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FACULTY OF ENGINEERING
DEPARTMENT OF AGRICULTURAL MECHANISATION AND
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FINAL YEAR PROJECT

**DESIGN AND CONSTRUCTION OF A SOLAR POWERED WHEEL
SPRAYER**

BY

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A final year project proposal report submitted in partial fulfilment of the requirements for the award of the BSc. of Agricultural mechanization and irrigation engineering at Busitema University.

DECLARATION

I **WATUWA FELIX** declare that this final year project report is a result of my own efforts and great work done has never been submitted to Busitema University or any other institution of higher learning for any academic award.

Sign:

Date:

APPROVAL

This final project report has been submitted to the faculty of engineering for examination purposes with approval of my supervisor.

MR: Igga Huzairu

Signature:

Date: /..... /.....

ACKNOWLEDGEMENT

I would like to extend my sincere thanks to the almighty GOD who has gifted me with life and has enabled me to reach this academic height as he has been the provider of all the necessary requirements.

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Abstract

Spraying is one of the important and widely accepted operations in crop production to increase the yield of the crop. The need of chemical application arises from man's desire to protect his crop from attack of various pests and diseases. The chemicals may be applied before planting during seed bed preparation, during planting, and /or after germination during the active growth period.

Traditionally the hand lever operated knapsack sprayer is used by farmers for spraying of pesticide, weedicide, fungicides, liquid chemicals etc. however it involves fatigue due to continuous hand lever operation results in the low efficiency. In an attempt to reduce on time spent and regulation of pressure during spraying operation, the power operated knapsack sprayers have been innovated but they are associated with more vibrations, noise levels causes the high level of fatigue during the operation and as well expensive in fuel and electricity usage.

Generally, using these current equipment, farmers suffer from different problems like less capacity of sprayer tank, more cost, more time consuming and also it is toxic to operator and cause back pain. However, in order to curd these problems, a solar powered wheel sprayer which uses the abundant free sun light has been developed to deal with the challenges of low capacity, back pain, fatigue on the shoulder, vibrations, noise and pollution from the current machines.

This report describes the design and construction of a solar powered wheel sprayer using available materials with a tank capacity of 30L which is approximately twice the ordinary knack sprayers of 16-18L capacity, with this, less time is spent in refilling the tank and hence a higher field efficiency of the equipment was achieved. The equipment was developed to reduce on the back pain and too much fatigue that comes with carrying the knapsack on the back with enhancement of the wheel that is rather pushed while spraying.

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