# Intelligent coach car helps learners learn driving easily and efficiently

## —— Yitong Sharing helps the driving training industry achieve innovation and upgrading

## By Liu Wenchao

At present, many driving training institutions are gradually abandoning their original extensive management mode and exploring refined and information-based management methods. As the winner of the special prize of China (Xiaoguwei) "Internet + Transportation" Innovation and Entrepreneurship Competition 2019, Yitong Sharing Technology (Guangzhou) Co., Ltd. ("Yitong Sharing") further developed and promoted the award-winning project-"Zhizunbao" Intelligent Driving School project, and jointly developed new energy intelligent robot coach cars ("intelligent coach car") with Dongfeng Motor Corporation Passenger Vehicle Company ("Dongfeng Passenger Car Company"). By means of "shifting from fuel to electricity", "robot replacing man", "transferring car to cloud", Yitong Sharing will help the driving training industry to achieve intelligent transformation and upgrading. Up to now, intelligent coach cars have been put into use in more than 10 driving schools in Taizhou of Zhejiang Province, Guangzhou and Shenzhen City of Guangdong Province, Wuhan and Shiyan of Hubei Province, Nanjing of Jiangsu Province, Xingtai of Hebei Province and Chengdu of Sichuan Province.

**"New energy + intelligence" accelerates transformation for the driving training industry**

In December 2020, Yitong Sharing worked with Dongfeng Passenger Car Company to release Dongfeng Fengshen E60 series and these new coach cars were gradually put into use in Guangdong, Hubei, Hebei, Sichuan, Jiangsu and other places successfully.

The R&D and application of the intelligent coach cars could not be done without the support of the policy. In April, 2020, the Department of Transport of Guangdong Province issued the *Opinions on Further Improving the Supervision Mechanism for Motor Vehicle Driving Training*, to encourage driving training institutions to use AI and other technological means to explore a new teaching mode with robot coaches on a training field on the premise of ensuring training safety according to the characteristics and laws of practical training. By innovating the teaching mode, driving training schools will reduce their dependence on time and space, coaches and training field area as required by the traditional driving training mode.

According to *The Program of Building National Strength in Transportation*, China will

optimize its transportation energy structure and promote the application of new energy and clean energy. The local authorities successively released relevant policies to support the application of new energy and intelligent coach cars.

In February 2022, the General Office of the Peoples Government of Hainan Province issued the *2021 Action Plan for Promoting New Energy Vehicles in Hainan,* which requires that newly added or replaced automatic transmission cars (C2 model)  used for driving test (subjects II and III) should be 100% new energy cars and encourages to use new energy manual transmission cars (C1 model) for driving test on the premise of meeting the requirements of the examination system and relevant evaluation contents. In August last year, the General Office of the Peoples Government of Yunnan Province issued "*Several Policies and Measures for Accelerating the Development, Popularization and Application of New Energy Vehicle Industry in Yunnan Province*", requiring that all new and updated passenger cars for public use (including taxi, online car-hailing service, rental, driving training, driving test, etc.) across the province should use new energy vehicles.

In Hebei Province and Shandong Province, the application of robot coaches is encouraged to promote the transformation and upgrading of the driving training industry. In July 2021, Hebei Road Transportation Administration issued the *Guiding Opinions on Promoting the Application of Artificial Intelligence Robot Coaches to Promote the Transformation and Upgrading of Driving training Industry in Hebei Province*, advocating the application of AI robot coaches to carry out intelligent teaching of basic driving skills and driving skills on training field, and promoting the large-scale application of AI robot coaches. In April 2021, the Department of Transportation of Shandong Province and Shandong Provincial Public Security Department jointly issued the *Notice on Promoting the Networking and Docking between the Driving Training Supervision Service Platform and the Examination System*, which encourages innovative teaching modes in driving training schools, popularizes and applies online driving theory teaching in line with the *Technical Specification for Remote Online Theory Teaching of Motor Vehicle Driving Training* by the Ministry of Transport, and uses robot coaches to carry out intelligent teaching of basic driving skills and driving skills on training field.

"According to the characteristics of 'low speed, short distance, high vehicle damage, high emission, high energy consumption, high cost, operation in day time and rest at night' of coach cars, we developed the intelligent coach car by comprehensively utilizing technologies such as 4G/5G, Beidou centimeter-level positioning, AI, big data, and intelligent network connection," said FANG Hua, chief designer of Yitong Sharing Intelligent Driving Training Project. The intelligent coach car uses the same clutch, 5-speed manual transmission, instrument panel, key ignition function, special brakes, etc. as traditional fuel car, and it also uses the whole vehicle control technology to achieve the same power performance as traditional fuel car. The model can also seamlessly connect with the "Zhizunbao" robot coach to realize AI teaching. "Zhizunbao" intelligent driving learning service platform also provides a complete set of teaching and operation management services for driving and training enterprises.

**Reducing teaching cost and saving carbon emission by 74% per year**

According to the statistics, the life-cycle cost of the intelligent coach car is only one third of that of fuel coach car. With robot teaching function, the coach cost can be reduced by more than 50% while ensuring safety. In addition, the intelligent coach car is equipped with sensors at the front, which can send back the whole process data of teaching to the driving learning big data platform in real time, and provide the competent department with full data and real-time supervision information, which is conducive to the implementation of the whole process service quality supervision requirements such as timing and metering, teaching logs and final exams. Apart from realizing visual and refined process management, the intelligent coach vehicle can help driving and training enterprises to reduce costs and increase efficiency.

Compared with traditional fuel cars, an intelligent coach car can achieve emission reduction by 74% per year. According to FANG Hua, intelligent coach cars and "Zhizunbao" Intelligent Driving Learning Service Platform can reduce fuel costs by about 60%, and the pass rate is 5%-10% higher than that of manual teaching. A coach can take care of 5 to 15 coach cars at the same time, thus improving the ground utilization efficiency by 100%, and saving 50-100 yuan/car/day.

Yitong Sharing will customize intelligent coach cars, robot teaching systems and driving learning big data platforms according to the requirements of driving training scenarios. They can achieve seamless docking with zero car damage, and stable, reliable running, thus significantly reducing difficulty in transformation and upgrading of driving schools from traditional training mode to digital teaching, intelligent stimulation test and refined management.

FANG Hua said that in the past, under the traditional mode, the driving training industry faced problems such as difficulty in booking a car, poor learning experience and unsatisfactory learning effect, now these problems can be solved through unified service standards. Robot coaches can provide intelligent and personalized teaching, and the intelligent braking system can also guarantee all-round teaching safety, so that learners can learn driving more efficiently and comfortably.

**More application scenarios to be covered by the new mode**

"In the future, Yitong Sharing will work with Dongfeng Passenger Car Company to launch more types of intelligent cars for driving training." FANG Hua said that Yitong Sharing launched three types of intelligent coach cars and planned to launch training partner type intelligent car and gradually promote intelligent products to each application scenarios of driving training schools. At the same time, Yitong Sharing uses its intelligent terminals such as simulated training cabin, simulated examination cabin, robot coach, and robot training partner to continuously improve its services and help the driving training industry achieve innovation and upgrading.

"In terms of business model, Yitong Sharing will also explore and study new models," FANG Hua told reporters. In addition, Yitong Sharing will integrate public transportation into driving training industry, directly-operated transformation and upgrading, and

online-hailing coach car, etc.

As the charging station and parking lot for buses occupy a large area and have obvious location advantages, the parking lot for new energy buses and the intelligent coach car training field can be shared through intelligent technology and scientific planning.

In addition, by referring to the experience of "minimizing factor cost + platformization of mobility service" of the online-hailing taxi model, Yitong Sharing will optimize the costs of three factors, namely labor, site and cars by reducing the number of coaches by half, doubling the site-use efficiency and reducing the cost of purchase, use and maintenance of cars by 50%. On the premise of minimizing the cost, Yitong Sharing will build a new driving learning model using intelligent cars featuring "unified service pricing, unified payment and settlement, unified delivery standards and unified quality supervision", so as to improve the service experience of driving learners and enhance the profitability of the industry.