

Bengawan UV Outreach Activities : Optimizing Catfish Farming for Local Businesses.

Catfish (Ikan Lele) is one of the biggest commodities of the fish industry in Indonesia. The large market for catfish is mainly due to the characteristics of the unique taste that it carries. The production of catfish in 2017 was at 1.8 million fishes with the expected growth of 38% yearly in Indonesia according to the data from the Directory General of Fish Cultivation under the Ministry of Marine and Fishery. The data shows great opportunities for expansion through optimizing catfish farming in order to boost its production to achieve a more profitable industry.

At this stage in Indonesia, the technology and process that had been used to help the farming process of catfish were very traditional. Bengawan UV Team utilized the results from previous research and then applied it to help the farming process of catfish. For this research, the team cooperated with Karya Mina Utama which is a local fish business focusing on the commodity of catfish. After more thorough research, the team found several problems that appeared in farming a catfish which were feed efficiency and water quality that both will determine the quality and quantity of the end product.

To overcome those problems, the team decided to make an autonomous ship that has the ability to monitor water conditions and to distribute feed to catfish. The monitoring of water conditions will be conducted on several aspects of the water. The aspects consist of pH number, dissolved oxygen (DO), temperature, and water height. The data that the ship gathered from monitoring the water conditions will be sent using an IoT system to a website. The website itself later will give recommendations of action regarding the various aspects of water conditions that the system reads. For the distribution of the feed, the ship will have a dedicated thrower and the movement of the ship will follow waypoints that can be set to cover the entire area of the pool.

With the design of this new technology that the team is currently developing, the team really hopes that the process of catfish farming can be optimized. From this research, the production of catfish should be able to be more efficient in producing better quality and higher quantities of catfish. This small act that the team did was to show our effort in helping to grow the fish cultivation sector that can support the economy of Indonesia's local businesses. For more information and also documentation of this research, please visit our website page on outreach activities (<https://buvroboboat.uns.ac.id/Outreach-Activities.html>) or watch our video of this year outreach activities in our youtube channel (<https://youtu.be/sypJc1ULWNE>).