

DESIGN OF AUTOMATIC WATER QUALITY CONTROL SYSTEM WITH WATER CHANGE METHOD IN AQUARIUM FILTRATION

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ABSTRACT

An aquarium serves as a controlled environment for the care of fish on a small scale, where maintaining water quality is crucial, particularly regarding pH levels and turbidity. A significant challenge in fish care arises from the tendency of many individuals to prioritize the aesthetic appeal of their fish, often neglecting the necessary maintenance due to time constraints. To address this issue, a water change system has been developed as a solution for caring for ornamental fish. This water change system uses a pH sensor to prevent the pH in the aquarium from being too alkaline or too acidic. The standard pH for peacock bass fish is around 6-8. Then, the turbidity sensor detects turbidity, and the ultrasonic sensor detects water level. This system works when the pH sensor is <6 and > 8, and the system will drain the water. Then, when the turbidity sensor detects 40% turbidity, the system will drain the water. When draining the aquarium water, an aerator is added to the filtration section, which helps clean the filtration section from dirt and bacteria in the filtration media. In contrast, when the ultrasonic sensor detects a height of <27cm, it will automatically add. This system can drain water manually using the Blynk application. The accuracy values of the sensors used in this study are for the water pH sensor of 98% and the ultrasonic sensor of 90.2%, while the turbidity sensor can detect turbidity correctly.

.Keywords: *Automatic aquarium, water change, water quality control.*