



UNDERGRADUATE THESIS

PROJECT MANAGEMENT INFORMATION SYSTEM FOR GENSET INSTALLATION WITH DELAY DETECTION USING THE FUZZY TSUKAMOTO ALGORITHM (CASE STUDY: PT BOLO DEWO UTOMO)

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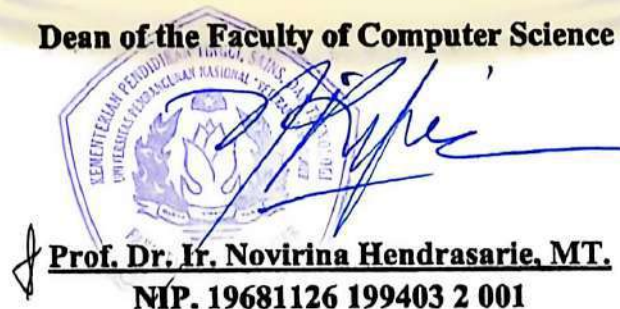
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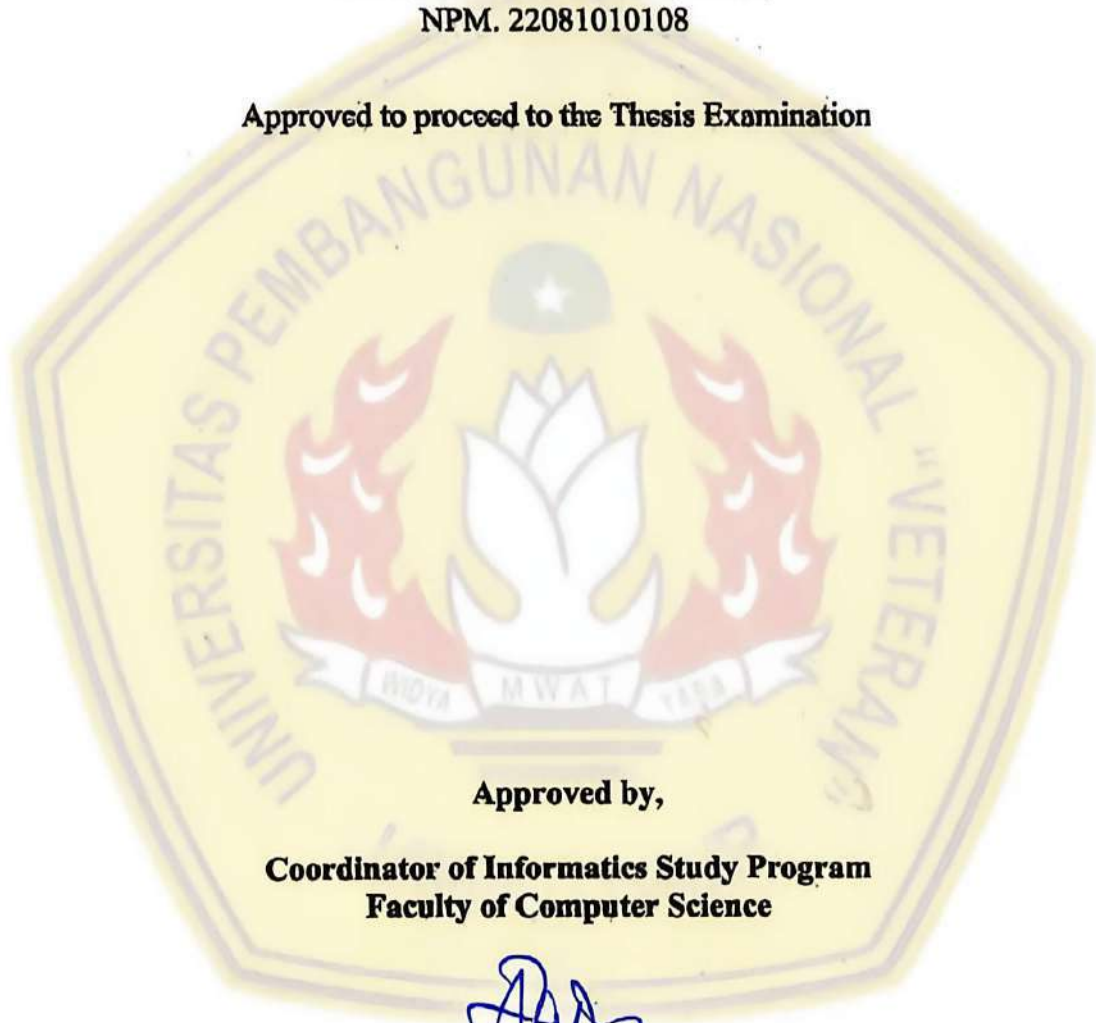
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ABSTRACT

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Judul Skripsi : Project Management Information System for Genset Installation with Delay Detection Using the Fuzzy Tsukamoto Algorithm (Case Study: PT. Bolo Dewo Utomo)

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The construction industry still encounters project delays due to fragmented information management and unstructured progress reporting, including at PT Bolo Dewo Utomo as a generator-set installation contractor. This study develops a web-based Project Management Information System that integrates project data, progress reports, documents, and payment records, and incorporates a delay risk detection module using the Fuzzy Tsukamoto method. The system is built using the Waterfall model through analysis, design, implementation with Laravel and MySQL, and testing stages. The Fuzzy Tsukamoto module uses the percentage of realized payment and elapsed contract time as inputs to produce a delay risk index. Evaluation consists of Black Box Testing, the System Usability Scale (SUS), and an accuracy test against expert judgements on 25 project cases. The results show that all functions operate correctly, the average SUS score is 87.5 (excellent usability), and the algorithm achieves 88% accuracy, indicating that the system is suitable as a tool for project management and early warning of delay risk at PT Bolo Dewo Utomo

Keywords : Project Management Information System, Generator-Set Installation, Fuzzy Tsukamoto, Project Delay, System Usability Scale.

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The author acknowledges that this thesis remains far from perfect, both in its content and presentation. As such, constructive criticism and suggestions are most welcome for the sake of future improvement. It is the author's sincere hope that this thesis may prove beneficial and serve as a meaningful reference for readers, particularly in the fields of information systems development and the application of the Fuzzy Tsukamoto method in project management.

Surabaya, July 1, 2026
Indriani Ayu Puspitasari

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