BUSITEMA UNIVERSITY
Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT REPORT

TITLE: ELECTRONIC FLOCK UNIFORMITY EVALUATION SYSTEM IN LAYERS.

BY

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DECLARATION

I **KATUSIIME SERINA** BU/UG/2015/28 hereby declare that this project report is my original work except where explicit citation has been made and has never been published and/or submitted for any other degree award to any other university or institution of higher learning for any academic award.

Sign: .....

Date: 29/05/2019

APPROVAL

This is to certify that the project under the title "**Electronic flock uniformity evaluation system**" has been under my supervision and is now ready for examination.

Mr. Arineitwe Joshua

Sign: .....

Date: 30/05/2019

ACKNOWLEDGEMENT

I thank the almighty God for providing me with life and knowledge that helped me upto the completion of this project.

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ABSTRACT

This report presents the design of an Electronic Flock Uniformity Evaluation System for layers. The most important factor in pullet production is producing a uniform flock with proper weights. Due to the fact that keeping flock in the ideal condition for egg production can be tricky, and is very difficult without good information about the birds, farmers need a system that easily helps them to evaluate the uniformity of their flock for proper management decisions to increase production.

The designed system helps farmers to evaluate the level of uniformity of their flock basing on the information collected (weights) from birds.

The system is composed of both hardware and software. The hardware parts is the electronic scale designed and programmed using the Arduino technology. It measures and displays the bird weight in Arduino. The software part is an application that reads and records the measured weight. The desktop application has been developed using visual basic.

The software compiles and evaluates the data collected and shows the level of uniformity.

I recommend it to be used by farmers for the proper management of their flock to increase productivity.

LIST OF ACYRONYMS

RS	Recommended Standard
CV	Coefficient of Variation
LCD	Liquid Crystal Display
IDE	Integrated Development Environment
PCB	Printed Circuit Board

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CHAPTER ONE

1.1 BACKGROUND

Poultry farming is one of the activities carried out in Uganda under the agricultural sector. It is carried both on a large scale and small scale for different reasons like source of meat, money, eggs etc.

More than 50 billion chickens are raised annually as a source of food, for both their meat and their eggs. Chicken raised for eggs are usually called laying hens/layers whilst chickens raised for meat are often called broilers[1]. poultry production in Uganda rose by 3.2 per cent in 2012 despite the effect climate change has had on the country's poultry sector [2]. As the human population increases, the poultry industry continues to grow to meet the demand for poultry products in world markets[3]. The increase in production levels has led to people in the country venturing into poultry farming, with the hope of creating a revenue stream.

The most important factor in pullet production is producing a uniform flock with proper Weights. The uniform flock will be more efficient, have a higher peak production, and will express their full genetic potential[4].The success of a flock depends mostly on uniformity. Therefore, everything must be done to obtain a uniform flock with adequate bodyweight and conformation at the start of lay.

A uniform flock is easier to manage than a variable one. Birds in a similar physiological state will respond more uniformly to management factors like feeding and light stimulation.

Flocks lacking uniformity at point of lay often exhibit lower and later peaks than expected and are more difficult to design diets for (because there is a mixture of light and heavy birds in the flock).

Flock uniformity can be improved by grading the birds. Separate the small birds from the rest and feed them to meet the targeted weight at 20 weeks of age. Farmers use conventional weighing scales which requires more labor since all statistics needed have to be calculated manually[5].The purpose of grading, therefore is to sort the flock into 2 or 3 subpopulations of different average weight so that each group can be managed in a way that will result in good whole flock uniformity at point of lay[6].

In any flock some birds are lighter or heavier than the average body weight.

Start sample weighing at one week of age. The sample should be taken at different spots in the house. Sample weighing to determine flock weight can be done in bulk. Per house a minimum total of 20% of all birds should be weighed[5]. Uniformity can be calculated by

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