Research on Aquaponics System Based on Artificial Intelligence

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In order to solve the short supply of vegetable during the Covid-19 pandemic, this project sets up a aquaponics system based on the artificial intelligence in family environment by using clean energy to provide vegetable for people living in urban areas. Devices are monitored and managed 24 hours a day by intelligent energy system, environment testing devices and intelligent monitor system. Feasibility of the devices is verified by the comparative experiment by planting different varieties of vegetables. The experimental group was planted in a aquaponics system, while the control group was planted in an ordinary family environment. This experiment lasted for 19 days and the temperature range was 8-10 degrees centigrade. The value of pH was between 8 and 9 and the value of EC was 0.44ms/cm. The experimental group (EG) was planted in the system while the control group (CG) was planted in the normal family environment. The Coefficient of variation (CV) of Romaine lettuce in the EG was 0.0612 and in the CG was 0.0445. In the group of butter lettuce, the CV of EG and CG was 0.0906 and0.0771 respectively. In the leaf lettuce group, CV of EG and CG was 0.0479 and 0.0430 respectively. The Growing status of the lettuce of the experiment groups was better than that of the control groups. Status of the fish was good but grows in a slow pace. With continuous optimization of device operation, the micro ecosystem established realizes the reuse of materials, and this planting experiment proves the application value both in urban family environment and remote agricultural and pastoral areas. Keywords: Artificial Intelligence, Aquaponics, Sustainable.

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