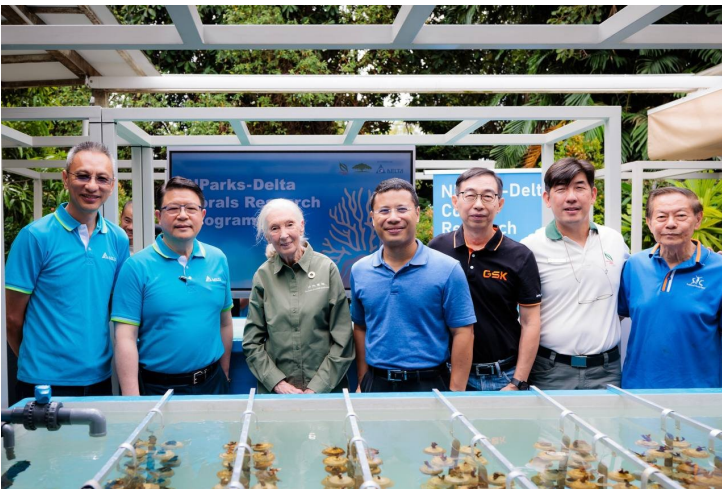


Delta Electronics powers Singapore's National Coral Restoration Efforts with advanced automation and monitoring technology

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Delta, a global leader in power management and IoT-based smart green solutions, has joined the National Parks Board of Singapore's (NParks) 100k Corals Initiative to support coral reef restoration. Beyond financial support, Delta is contributing its industrial automation expertise and advanced engineering solutions to the new coral culture facility at the Marine Park Outreach and Education Centre on St John's Island. It aims to cultivate up to 10,000 corals annually for the next 10 years.

"Delta is dedicated to driving sustainability through innovation. By advancing smart technologies, we aim to create more efficient and impactful solutions for a greener future," said Victor Cheng, Board Member of the Delta Environmental and Educational Foundation.

"We are proud to contribute to the restoration of Singapore's coral reefs by providing cutting edge automation and monitoring solutions. Through this collaborative effort, we look forward to strengthening the country's marine biodiversity and supporting its long-term environmental goals.

Leveraging Smart Technologies to Support Sustainable Coral Reef Restoration

Delta is leveraging its proficiency in smart energy-saving systems, industrial automation, and building solutions to collaborate with NParks and coral restoration experts and researchers from the National University of Singapore at St John's Island National Marine Laboratory (SINML). This partnership will enhance technical capacity for large-scale restoration and help strengthen the resilience of Singapore's reefs.

Marine conservation has long been a focus for Delta. In **Taiwan**, the company and the foundation worked with marine experts to develop coral nurseries and protect coastal reefs, using advanced automation systems to create controlled environments that foster coral resilience and optimal growth conditions. These efforts have significantly contributed to reef restoration in Taiwan's waters. Recently, Delta achieved a significant biodiversity milestone by becoming the first corporation in Taiwan to serve as an official observer to the CBD COP16 through the Delta Foundation, showcasing its coral restoration efforts and commitment to restoring 10,000 coral colonies by 2025 as part of its ESG strategy.

In Singapore, Delta will support the creation of ideal growing conditions for corals in land based aquaculture tanks through its automation and monitoring systems. The **Smart Coral Aquaculture System** will integrate technologies such as redundant Programmable Logic Controllers (PLCs), Human-Machine Interfaces (HMIs), sensors for water quality monitoring, and wave makers to ensure good water mixing throughout the tanks. Additionally, a chiller system trialled by NUS researchers will manage water temperature, ensuring system reliability and optimal conditions for coral growth. Delta has enhanced the new coral culture facility to scale up restoration efforts with a custom tank control and monitoring system, energy monitoring system, alarm systems, and surveillance trackers.

Key features of the Smart Coral Aquaculture System include:

Monitoring and Protection

• VTScada System is used for remote monitoring and continuous connectivity.

• E-Fence Solution for culture tanks, providing after-hours protection and detecting unauthorised access by humans.

Reliability and Efficiency

• UPS power backup to ensure uninterrupted operations during outages.

• Delta's control topology helps maintain water temperature within the desired range, preventing chiller overruns and reducing energy waste.

Environmental Optimization

• System integration for environmental sensors, control systems and wave-making technologies that create ideal growth conditions for corals.

Research Support

• Data-driven insights such as salinity and water temperature are critical for cultivating corals.

The 100k Corals Initiative seeks to plant 100,000 corals in Singapore over 10 years and beyond, incorporating research, cultivation, restoration, and education. Singapore's southern waters, home to over 250 coral species, face climate change and development threats. Coral reefs naturally protect against erosion and support coastal resilience. Leveraging advanced technologies, Delta aims to enhance coral resilience, align with sustainable development goals, and help safeguard Singapore's marine biodiversity for future generations. This initiative has received over \$2 million in support from its donors, including Delta (approximately \$1.7 million) through contributions to the Garden City Fund, NParks' registered charity and IPC.