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**FACULTY OF ENGINEERING  
DEPARTMENT OF AGRICULTURAL MECHANISATION AND  
IRRIGATION ENGINEERING**

**PROJECT REPORT  
THE DESIGN AND CONSTRUCTION OF A  
MANUALLY OPERATED LOAF BREAD SLICING MACHINE**

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## ABSTRACT

Bread is a common fast food in Uganda and is usually taken on breakfast or evening tea or even packed for school going children and working class people. Its consumption cuts across all classes of people.

For easy serving and easy consumption, bread is sliced to meet the consumption needs and packaging needs in the shortest time possible.

There are different types of bread slicing machines on market but they are electrical machines, which makes it unfavorable for local bakeries in the absence of electricity and yet there is need for continuous production.

Therefore this study was aimed at designing and constructing of a manually operated bread slicing machine that does not use electricity in operation and can be operated manually without any source of power and yet does not compromise the standard quality of the sliced bread.

The machine was designed with an output capacity of 72 loaves/hr. and efficiency of 98.18% which was measured basing on quality of the bread sliced. And quality was due to the amount of bread crumbs generated while slicing. The more the amount of bread crumbs collected as a result of slicing a specific number of loaves of bread, the lower the quality of the sliced bread and the lower the efficiency of the machine.

The prototype (the manual bread slicing machine) was designed, fabricated, assembled, tested and economically evaluated. From the results of the experiments carried out, the output capacity was found to be 3 loaves per minute and the bread crumbs percentage was found to be approximately 2% of the average initial weight of the loaves before slicing. This signifies good quality slices.

## DECLARATION

I Nabirye Racheal do solemnly declare to the best of my knowledge that the work in this report is as a result of my original work unless where stated and has not been submitted to any institution of learning for the award of a degree or any professional award.

Signature.....

Date. 29<sup>th</sup> / 05 / 2016



## APPROVAL

This report was compiled and submitted to the department of Agricultural Mechanization and Irrigation Engineering under the supervision as approved below.

**MAIN SUPERVISOR**

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## CHAPTER ONE: INTRODUCTION

### 1.1 Background

Bread is one of the oldest prepared foods, dating back to the Neolithic era when cereal grains and water were mixed into a paste and cooked. In ancient Egypt bread-making became one of the most significant areas of food preparation, along with the making of beer, both had religious significance as well. It is thought that the Egyptians invented the first closed oven for use in baking. Bread was a primary staple of diet in much of European history, from at least 1000 BC into modern times. (Toussaint-Samat, Anthea Bell, tr. 2009.)

It's worth bearing in mind, though, that while people have been slicing bread for eons, pre-sliced packaged bread has only been available since 1928, when Otto Frederick Rohwedder introduced the world's first mechanical bread slicer. It is usually said when one has seen or acquired a very wonderful gadget that "It's the greatest thing since sliced bread!" used to hype everything from toasters to cell phones (Roger Bridgman, Dorling Kindersley; 2002) This is because sliced bread was the culmination (highest pitch of power or invention attained) of a century of technological innovation. It needed electricity, a uniform sized loaf of bread, a plastic wrap and a toaster to build up the demand. (Zachary Crockett, 2014)

The manual bread slicers are already on market most especially in the western world like in China, but they can only serve at family level and they are limited to cutting only one loaf of bread and slicing one slice at a time.

This also necessitates hand contact with the food (bread) which may not be hygienic to some extent. On top of that, the slices of bread tend to dry due to delayed slicing process (slicing one slice at a time) thus making the bread unpalatable to the consumers. (Otto Rohwedder' (2006)

Slicing of bread is preferred in the community and therefore there is need for the commercial bakers to adopt bread slicing hence the need of a low cost bread slicer that does not alter the quality (palatability) of bread and yet necessitates the continuity of production even when in lack of electric power.

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