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**FACULTY OF ENGINEERING
DEPARTMENT CHEMICAL AND PROCESS
ENGINEERING**



**AGRO-PROCESSING ENGINEERING PROGRAMME
FINAL YEAR PROJECT REPORT**

Design and construction of a sugar cane peeling machine

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Declaration

I *TUMUHAIRWE Kirabo Timothy*, hereby declare to the best of my knowledge that the works of this report are my own efforts of research, not any other person and it has not been presented to any institution of learning for an academic award.

Signature.....

TUMUHAIRWE Kirabo Timothy



Approval

This final year project report for the programme of Agro-Processing Engineering has been submitted to the Department of Agro-Processing Engineering for examination with the approval from the following supervisors.

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Abstract

Vending of street food in urban areas is a growing and worldwide phenomenon and street foods have in many studies been associated with microbiological contamination and low hygienic standards (WHO, 2006). Hence, street food vendors are of massive importance for public health since they have influence on the health of thousands of people every day.

From the study carried out by Azanu et al 2015, it was discovered that peeled sugarcane sticks sold on the streets of Kampala Uganda, pose a serious health danger to the public due to the poor hygienic standards during the peeling process. It was due to this reason that a study was carried out to come up with a design and a prototype of sugarcane peeling machine.

The mode of operation of the designed sugarcane peeling machine prototype is in such a way that, cut sugarcane nodes are fed through the hopper into the chamber, and a piston running on the principle of simple slider crank mechanisms pushes the node on a stationary adjustable peeling blade. The peeling blade shears off the cover (peelings) which fall in the peelings collection bag, while the peeled sugarcane node continues to the splitting blade and later the peeled sugarcane sticks are collected and ready for chewing.

Dedication

To my mothers Miss. Waggwa Ruth and Mrs Rita Ssekatawa, may the almighty God through me, grant them happiness and love.

Acknowledgement

To the almighty God be the glory. I take this opportunity to thank my relatives, friends, classmates and all the lecturers who offered me advice and guidance during the development of my final year project. Special thanks and acknowledgement goes to my project supervisor Mr. Kavuma Chris.

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Chapter one: Introduction

1.1 Background

Vending of street food in urban areas is a growing and worldwide phenomenon and street foods have in many studies been associated with microbiological contamination and low hygienic standards (WHO, 2006). Hence, street food vendors are of massive importance for public health since they have influence on the health of thousands of people every day.

Sugarcane (*Saccharum* spp) is a tall grass with a stout, jointed and fibrous stalk that looks similar to bamboo. Sugarcanes are grown in most parts of Uganda and it has a variety of species among which their those for chewing, and crushing for sugar processing. Farmers sell sugarcanes for sugar processing to the sugar factories and those for chewing to traders who transport and sell them in town markets where sugarcane town vendors acquire them from.

Sugarcane vending is a common practice in Uganda. Mostly, sugarcane is sold as sticks but in the past decade vendors have been peeling the sticks and selling their products in white polyethene bags. This has made the sugar cane vending lucrative, because most working class people patronize the product sold on the street. The possibility of the commodity becoming hazardous to consumers is unknown and could increase significantly if sanitation or hygiene is compromised during the preparation(Azanu et al. 2015). In Kampala as a case study, sugarcane vendors peel and chop the sugarcanes in open space on the streets.



Figure 1.1: Sugarcane vending in Kampala

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