FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER AND ENGINEERING

AUTOMATIC SOLAR IRRIGATION SYSTEM

BY

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Supervisor

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Proposal report submitted to the faculty of engineering, department of computer and electrical engineering in partial fulfillment for the award of a diploma in industrial electronics and electrical engineering.

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DECLARATION

We, KATIMBO ISAAC and KIBET ARON do hereby declare that this proposal report compiled is our original work and to the best of our knowledge, it has never been published or submitted for the award of any academic qualification in any higher institution of learning

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DATE: 23ʳᵈ/07/2022

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Approval

This is to certify that KATIMBO ISAAC and KIBET ARON are the original author of this proposal report to be submitted for examination for partial fulfilment for the award of a Diploma in electronics and electrical engineering, Busitema University under the approval of my supervisors.

Supervisor

MR. KIGOZI JOHN

Signature.......................................

Date...

Dedication

We dedicate all our efforts and struggles of the educational life to our dear parents. without them we are meaningless. we also dedicate this report to entire Busitema University for providing the better and convenient platform for our studies and other co-circular activities which we acquired from the university. we humbly thank for their support during our studies may the Almighty our Lord bless you all abundantly.

Acknowledgements

First and foremost, we glory the Almighty God for good health through during the time of assembling our project. We thank the department of computer and electrical Engineering, the head of department, all the lecturers of computer and electrical department Busitema University, and all the supervisors who guided us.

We also give a special appreciation to our families for mainly financial support towards the accomplishment of our project.

Lastly, great appreciation to our friends otile francis and godwin kibet for the great advices and guidance they rendered to us.

ABSTRACT

During the study of the project, we were exposed to hands on facilities majorly in the E-learning center which is in accordance to university's mission and vision.

We were given chance to research about our project where we comprehended the content and we came up with the final idea of the project.

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1.Chapter one Introduction

1.1 Background

Irrigation is defined as the artificial application of water onto cropland for the purpose of satisfying the water requirements necessary for growing crops. Irrigation plays a key role in stabilizing food production in a number of countries by either supplementing or replacing the need for natural precipitation for the purpose of food production.

Automatic solar irrigation system has gained an increasing amount of interest from many agricultural fields since 1847, and it has undergone various mortification to modern high quality performing systems.

In Uganda, the average cropped area in a given year is estimated at 9700 hectares with cropping intensity of about 80%. the areas in Uganda include nyamugasani, mubuku, lukazi sugar, doho and many others. Also, Uganda has one of the highest volumes of surface water in the world, due to its dense network of rivers, lakes, and wetlands fed by the river Nile. Despite this, less than 0.5% of the country's irrigation potential is utilized, with most farmers relying on seasonal rainfall instead. This is a huge lost opportunity, with irrigation able to support significant increases in agricultural productivity and income, particularly for smallholder farmers, who produce the vast majority of the country's output. The consequences and harms of low irrigation uptake will be further exacerbated by worsening climate change, which is giving rise to more unpredictable and more extreme floods, droughts, and storms throughout sub-Saharan Africa.

Currently, in Ugandan, over 80% of the irrigation areas gets water from Victoria Nile. The main crops cultivated are sugarcane, rice, and vegetables. The total estimate total annual irrigation water demand is 260MCM.

1.1.1 Some of the common irrigation systems in Uganda include:

1.1.1.1 Surface irrigation

It is the most common type of irrigation as it simply employs gravity to distribute water over a field by following the contour of the land. In surface irrigation, for example, water will flow downhill from an area of higher elevation, reaching all the crops.

It is only applicable if the area or the land has sufficient water, and is naturally sloped, otherwise, it becomes very labor-intensive. It utilizes the furrow system technique, whereby channels are used to direct water down a slope across a paddock where crops or plants are grown – about 1 meter apart.

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