



FACULTY OF ENGINEERING

**DEPARTMENT OF ELECTRICAL AND ELECTRONIC
ENGINEERING**

FINAL YEAR PROJECT

**ELECTRICITY GENERATION FROM MUNICIPAL SOLID WASTE
USING HEATING PANNELS AND HEATING SENSOR
TECHNOLOGY.**

By;

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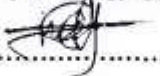
**Final Year Project Report submitted to the Department of Electrical and
Electronics Engineering in a partial fulfilment of the requirement for the
award of a Bachelor's Degree of Science in Electrical Engineering at
Busitema University.**

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DECLARATION

I Mafabi Musa Musasizi (BU/UP/2020/1223) hereby declare to the best of my knowledge, that this project report is an outcome of my original work and that it has not been presented to any institution of learning for an academic award.

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APPROVAL

This final Year Project Report has been done under our supervision and submitted to the faculty of engineering for examination with our approval.

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DEDICATION

With gratitude I would like to dedicate this Final Year Project Report to PROPHET DAVID who has been there for me and his prayers tirelessly, my parents' my father the late MUSASIZI EMMANUEL, mother Mrs. TWAWEBWA SUZAN and all my brothers, sisters and relatives who have been of great importance and contributed a lot towards my achievements in life and most importantly making me through my education journey.

I do also dedicate this report to all my friends and fellow students for being such supportive and willing to share their knowledge with me and lastly to my grate supervisors for the knowledge and skills given to me.

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I take this opportunity to thank the Almighty God of Prophet David for the gift of life and good health and for enabling me to gather the information in this report. I'm truly grateful.

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Acronyms

WTE-Waste-To-Energy

EfW-Energy from Waste

DC- Direct Current

SBD- System Block Diagram

FLD-Flowchart Diagram

LED- Light Emitting Diode

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ABSTRACT

This project explores the potential of generating electricity from municipal wastes using an innovative approach that combines heating panel and heating sensor technology. The primary objective is to convert waste into a sustainable energy source, thereby addressing waste management issues and contributing to renewable energy solutions. To achieve this, the project utilizes a waste-to-energy system designed with heating panels that incinerate municipal waste heat to produce electricity. Heating sensor technology is integrated to monitor and optimize the process, ensuring efficient energy conversion and safe operation since it acts as the switch. The methodology involves several stages: designing the heating panel system, integrating the heating panel and heating sensor, and conducting experiments to evaluate system performance. Municipal waste samples were processed to measure the amount of electricity generated and to assess the environmental impact of emissions. Data collected and analyzed to optimize the operational parameters for maximum efficiency.

The results demonstrate that the system is capable of generating a significant amount of electricity from municipal wastes, with an average energy conversion efficiency of 15%. The integration of sensor technology proved crucial in maintaining optimal conditions, thereby enhancing the overall efficiency and safety of the process. Additionally, emission levels were found to be within acceptable environmental standards, indicating that the system is both effective and environmentally friendly.

In conclusion, this project successfully demonstrates the feasibility of using municipal wastes as a source of renewable energy through the innovative use of heating panel and sensor technology. The results indicate that such a system can contribute to sustainable waste management and energy production. Future work will focus on scaling up the system and further optimizing its efficiency and emission control capabilities.

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