DEVELOPMENT OF A WEB APPLICATION FOR SOW BEHAVIOR MONITORING

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ABSTRACT

This project aims to develop a web application system titled “Sows Behavior Monitoring”, which is designed to monitor, track, and provide alerts for risky or potentially dangerous behaviors of sows that may occur in the near future. The system enables farm staff to monitor the status of sows anytime and anywhere and to prepare for emergency situations such as restlessness or signs of imminent farrowing. These behaviors are identified through data analysis and behavioral trend prediction using image processing techniques to support effective decision-making and sow management.

The development of the web application covers the entire process, including system architecture and workflow design, database design, and the implementation of both frontend and backend components. Throughout the development process, emphasis is placed on data accuracy, security, system performance, and the ability to scale the system in the future.

INTRODUCTION

Betagro Public Company Limited operates animal farming as one of its core businesses, with a strong focus on the health and safety of sows and piglets, particularly during the pre-farrowing period, which is considered a high-risk stage for potentially harmful behaviors. To enhance the monitoring system, this project aims to develop a web application for tracking sow behavior and providing alerts for risk situations within the farm.

The developed web application includes key functionalities such as hourly sow status updates, employee data management, daily behavioral summary visualization with historical data storage, and multi-channel status notifications to support effective animal care and timely decision-making by farm personnel.

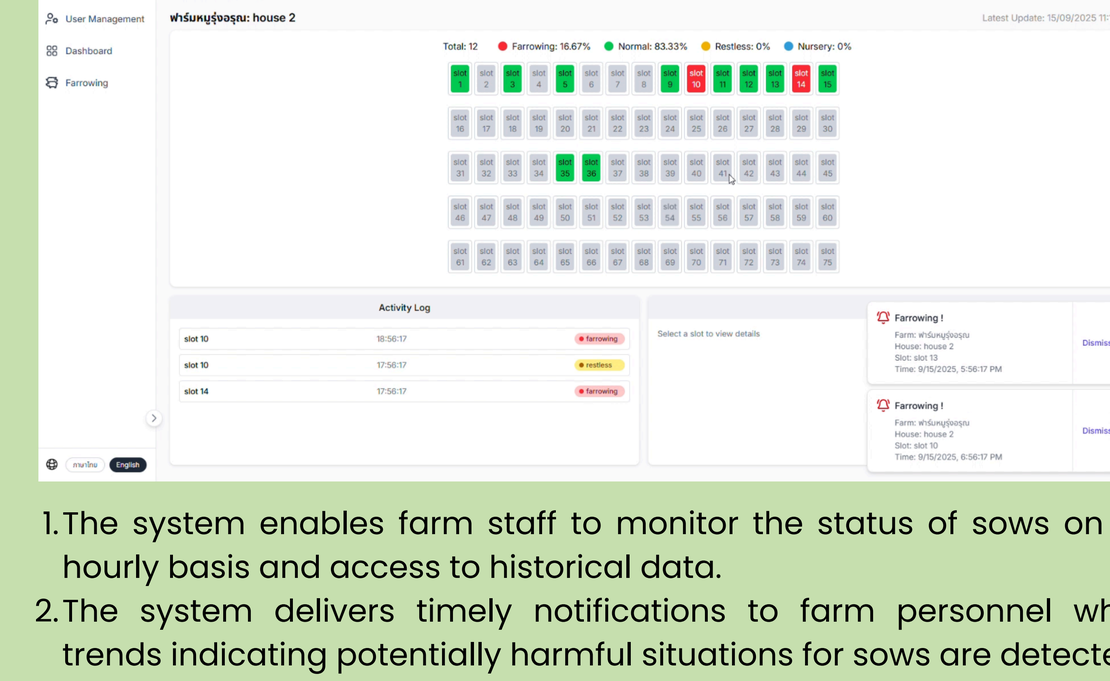
METHODOLOGY

Get requirements from data analysis team → Design System and Workflow → Design Database → Develop and Test web application → Data analysis team reviewed

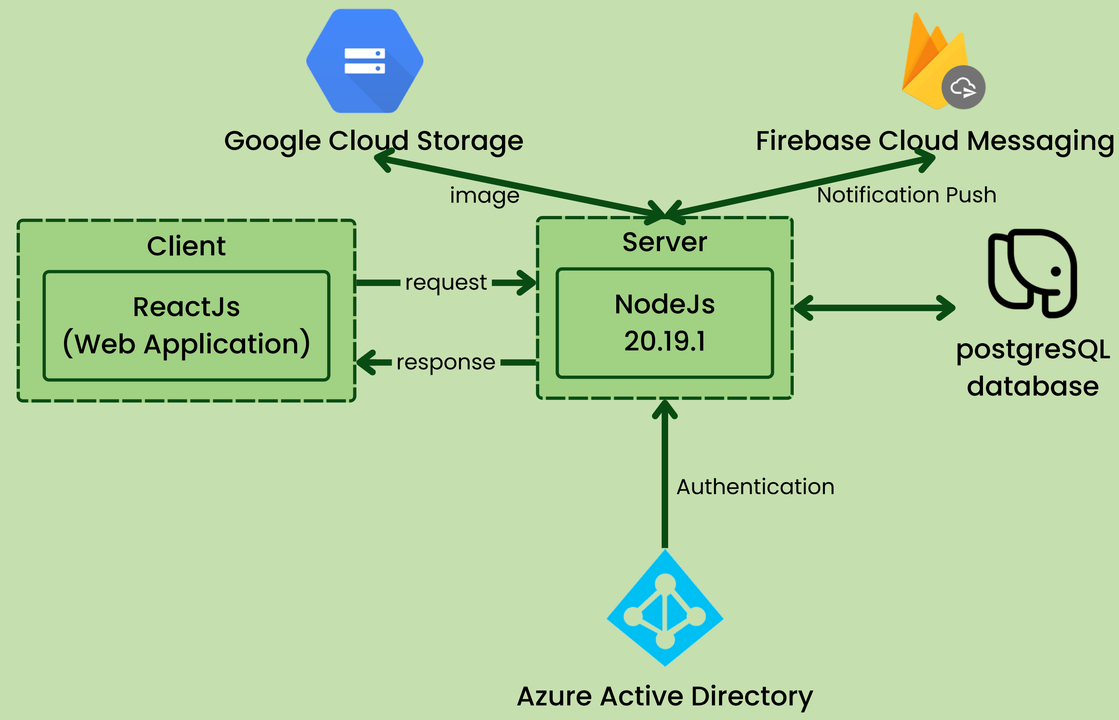
TECHNOLOGY

Tailwind CSS · Shadcn/ui · VS Code · Datagrip · Postman · React.js · Express.js · Firebase · PostgreSQL · Prima ORM

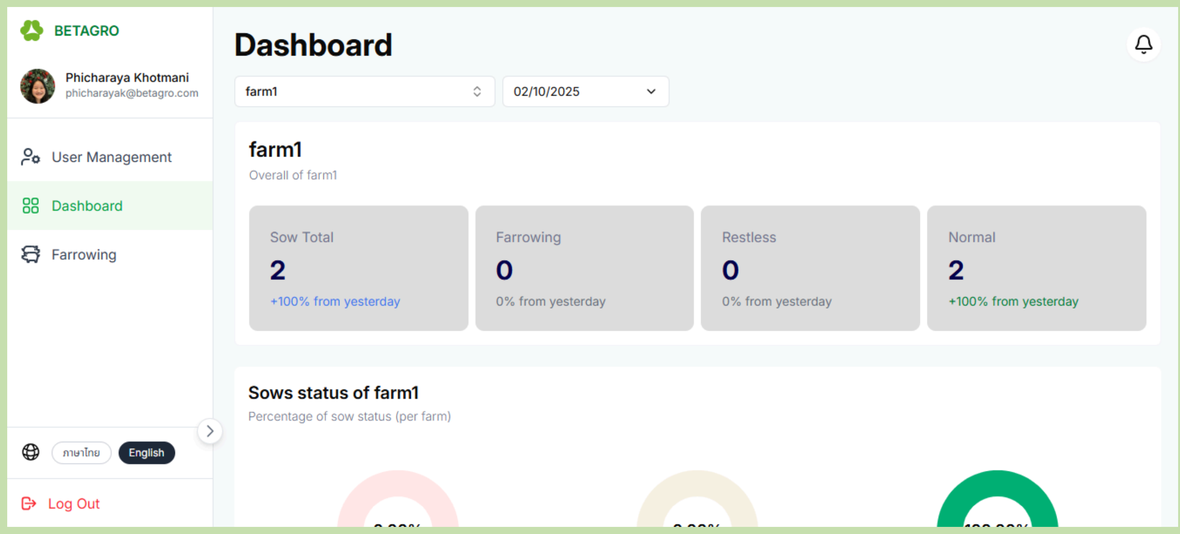
WORKFLOW



ARCHITECTURE



CONCLUSION



1. The system enables farm staff to monitor the status of sows on an hourly basis and access to historical data.
2. The system delivers timely notifications to farm personnel when trends indicating potentially harmful situations for sows are detected.
3. The system enables farm staff to view daily summary reports and access to historical data.
4. The system enables farm staff to manage user data within the system.

[1] LogicMonitor. (2025). What is a bucket in GCP? GCP buckets explained. [online] LogicMonitor. Available at: https://www.logicmonitor.com/blog/what-is-a-bucket-in-gcp-gcp-buckets-explained
[2] GeeksforGeeks. (2026). React Introduction. [online] GeeksforGeeks. Available at: https://www.geeksforgeeks.org/reactjs/reactjs-introduction/
[3] LogRocket. (2024). Scheduling tasks in Node.js using node-cron. [online] LogRocket Blog. Available at: https://blog.logrocket.com/task-scheduling-or-cron-jobs-in-node-using-node-cron/

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