BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

Automated Cattle Spraying pump

By

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A Final year project submitted to the Department of Computer Engineering in Partial Fulfilment of the Requirement for the Award of a Bachelor's Degree in Computer Engineering of Busitema University

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Declaration

I, Bua Emmanuel, BU/UG /2012/2024**,** do hereby declare that this final year Project is my original work and has never been published and/or submitted for any other degree award to any other University or institution of higher learning.

Signed ……..... Date…….....

BUA EMMANUEL

Approval

This is to certify that this project under title "**automated cattle spraying pump**" has been done under my supervision and is now ready for examination.

Mr Odongtoo Godfrey

Department of computer Engineering

……..

Date: ……

List of Acronyms

G.O.U	Government of Uganda
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
FITCA	Farming in Tsetse Control Areas of East Africa
CBAHW	Community Based Animal Health Workers
IARC	International Agency for Research on Cancer
AJRs	Automatic jetting races
ICs	Integrated Circuits
ADC	Analog to Digital Converter
AC	Alternating Current

ABSTRACT

This project was therefore aimed at developing an automatic cattle spraying system that would solve the problem occasioned by spraying of livestock “the many hours of work required to be expended in order to effectively spray them much physical effort spent”.

Chapter one: This chapter consists of the background, problem statement, objectives, justification, scope and limitations of an automated cattle spraying system.

Chapter two: This chapter consists of cattle spraying, cattle spraying methods, related projects and experiments, weakness of the existing automated cattle spraying systems and my proposed system.

Chapter three: This chapter looks at the details of the methods, the approaches and the strategies that are going to be employed to achieve the objectives intended for the project.

Chapter four: This chapter gives a description and analysis of the developed system, project requirements, project design and its implementation in a detailed form. The project requirements, project design and system implementation aim at finding a solution and additional solutions as found relevant to the above mentioned problem statement and also fulfilling the above mentioned objectives.

Chapter five: This chapter discusses the final project work, explaining the different tools used while developing the system, the minimum requirements needed for the deployment of the system and how the system is to operate or how it will be used.

Chapter six: This chapter discusses the results of the findings and gives recommendations derived from the project study, design, and implementation and testing of the system. It also gives conclusions and areas of further study and improvements.

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CHAPTER ONE

1.0 Introduction

This chapter consists of the background, problem statement, objectives, justification, scope and limitations of an automated cattle spraying system.

1.1 Background

Livestock play a pivotal role in supporting livelihoods of communities in rural Africa. This means that factors affecting the health and productivity of livestock also severely constraint the development and wellbeing of such communities.

Government Of Uganda (G.O.U) over the years through Ministry of Agriculture Animal Industry and Fisheries (MAAIF) had set up communal dips in which livestock farmers were required to dip their livestock so as to control ticks and other nuisance biting flies, crushes were also established for spraying livestock. In Farming in Tsetse Control Areas of East Africa (FITCA) districts of Mukono, Tororo and Soroti cattle spraying associations were formed and these used acaricides of dual nature to spray livestock to control tsetse flies and ticks.

It was again noted that because of poor management and lack of cohesion in the spraying associations their numbers had fallen significantly to 54%, 33% and 26% for Soroti, Mukono and Tororo respectively. Dipping of livestock in dip tanks as a practice to kill off ticks and nuisance flies is no longer undertaken in most districts. The communal dips have either collapsed or are neglected except for private dips.

Where livestock farming practice is not communal, livestock farmers owning private farms as in Mbarara, Ntungamo and Kasese spray livestock using bucket pumps to counter the none operational dips. The presence of many non-functional dip tanks in the districts was attributed to failure by the districts to rehabilitate and maintain the communal dips. Meanwhile livestock farmers do not have adequate funds to operate private dips opting to use bucket pumps instead as an alternative. Very few community based animal health workers (CBAHW) are available to monitor and maintain dips, private dips are very few except for in Mbarara district with 96 private dips in Kashari County and 12 private dips in Rwampara County [1].

There may be an increased risk of intoxication to the operators. The use of a manual spray is time consuming and tiring to the operator. The risk of environmental pollution is considered to be high. There are frequent problems with blockage of spray nozzles. The cattle are not always completely saturated, especially the axillae and inguinal regions, belly and udder and the insides of the ears. Problems with maintenance of the correct concentration of the acaricide are

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