9 t
Empty weight	2.5 t
Fresh water tank capacity	300 l
Waste hopper capacity	2000 l

Performance

Brush width/Cleaning width	1200-2400 mm
Speed	Maximum working speed 20 km/h Maximum driving speed 40 km/h
Maximum suction particle	⩾ 100 mm
Gradeability	⩾ 20%
Driving mode	Front axle driving
Discharging mode	Self-dumping
Filter type	Optional* Waste water recycling system
Water spraying duration	5 h

Power

Battery type	LFP battery
Battery voltage capacitance/capacity	400 V，100 Ah
Operating time	8 h
Charging mode	super charge 2h standard charge 8h

Power

Motor power	drive motor 24 kW，blower motor 6 kW
Vehicle wire control	With CAN bus LCD control screen, feedback functions such as vehicle control and fault diagnosis. With one-touch operation mode, which is conducive to wire control conversion
Others	Air conditioner (heat and cool)

(Front view)

(Side view)

Usercases

Shanghai

Deployed autonomous sweepers in International Tourist Resorts, AUTO-EXPO and Lin-gang Special Area, meeting all kinds of urban sanitation needs.

Xi 'an

Worked in Yanta District, Xi'an and did an excellent job of cleaning the city roads with high levels of pedestrian traffic.

Qingdao

Landed in Qingdao for an integrated cleaning operation, covering an area of nearly 2 million square meters and efficiently completed the large-scale cleaning task of urban roads.

Zhengzhou Xinzheng International Airport

Conducted first driverless test at Zhengzhou Xinzheng International Airport and passed the road test evaluation. World's first application of autonomous sweeping in airport runway.

Tangshan Port

The world's first commercial landing case of autonomous sweeping in port area.

Nanjing Yangtze River Tunnels

The world's first underground tunnel operated by autonomous sweeper.

Phoenix, U.S.A

Large parking-lot sweeping in a well-known retail store. Developed continuous parking space cleaning mode to save time and improve efficiency.

Duisburg, Germany

Remote delivery in a large logistics port, relying on mature perception system and advanced obstacle avoidance technology. Implement of flexible route and smart cleaning mode.

Wilhelmshaven, Germany

Recycling plant of global chemical enterprise in Wilhelmshaven,
increase operational hours with a cost effective solution.

Sharjah, UAE

Autonomous cleaning in market leading cleaning contractor's headquarter outdoor area, operating in extreme weather condition (hot and sandy).

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About Autowise.ai

Autowise.ai, established in 2017, is a technology provider specializing in the research, development, sale, and service of autonomous driving technology. The company is headquartered in Shanghai China, with subsidiaries and R&D centers in the U.S.A, Switzerland and other places. In March 2018, Autowise.ai established world's first autonomous sweeper fleet that consists of different sweepers weigh from 1 to 18 tons. Each sweeper is retrofitted with autonomous technology and modified to perform a range of autonomous cleaning operations. In April 2019, Autowise.ai received the world's first road test license for autonomous sweepers. At present, Autowise.ai has deployed nearly 200 autonomous sweepers in more than 20 cities around the world.

Contact us

Autowise.ai
Address: 8th Floor, Building 3, A-li Center, Lane 1398, Shenchang Road, Minhang District, Shanghai, China
Tel: 86-021-37891028
Official website: https://autowise.ai
Email: contact@autowise.ai