

ABSTRACT

Digital transformation in the agricultural sector plays a crucial role in enhancing farmers' productivity, including through the utilization of the Internet of Things (IoT) for real-time monitoring of land conditions. However, most existing kawaltani.id systems are still limited to monitoring a single location and do not yet support flexible multi-location management. This final project aims to develop kawaltani.id as a web-based solution that supports multi-location agricultural land monitoring within a single user account. The system was developed using Laravel for the backend and React.js for the frontend, applying the Scrum development methodology. The main features implemented include user authentication, real-time monitoring dashboard, sensor reading history, and management of land, plants, and sensor devices. System testing was conducted using white box and black box methods. White box testing using the basis path analysis technique showed results in line with expectations for the login, dashboard, and real-time features, with Cyclomatic Complexity values categorized as low to moderate. These results indicate that the system logic is stable and thoroughly testable. The UAT results showed a very high level of user acceptance with an average score of 82.42%. This system has proven to be adaptive, user-friendly, and functional in supporting digital and real-time agricultural land monitoring.

Keywords: Digital Agriculture, Precision Agriculture, Internet of Things, Scrum