DIGITAL EXPERT SYSTEM FOR SMART AQUACULTURE FARMING

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Abstract:
An automate aquaculture system is designed using the global system for mobile communication (GSM), a platform that connects the on-field data with farmers through short message service (SMS) of a mobile phone. This project is aimed to increase the yield of production in an aquaculture industry which is highly depends on several parameters. The element includes contents of potential hydrogens, dissolved oxygen content in water, oxygen reduction potential, water temperature, turbidity and conductivity contents. The other parameters that may affect the system are algae production, predators and etc. the developed system is to monitors all these parameters including suggesting any counter measurement needed to ease the farmers' job scope. The global positioning system (GPS) is embedded together in order to attain the latitude and longitude values of the location of the field. It will then be compared to the existing database to obtain the location of the system. The parameters are monitored using different sets of sensors. The system is to ensure a developed real time-based monitoring system in which will provide expert suggestions and assistance in order to obtain maximum production in aquaculture industries. The system acts as a comprehensive framework for analyzing, monitoring, alerting and assisting the farmer at different stages of farming. The result of each sensor shows that the sensors are reliable based on the testing conducted. The system was developed and evaluated at the hatchery during the trial stage. The results collected were tabulated, analysed and have been approved by the bio-technologist from the hatchery itself. The ability to have a real time monitoring system helps farmers, especially in the aquaculture industry to improve their production outcomes, as well as gaining much better control in their operating cost and management system.

Keywords: Global Positioning System; Aquaculture; Sensors; Aquaculture System; GSM; Farming Expert System; Short Message Service

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