

ABSTRACT

This study aims to develop a backend system for an Internet of Things (IoT) based dashboard that supports the operation of Vertical Crab House, a vertical crab farming concept designed to maximize space utilization and increase production efficiency. The IoT sensor data used, such as Dissolved Oxygen (DO), pH, salinity, temperature, Total Dissolved Solids (TDS), and ammonia, is in the form of dummy data generated by the ESP32 device and sent to Firebase.

The backend serves as the main manager of this data and handles business logic and the management of crab product distribution, ensuring efficient distribution while maintaining product quality. The method used in this study is Extreme Programming (XP), which allows for iterative software development that is responsive to changing requirements. By separating the development of the frontend and backend, the system can be optimized to provide an intuitive User interface while efficiently managing data handling and distribution.

This system is also divided into two main parts: logistics management and distribution management. Logistics management focuses on the provision of farming needs, such as tools and materials, while distribution management regulates the process of selling crabs to the market. This separation allows the developed solution to be tailored to the specific needs of each area, supporting the overall success of the crab farming ecosystem.

Keywords: Backend, Internet of Things (IoT), Vertical Crab House, Extreme Programming (XP), crab distribution, logistics management, dummy data, Firebase.