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Automated aquaponics maintenance system (Conference Paper) (Open Access)

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Abstract

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Nowadays, automation has become an essential feature in various applications. Agriculture is a crucial sector in which human being heavily depends on. Aquaponics is one of the efficient approaches in agriculture. Human resource allocated for aquaponics maintenance is very inefficient in terms of workload as compared to the time spent especially with the advanced technology we have today. It is necessary to include automation in aquaponics to reduce manpower involvement. However, a lack of attention has been given by local farmers to automate their aquaponics using technology. In this study, an automated aquaponics maintenance system was developed as a prototype to reduce human involvement in the activity. The system covers water level and light-emitting diode (LED) power switch maintenance. Furthermore, the automation system can be controlled via Telegram for user convenient. Moreover, it also measures the pH level of the water as an additional feature. Numerous tests were conducted on aquaponics to observe the reliability of the system at the Malaysian Institute of Sustainable Agriculture (MISA), a non-profit organization focusing on urban farming. Positive results were obtained from the tests which suggested that the system is self-dependent. Therefore, the system is suitable to be used in aquaponics.

SciVal Topic Prominence

Topic: Aquaponics | Fish Waste | Hydroponics

Prominence percentile: 92.593

Indexed keywords

Engineering controlled terms: Agricultural robots | Agriculture | Maintenance | Nonprofit organization | Water levels

Engineering uncontrolled terms: Advanced technology | Automation systems | Essential features | Human being | Maintenance systems | Non profit organizations | Power switches | Sustainable agriculture

Engineering main heading: Automation

Funding details

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