

Sailing into uncharted waters

is something most people try their hardest to avoid. Who knows what dangers lurk in the unknown? What if there are obstacles in the way? How to navigate in low light? Yet these are the challenges that float Andrew's boat.

The boat in question is the Unmanned Surface Vehicle (USV). While appearing outwardly as a normal boat, the USV is equipped with a suite of sensors to discern the maritime environment and the navigational intelligence to pilot itself.

Mr Andrew Yue Kwok Wai is Director of USV Intelligence and Autonomous Operations at ST Electronics' Large-Scale Systems Group.

For the last two years, Mr Yue has been leading the surface autonomous intelligence development in the USV programme, expanding in-house capability and exploring collaboration opportunities with institutions and companies.

The pioneering work has culminated in the arming of USVs with the needed intelligence to self-navigate and avoid obstacles. Previously confined to remote control, USVs can now operate autonomously in the open seas.

This represents a sea change in the use of USVs for a variety of missions and applications. Intelligence, surveillance and reconnaissance can now be conducted regardless of water depth. One can understand and evaluate unknown maritime environments without

actually being there. The technology developed is set to propel ST Electronics' Venus class of USVs to the world market of maritime unmanned systems.

The achievement is richly deserved and roundly shared with the team and their customers. As Mr Yue explains, "I have the ideology of making deep dives into innovation projects as they come along, so not all the risks are managed upfront; this is the nature of innovation. Unexpected hiccups resulting in schedule delays may happen from time to time. Fortunately, our clients have been very understanding and supportive of our efforts. In fact, it is such an approach that has kept us at the forefront of technology."

From the forefront to the background, Mr Yue credits the company for making it all possible in the first place: "I feel that in research and development, you need to have the necessary impetus to carry things through. Applying the science in a real programme offers much higher gearing to the outcome. ST Electronics offers such an opportunity!"

He also acknowledges the company in his personal development, adding, "Management is supportive of the technology development track by allowing me to establish myself in this area, and at the same time, reach out to like-minded companies that do maritime domain innovation in serious ways."

Now that he has a command of basic sensemaking and manoeuvre execution to control a vessel autonomously, what is on the horizon for Mr Yue?

"The next wave of development should centre around artificial intelligence where an unmanned vessel can navigate as skillfully as a master mariner with learnt human intuition," he replies matter-of-factly.

As Mr Yue continues sailing into uncharted waters, ST Electronics looks set to keep making waves in the world of maritime unmanned systems.



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