

(Google Translation)

Explore the mission of marine underwater robots

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Recently, reporters walked into the Shenyang Institute of Automation, Chinese Academy of Sciences (hereinafter referred to as "Shen Zi Institute") to pursue the innovative footsteps of the Shen Zi Institute's underwater robot team, known as the "national team".

Innovation

Progress from near shallow sea to full sea depth

Li Zhigang, director of the Underwater Robot Research Office, has witnessed the vigorous development of underwater robots at Shenzi Institute in the past 20 years. He introduced that after more than 40 years of independent innovation, remotely controlled underwater vehicles (ROV), autonomous underwater vehicles (AUV), remotely controlled autonomous underwater vehicles (ARV), manned submersibles (HOV) control systems and other marine The research and development of engineering equipment has become the five main directions of the team, each with its own focus and continuous innovation. Hairen One, Haixing 6000 ROV, Qianlong

and Discovery two series of AUV, Haidou and Haidou One ARV, Jiaolong HOV control system "Dragon Brain", all familiar underwater robots, have become our country The great power of the shallow sea and the deep exploration of the whole sea has set records one after another.

Independent innovation is the core connotation of the continuous breakthrough of Shenzi Institute's underwater robot team. Before the "Haixing 6000" was launched, the team had just overcome a 1000-meter ROV, from 1000 meters to 6000 meters, the biggest technical difficulty was the application technology of photoelectric composite armored cables. In only 3 months from the sea trial window, all members of the research team were soaked in the laboratory, working day and night. After dozens of experiments and dozens of algorithms, the technical problems were finally solved and guaranteed. The power supply voltage of the underwater robot is stable.

team

Dedicated youth and talents, keep growing

The research and development of Shenzi Institute's underwater robot started in the late 1970s. Among the more than 20 members of the first generation, only Academician Feng Xisheng is still fighting on the front line of scientific research. At present, Shen Zi Institute has nearly 300 relevant personnel engaged in the research and development of underwater robots. Only the underwater robot research laboratory has gathered nearly 100 scientific researchers and support personnel. The "post-80s" and "post-90s" account for more than 60%. Li Zhigang said that he loves the underwater robot business and is willing to dedicate his life to it, which is the common ground of the team members.

Xu Chunhui, Associate Researcher of the AUV Department, is responsible for the control system software design and subsequent system upgrades of the Qianlong series. In the 6 sea trials he participated in, each time he went to sea was more than 3 months. Since 2016, the Spring Festival has been spent at sea for 4 years. "The main purpose of sea trials is to test the software functions of the control system. In order to solve emergencies, it is common to sleep for more than 30 hours."

Zhao Yang, head of the research and development department of manned submersible control technology, is very proud of this glorious team: "We are the first team to develop underwater robots in China. The previous generation of scientific research workers started from scratch, step by step, and more We need our younger generation to inherit and carry forward their spirit of innovation and struggle, and never stop the pace of research and development and innovation."

mission

Serving the national maritime strategy, always ready

my country has a marine land area of more than 3 million square kilometers, and there is a vast, rich, and unknown deep ocean waiting to be explored by marine researchers. Speaking of the future, Li Zhigang said that the research and development of the Shenzi Institute's underwater robots has gone through a road of searching from cable to cableless to optical fiber, from shallow sea to deep sea and to full sea depth, completing the systematic construction of underwater robots. Through independent innovation, some key technologies have been in parallel with the world's advanced level, or even lead. In the future, during the "14th Five-Year Plan" period, the team will promote the integrated development of underwater robots and artificial intelligence, explore the direction of bionic underwater robots, work hard on bionic navigation, propulsion, and perception systems, continue to break through bottlenecks and core key technologies, and accelerate The pace of deep sea exploration.

"We always meet the major needs of the country as our own responsibility, use the standards of the deep-sea research'national team' to strictly demand ourselves, develop basic applied research, and keep an eye on the direction of cutting-edge technology. When the country needs it, we will be duty-bound to stand up and take out Shen Zi Institute's technical solutions and deep-sea equipment." Li Zhigang said. Shenyang Daily and Shenyang News Reporter Yue Yu (picture provided by Shenyang Institute of Automation, Chinese Academy of Sciences)

