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TOWARDS ROBOTICS FOR SMART AND GREEN AQUACULTURE

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Abstract

Robotics deals with the construction and application of robots after properly designing it for any specific work. In recent practices of aquaculture, technology is playing an important role and robotics helps in the advancement with a huge potentiality. Different robot fish have been developed following the swimming pattern of some fishes to study the underwater world without disturbing and destroying natural habitat. In a robotic cage, different robots are attached to the system for distributing feed, monitoring water quality, managing of disease and cleaning of the whole system. Sensor and camera-based monitoring systems help in data analysis even from a distant base station. Autonomous underwater vehicles, drone cameras along with probes, and water buoys can be designed easily for studying water quality parameter and their monitoring to take necessary action when needed. Feeder robots have been designed to dispense feed according to the nutritional requirements of fish at different life stages at scheduled times after customization. Robots are also used to transfer fish from their catch area to market or processing industries in an efficient way by minimizing stress. Any sign of abnormalities in fish body can be detected by the robotized system. However, this review highlights the potentiality of robotics to revolutionize aquaculture through put forwarding the practical insights and underscores the significance of advanced models and sustainable practices, contributing to global food security and environmental conservation while reducing labor costs.

Key words: disease, feeder, robot fish, stress, sustainable

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