FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT REPORT

MONITORING SYSTEM FOR WILDLIFE ENDANGERED SPECIES

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

ABSTRACT

The main objective of this project was to design and implement a Monitoring System for Wildlife Endangered Species that monitors and tracks the location of the wild animals in real-time.

The game rangers are only required to do little supervision on the system and take action when need rises.
The heartbeat sensor detects the heart rate of the animal its attached to and sends this to the microcontroller that that also gets location data from the GPS module and this is all sent to the authorities via SMS using the GSM module.

DECLARATION

I KIJJA SWALEH hereby declare that this final year project report 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

This is to certify that the final year project report under the title **"**Monitoring System for Wildlife Endangered Species**"** has been done under my supervision and is now ready for examination

Mr. Ocen Gilbert

Department of Computer Engineering

Sign: **……**

Date: **……**

ACKNOWLEDGEMENT

I thank the Almighty Allah who has enabled me to thrive through all my endeavors in pursuit of this professional course. My heartfelt gratitude goes to my family especially my loving parents; Hajj kanaabi Hatib and Dr. Sarah Wasagali for all their moral and financial support throughout my academic life.

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LIST OF ACRONYMS

SMS: Short Message Service

LCD: Liquid Crystal Display

PCB: Printed Circuit Board

VHF: Very High Frequency

GPS: Global Positioning Service

GSM: Global System for Mobile communication

PSAT: Pop-up Satellite Archival Tags

RF: Radio Frequency

UWA: Uganda Wildlife Authority

RFID: Radio Frequency Identification

AIDC: Automatic Identification and Data Collection

LED: Light Emitting Diode

LDR: Light Dependent Resistor

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter basically gives an overview of what the study is about and how the chapter is organized. It briefly talks about the outline of chapter one. It comprises of the background, problem statement and the main objective of the study as well as its significance and scope.

1.1 Background

Africa has over 400 known species of endangered animals and monitoring endangered species is an essential and critical step in their conservation. Wildlife monitoring is essential for keeping track of animal moving patterns, population demographics, snaring and poaching incidents and breakouts.

Most African game reserves' Authorities from inception to date still use 'primitive' methods to keep track of these animals for example Very High Frequency(VHF) telemetry and Pop-up Satellite Tags (PSAT) even with the latest technological advancements.

This has been basically involving several patrol tracks with tracking devices parasitically powered from the automotive supply with a rotating directional antenna used both to increase the range of the communications link and also to determine the bearing angle to any tags that mark. The uniform distance sampling approach is used, but with different parameters to the animal tracking devices. The device is configured to take location fixes once a second when the vehicle is moving (as measured by its acceleration) and fixes once every hour when it is stationary [10]. This is mainly due to variations in the signal power of the trackers which changes with environmental conditions and diminishes with in short distances from the tags.

With the outweighed disadvantages and discrepancies associated with these systems and processes, I therefore proposed a more effective, accurate, and real-time automated system to monitor wild animals. This curbs poaching, prevent animal attacks and also protect animals' health.

This is to be implemented using GPS-GSM technology. A GPS-GSM module will be placed on the animal's body preferably in the neck together with a heartbeat sensor.

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