

China Autonomous Shuttle Market Report, 2021

Mar.2021

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications.

Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

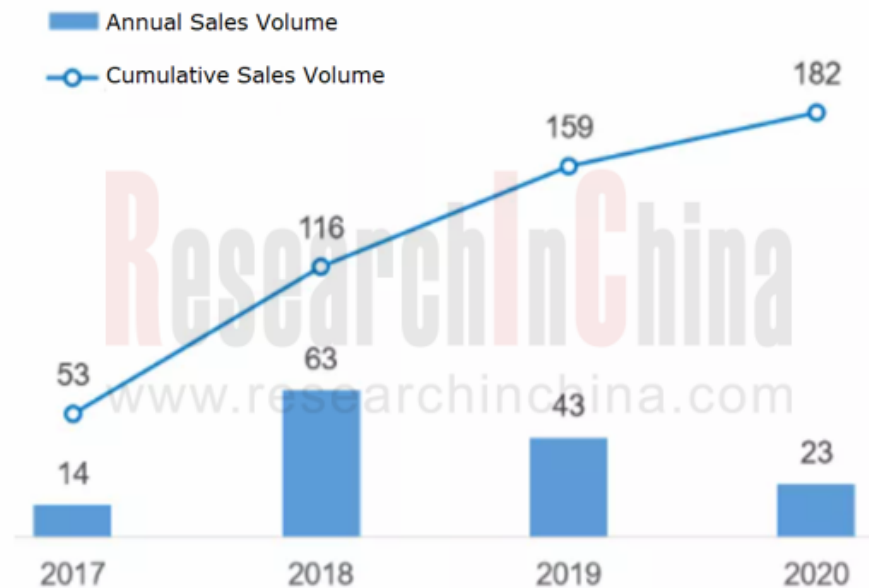
This report studies autonomous vehicles that transport passengers on short distances, and delves in the product solutions, operational services, and major players in this market.

The development of autonomous shuttles slows down

Many companies, including start-ups, Tier 1 suppliers and automakers (like UISEE, Baidu, Bosch, Continental, Dongfeng, Yutong, etc.), will launch autonomous shuttles when trying to develop and test L4 technology, so as to verify the reliability of their autonomous driving solutions.

Among them, Navya and EasyMile, which are the first to enter the autonomous shuttle market, perform mediocrely.

Sales Volume of Autonom Shuttles, 2017-2020



Source: NAVYA

In fact, the smart sensor configuration of L2+ passenger cars has been developing at an amazing speed, and suppliers such as Baidu have applied L4 technology to the L2+ market. L4 autonomous shuttles have developed slowly in the past two years. Although new players have flooded to the autonomous shuttle market, the development momentum herein is obviously not as good as that of the ADAS market and the autonomous driving market for special vehicles (such as autonomous driving in agriculture, mines and ports).

In terms of sensor configuration, autonomous shuttles lag behind the most cutting-edge passenger cars.

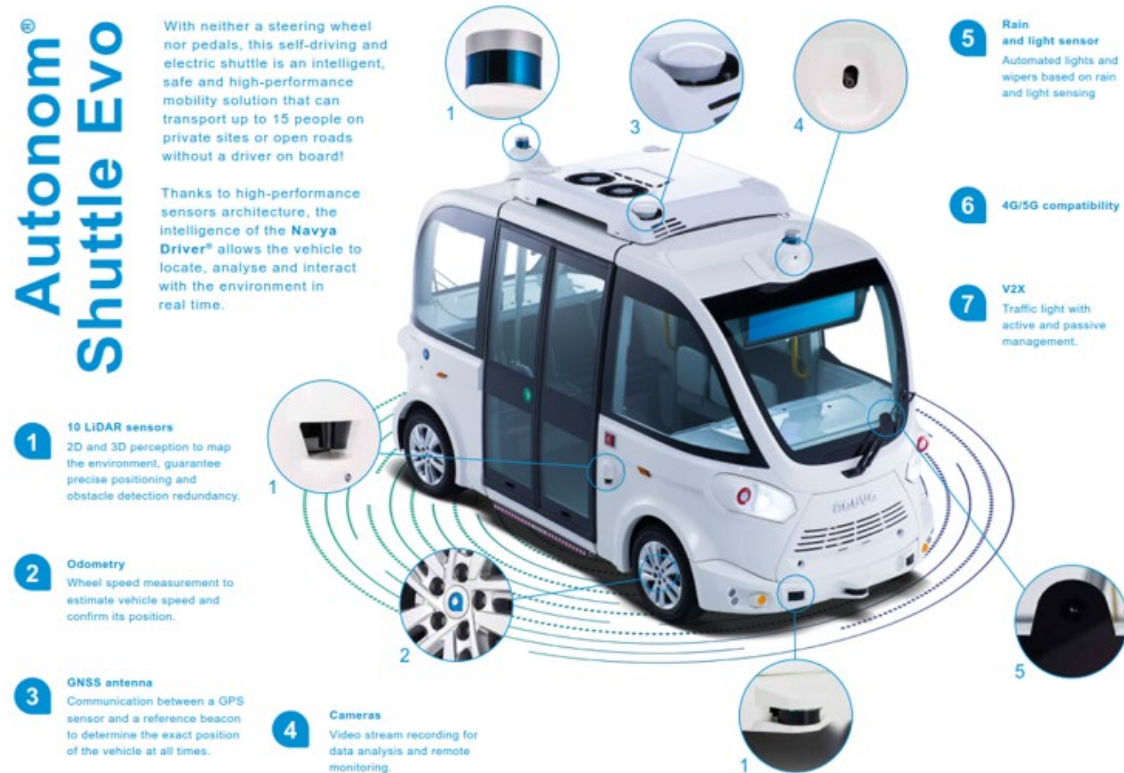
For example, Navya's autonomous shuttle --- Autonom Shuttle Evo uses a lidar + front/rear view camera solution to enable L4 autonomous driving featuring capabilities such as straight driving, turning, U-turning at intersections, autonomous obstacle avoidance, and fixed site parking. It also supports background remote control.

Autonom Shuttle Evo

With neither a steering wheel nor pedals, this self-driving and electric shuttle is an intelligent, safe and high-performance mobility solution that can transport up to 15 people on private sites or open roads without a driver on board!

Thanks to high-performance sensors architecture, the intelligence of the **Navya Driver**™ allows the vehicle to locate, analyse and interact with the environment in real time.

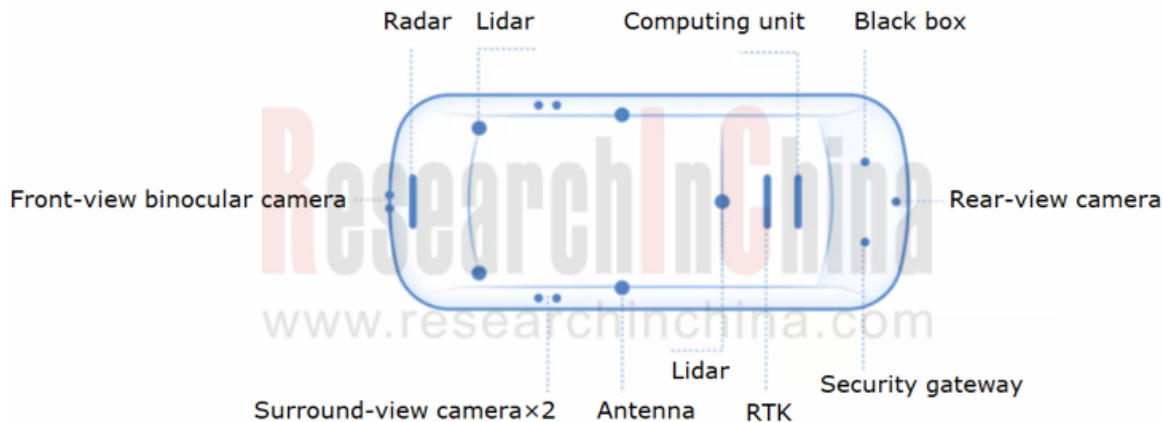
Sensor Layout of Navya's Autonom Shuttle Evo



Source: NAVYA

Baidu's autonomous shuttle Apollo adopts a fusion solution of lidar + radar + front/rear view camera + surround view camera + ultrasonic radar to independently complete a series of driving capabilities such as autonomously exit from parking spaces, following cars, avoiding obstacles, turning/turning around, stopping at stations, etc.

Sensor Layout of Baidu Apollo



Source: Baidu

The autonomous shuttle market in China is obviously more booming than abroad

Autonomous shuttles mainly operate in parks, scenic spots, campuses, science and technology parks, industrial parks, demonstration areas and other closed/semi-closed or relatively simple mixed traffic environments, where there are a few vehicles and pedestrians and vehicles run slowly. These scenarios are a good starting point for fast realization and commercialization of autonomous driving.

The autonomous shuttle market in China is obviously more booming than abroad. Baidu's autonomous shuttles are available in the most scenarios. "Apollo" jointly created by Baidu and Xiamen King Long since 2018 has landed in 35 parks in 28 cities of China. In addition, autonomous driving startups (such as MAGRIDE, WeRide, and QCraft) as well as OEMs (like Xiamen King Long and Zhengzhou Yutong) are actively embarking on this market.

Some Application Scenarios of Autonomous Shuttles in China

	Enterprises	Application Scenarios						
		Park	Scenic Spot	Campus	Science and Technology Park	Industrial Park	Demonstration Area	Urban Road
Autonomous driving companies	Baidu	√	√		√	√	√	
	MAGRIDE			√				
	WeRide				√		√	√
	QCraft							√
	Unity Drive				√			
OEMs	Xiamen King Long	√	√		√	√	√	
	Zhengzhou Yutong						√	
	Wuhan Dongfeng		√		√			
	Higer Bus						√	

Source: China Autonomous Shuttle Market Report, 2021 by ResearchInChina

Navya: Global autonomous shuttle sales volume will reach 12,600 units in 2025

The autonomous shuttle market tends to develop more slowly, but it represents a typical scenario for autonomous driving and still attracts more and more players to join. According to the investor report released by Navya in January 2021, the global autonomous shuttle sales volume will reach 12,600 units by 2025, with a market value of EUR1.7 billion.

The autonomous shuttle market will thrive sooner or later, but the crucial problem is who can survive the difficult time. At present, autonomous shuttle enterprises are trying to find successful development paths through various forms of cooperation. We have summarized two paths as below.

Path 1: Autonomous shuttle enterprises and OEMs/Tier1s team up to complement advantages

Autonomous shuttle players --- autonomous driving startups, OEMs (buses, passenger cars) and Tier 1 suppliers s have their respective advantages:

- With full-stack layout capabilities in autonomous driving solutions, autonomous driving startups provide L4 autonomous shuttles through OEM cooperation or AM modification.
- Some OEMs use their own vehicle manufacturing capabilities to pre-install and integrate autonomous driving software, algorithms, sensors, etc., and directly embark on actuation.
- The capabilities of Tier1 suppliers in software & hardware layout and system integration cannot be underestimated.

The cooperation between autonomous driving startups, OEMs and Tier1 suppliers is conducive to achieving complementary advantages and enhancing competitiveness.

Competitive Modes of Some Autonomous Shuttle Players

Enterprises	Relationship		
	OEMs	Tier 1 suppliers	IT giants
Baidu	Xiamen King Long (cooperation)	-	-
WeRide	Renault-Nissan-Mitsubishi Alliance, Yutong Group (investment)	-	-
QCraft	-	-	ByteDance (investment)
Navya	-	Valeo (investment)	-
EasyMile	-	Continental (holding)	-
May Mobility	BMW, Toyota (investment)	-	-
2getthere	-	ZF (holding)	-

Source: China Autonomous Shuttle Market Report, 2021 by ResearchInChina

In March 2021, GM Cruise acquired Voyage, a self-driving car startup that focused on operation in retirement communities. The cooperation will merge Cruise's engineering and software capabilities with Voyage's presence in the retirement community market to launch bombshells.

Path 2: Expansion of scenarios and technical service capabilities

Autonomous shuttles have something in common with autonomous logistics vehicles and autonomous taxis in terms of technical solutions, featuring relatively low thresholds to different scenarios.

The French company Navya, which initially engaged in autonomous shuttles, launched Autonom Cab, a driverless taxi, in 2018.

After completing the layout in autonomous taxis, WeRide has dabbled in the autonomous buses and autonomous logistics successively.

In early 2021, WeRide and Yutong jointly built Mini Robobus, and started the normalization test in Guangzhou International Bio Tech Island and Nanjing Eco Hi-Tech Island. Mini Robobus will spread to Zhengzhou, Wuhan and other cities for normalization tests, and it will be commercialized in 2021. Mini Robobus is designed for urban open roads to gradually break the limits of the park scenario and blur the boundary with RoboTaxi.

In March 2021, WeRide acquired MoonX. They will collaborate in business. MoonX, which focuses on autonomous logistics vehicles, is expected to help WeRide realize its expansion in the field of unmanned logistics.

In addition to the above two paths, there must be other paths. Under the background of unclear business models, the expansion, cooperation, mergers and acquisitions of autonomous shuttle companies will occur constantly.

01 Overview and Status Quo of Autonomous Shuttle Industry

- 1.1 Definition
- 1.2 Implementation Constraints
- 1.3 Main Technologies
- 1.4 System Composition
- 1.5 Global Autonomous Minibus Market Size
- 1.6 Operation Model
- 1.7 Competitive Landscape

02 Autonomous Shuttle Enterprises

- 2.1 Comparison of Chinese Autonomous Shuttle Companies: Autonomous Driving Companies
- 2.1 Comparison of Chinese Autonomous Shuttle Companies: OEMs
- 2.2 Comparison of Foreign Autonomous Shuttle Enterprises

03 Chinese Autonomous Shuttle Companies

- 3.1 Baidu
 - 3.1.1 Autonomous Shuttle Layout
 - 3.1.2 MiniBus- Autonomous Shuttle Minibus Suite
 - 3.1.3 MiniBus- Autonomous Shuttle Minibus Solution
 - 3.1.4 Apollo Suite
 - 3.1.5 Autonomous Shuttle Solution for Mass Production Park

- 3.1.6 Autonomous Shuttle Fleet Management Platform for Mass Production Park

- 3.1.7 Application of Apollo

3.2 MAGRIDE

- 3.2.1 Profile
- 3.2.2 Products
- 3.2.3 Main Technical Application

3.3 ECHIEV

- 3.3.1 Profile
- 3.3.2 Products

3.4 WeRide

- 3.4.1 Profile
- 3.4.2 Financing and Recent Events
- 3.4.3 Products
- 3.4.4 Test and Operation

3.5 QCraft

- 3.5.1 Profile
- 3.5.2 Products
- 3.5.3 Test and Operation
- 3.5.4 Financing and Recent Events

3.6 Unity Drive

3.7 Xiamen King Long

3.8 Zhengzhou Yutong

3.8.1 Profile

3.8.2 Products

3.8.3 Test and Operation

3.9 Wuhan Dongfeng

3.10 Higer Bus

04 Foreign Autonomous Shuttle Enterprises

4.1 Navya

4.1.1 Profile

4.1.2 Products

4.1.3 Software

4.1.4 Test and Operation

4.2 EasyMile

4.2.1 Products

4.2.2 Test and Operation

4.2.3 Financing and Recent Events

4.3 Local Motors

4.3.1 Products

4.3.2 Test and Operation

4.3.3 Financing and Recent Events

4.4 May Mobility

4.4.1 Products

4.4.2 Test and Operation

4.4.3 Financing and Recent Events

4.5 2getthere

4.5.1 Products

4.5.2 Test and Operation

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