

AUTOMATION OF HIGH DENSITY FISH BREEDING



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ABOUT THE PROJECT :

The Project titled “Automation of high-density fish farming” funded by RTDC in the year 2019-2020 with an initial funding of five lakhs rupees has completed the first phase of development. The project is a joint academic effort with academic support from National Aquatic Animal Health Center (NCAAH), CUSAT, where a novel technique for high density fish farming for the Gift Thiloppia variety of fish was developed. There are about 71 ponds spanning around the geographical landscape of Kerala where this project was implemented. One such farm was owned by Mr. Augustine in Cherupuzha village. The technology implemented was by using bacterial colony feeders to clean the water from ammonia which is present in the excreta of the fish present in the pond. Circulation mechanisms and aeration mechanisms were present which was very sensitive to power failures. The situation was that the fish could sustain in the pond environment for a maximum of half an hour in the event of power shortage. This demanded an automation for the whole fish pond in terms of power. An additional requirement was to monitor the chemical parameters like pH, dissolved oxygen and physical parameter of temperature in the pond in a regular basis.

Keeping in view of these requirements, a plan was developed for two phases

Phase 1:

The first phase involved automation of the power arena. Power from KSEB and power from diesel generators were available at the location. A scheme was envisaged to automate power requirement of all the machinery which included circulating motors and aerator motors (eight in number). The value of voltage, power, current etc. has to be sent to the customer through a mobile application. So, sensors were incorporated. Moreover, since the area is prone to lightning, surge protection mechanisms were also incorporated

OBJECTIVES :

In the second phase it is planned to incorporate measurement of dissolved oxygen and ammonia content using sensors which is to be transmitted to a central control facility with live display of data through cloud, where experts in the field would monitor the values and give suggestions to the farmers in real time. The control center system is to be designed and setup with necessary interfacing and equipments. On successful implementation of the project, it could be developed as a technology and implemented in all the farms throughout Kerala with the control center catering to all of them.

OUTCOME :

The final deliverables of the project when both the phases are over would be the following.

1. Equipment installed at farmers location.
2. Application developed for interfacing this equipment with the control facility for online monitoring.
3. High density fish breeding should become attractive to the farmer community in terms of risk involved and easiness of maintenance.
4. MoU with NCAAH, CUSAT for the exchange of information and expertise.
5. Demonstratable model for high density fish breeding.