

## ABSTRACT

*This research focuses on developing and optimizing the distribution system and frontend interface for the Vertical Crab House website, which integrates Internet of Things (IoT) technology for mangrove crab farming. The Vertical Crab House is designed as a vertical farming structure to efficiently utilize space and enhance the quality and quantity of crab production. Currently, Vertical Crab House Aquatic faces major challenges due to its manual processes ranging from farming to sales where consumers must either visit the location directly or contact available numbers to place orders. The manual monitoring and management of farming also hinder achieving optimal production quality and quantity. This website aims to provide a digital platform that integrates crab farmers, supply providers, and consumers into a unified ecosystem. The frontend development uses the Laravel and Bootstrap frameworks, chosen for their efficiency, scalability, and ease of maintenance. Extreme Programming (XP) methodology is employed with the stages of Planning, Design, Coding, and Testing. The research focuses on distribution management to optimize the flow of products from producers to end consumers, maintain product quality, and minimize distribution costs. Test results show user satisfaction above 95%, and Blackbox testing reveals 100% functionality with no defects, indicating that design principles such as Gestalt are highly effective in enhancing user experience. The study concludes that developing the Vertical Crab House website has the potential to address current business challenges and accelerate the digital growth of the crab farming sector in Indonesia.*

**Keywords:** *Vertical Crab House, Internet of Things (IoT), Extreme Programming (XP), Laravel Framework, Distribution Management.*