

ABSTRACT

Crab farming is a high-economic-value fisheries commodity, particularly in coastal areas. However, conventional methods still face challenges related to land-use efficiency and limitations in regular monitoring of crab conditions. This research aims to develop an Internet of Things (IoT)-based automatic camera control system designed to support visual monitoring in vertical farming houses. The system utilizes a two-axis gantry mechanism that enables the camera to move to eight cultivation box points and upload the captured images to a cloud service for online access. Testing was conducted at a laboratory scale using simulated objects as substitutes for live crabs. The results show that the system is capable of precise movements without deviation on both axes, with an image upload success rate to the cloud reaching 98.4%. Furthermore, the system can complete one full monitoring cycle in less than 10 minutes if no fatal disturbances occur. These findings indicate that the system successfully fulfills its primary functions and has the potential for further development in real-scale crab farming or similar applications.

Keywords: Crab Farming, IoT-based Automatic Camera System, Vertical House