

**BUSITEMA
UNIVERSITY**
Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF CHEMICAL AND PROCESS ENGINEERING

FINAL YEAR PROJECT

DESIGN AND CONSTRUCTION OF A TWO-STAGE POULTRY CARCASS SHREDDER

BY

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ABSTRACT

A Two-Stage Poultry Carcass Shredder of 120 Kg/hr capacity was design and construction to shred the poultry carcass to get animal feeds thereby solving problems associated with wastes from poultry slaughter houses like chicken carcass, feathers, heads which take up the highest percentage. The machine consists of the following main components; hopper, two-shredding chambers with cutters, shafts, electric motor. It was evaluated to perform. The results obtained show that the machine has an efficiency of 75%. Sustainable waste management is important in obtaining a cleaner, environmentally mindful society. The shredding process enhances size reduction thus increasing surface area which makes it easy to dry the product and process it further so as to incorporate it in animal feeds.

DECLARATION

I **KWOGERA GLORIA PEACE** declare to the best of my knowledge that this project is as a result of my own research and effort and it has never been presented or submitted to any academic institute for any academic award.


.....

Student's signature



APPROVAL

This is to certify that the report is a formation and compilation of **Kwogera Gloria Peace** and is ready for submission to the respective institution.

Supervisor

Mr. SSERUMAGA PAUL

Signature:

Date:

DEDICATION

This report is dedicated to my beloved parents Miss. Mbabazi Mary and Mr. Bagalana Patrick in appreciation of their invaluable care and untiring support provided to me throughout my academic journey. I also thank them for the spirit of hard work, courage and determination imparted into me, which attributes I have esteemed with determination and which have indeed made me what I am today. I appreciate my siblings for standing with me. I am grateful to my friends too and classmates for the encouragement they offered to me. May God bless them abundantly.

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LIST OF ACRONYMS

FAO - Food and agriculture organization

BOD – Biological oxygen demand

UBOS – Uganda bureau of statistics

Kg - Kilogram

Hr - Hour

CHAPTER ONE

1 INTRODUCTION

This chapter describes the background information of the project, the problem statement, justification, purpose, objectives and the scope of the study. The problem statement describes the problem of the study and the solution. The justification describes the importance of the project, the specific objectives help to achieve the main objective.

1.1 Background

Poultry are domesticated birds kept by humans for their eggs, meat, or feathers. These birds are most typically members of the superorder Galloanserae (fowl) especially of the order Galliformes which includes chickens, quails and turkeys. The word poultry comes from the French/Norman word pullus, which means small animal. Selective breeding for fast growth, egg-laying ability, conformation, plumage and docility took place over the centuries, and modern breeds often look very different from their wild ancestors. Although some birds are still kept in small flocks in extensive systems, most birds available in the market today are reared in intensive commercial enterprises (Snipes, 2018). Some other examples of poultry birds are the chicken, turkeys, duck, geese, pigeons and ostriches. The chicken comprises the largest portion of poultry.

Globally, 44 million broiler chickens are produced every year. It was estimated that the world has a chicken population of 50 billion (FAO, 2009). Currently Poland is the major broiler meat producing country in the world and UK the main broiler consuming country. In Africa, the continent's largest poultry meat producers are South Africa, which produces 1.5 million metric tons of chicken meat followed by Egypt with 685,000 metric tons and then Morocco comes third with 560,000 metric tons among others. (Clare Narrod, 2017)

The total poultry population in Uganda is projected at about 32.6 million birds of which 80% of the population being free range indigenous type breeds and exotic contributing about 20%. Chicken comprise the main poultry types but turkeys, ducks, geese, pigeons and ostriches are also kept in some places. The chicken industry in Uganda is based on the indigenous, scavenging as well as the exotic (UBOS, 2017). The indigenous chickens constitute over 75% of the total chicken