BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT

A REMOTE-CONTROLLED SIMSIM SOWING MACHINE.

BY

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A Project Report Submitted to the Department of Computer Engineering in Partial Fulfillment of the Requirements for the Award of A Bachelor of Computer Engineering Degree of Busitema University

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DECLARATION

I Otim Jasper, Reg No. BU/UG/2015/2116, hereby declare that this project is my original work except where explicit citation has been made and it has not been presented to any Institution of Higher learning for any academic award.

Signature……

Date……

APPROVAL

I certify that the project entitled “A Remote Controlled Simsim Sowing Machine” has been done under my supervision and is submitted to the board of examiners with my approval.

Mr. Bwire Felix

Department of Computer Engineering

Signature……

Date……

List of Acronyms

GDP Gross Domestic product.

FAO Food and Agricultural organization.

TX Transmitter.

RX Receiver.

DC Direct Current.

MCU Microcontroller Unit.

IDE Integrated development Environment.

LED Lighting Emitting Diode.

IF Infrared

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ABSTRACT

Despite the increasing demand in agricultural poducts in the country thus Uganda less has been done to improve there level of production especially simsim. Therefore A Remote Controlled Simsim Sowing Machine is the subject system. This system sows simsim seeds by projecting them at evenly spaced intervals to create uniform distribution. This system improves the technology of the existing system simsim sowing method in the attempt to reduce or completely cut down the high labour expenses spent on achieving fast simsim seed sowing.

In gathering information, consultations and document reviews concerning the existing seed sowing systems were carried out. It was from the analysis of this gathered information that the developing of the Automatic Robotic Seed Sower.

I programmed this system using Arduino IDE software. The components of the system were designed prior to system testing using a bread board after which they were soldered on a copper board. The functionality of the system was under the control of the code that was written on the microcontroller.

The system was finally subjected to system testing to validate and verify its working by me and some of my classmates before presenting to the Busitema University Computer engineering panel.

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CHAPTER ONE

1.1 BACK GROUND

Simsim seed is one of the oldest oilseed crops known, domesticated well over 3000 years ago[1]. It is widely naturalized in tropical regions around the world, simsim production is dominated by smallholders in developing countries. Uganda is the world's fifth biggest producer of simsim after India (666,020), China (627,333), Myanmar (511,800) and Sudan (333,600) [2]. The crop is grown in Northern and some parts of Eastern and Western Uganda [3]. It is a high value crop with ready domestic, regional and international markets. With the recent surge [4] in global demand for simsim and simsim oil, farmers in Uganda have turned increasingly to growing simsim as a cash crop, earning it the nickname 'white gold' in Northern Uganda.

Simsim oil is rich in vitamin E and has a significant amount of linoleic acid that can control blood cholesterol levels. In addition, the protein content of the seed is about 26 % and the Sulphur containing amino acid methionine is present at a concentration of about 3.4 %.After oil extraction, the remaining meal contains high amount of proteins and calcium which is an ingredient in the animal feed industry. These qualities make simsim a prime commodity in the global market and therefore one with great potential for poverty lessening, food and nutrition security, household income generation and an important earner of foreign exchange for Uganda [5].

Seed sowing machine helps in the sowing of seeds in the desired position hence assisting the farmers in saving time and money[6]. The existing sowing techniques include broadcasting manually [7], opening furrows by a country plough and dropping seeds by hand, dropping seeds in the furrow through a bamboo/metal funnel attached to a country plough.

The above existing method has many challenges. These include; No control over the depth of seed placement, no uniformity in the distribution of seed placement, Loss of seeds, more labor requirement, Time required for sowing is more [9].

Currently new technologies [10] like use of manual seed and fertilizer drill, animal drawn seed drill, manual oilseed drill, animal drawn tool frame for seeding, animal drawn single tyne seed drill, animal drawn tool frame for seeding, earth auger, rotary diddler, dibbling stick, opening furrows by a country plough, tractor etc.

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