ABSTRACT

In recent years, digital transformation has significantly reshaped the agricultural sector, yet many farmers in rural Indonesia continue to face challenges in accessing timely and context-aware agronomic information due to limited digital literacy, connectivity constraints, and a lack of localized advisory tools. Addressing these barriers requires an inclusive technological solution that aligns with the real-world conditions and user capacities in the field. This study aims to develop a mobile-based agricultural assistant application that integrates speech recognition and AI-driven recommendation features to support farmers' decision-making in crop management. The development process employed the Prototyping Software Development Life Cycle (SDLC) model, enabling iterative refinement through continuous user feedback. Prototypes were evaluated and enhanced in successive cycles to ensure the system's usability and relevance to users' needs. Quantitative evaluation was conducted using three usability testing instruments: the Single Ease Question (SEQ), which yielded an average score of 6.4; the System Usability Scale (SUS), which resulted in a score of 76.5; and the User Acceptance Evaluation, with an average score of 81.6. These findings suggest that the application demonstrates above-average usability and strong user acceptance, affirming the effectiveness of the prototyping model in developing user-centered digital tools for agriculture.

Keywords— Agricultural Information Systems, AI-Based recommendation system, Mobile Application.