

**BUSITEMA UNIVERSITY**  
**FACULTY OF ENGINEERING**  
**DEPARTMENT OF COMPUTER ENGINEERING**

**TREE SEEDLINGS ACCESS AND SOIL SUITABILITY MOBILE  
APPLICATION.**

**BY**

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A project proposal report submitted to the Department of Computer Engineering as a partial fulfillment of the requirements for the award of a degree of bachelor of computer engineering.

MAY 2017

**DECLARATION**

I, NDEGEMO GRACE MWONDHA do hereby declare that this Project Report is original and has not been submitted for any other degree award to any other University before.

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## **APPROVAL**

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May the ALMIGHTY GOD bless the works of your hands

Thanks.

## **Dedication**

I dedicate this project report to my parents Mr.Okiboko Moses and Ms.Nekesa Alice and my brothers and sisters. Am very proud of you and without you I would not have reached this far. May God bless you abundantly?

To my friends who have been a resource to me, God bless you for your support physically and spiritually.

## **LIST OF ACRONYMS**

NFA	National Forest Authority
NEMA	National Environment Management Authority
FAO	Food and Agriculture Organization
Pas	Protected Areas
FMB	Forest Management Bureau
DENR	Department of Environment and Natural Resources
ACODE	Advocates Coalition for Development and Environment
UBOS	Uganda Bureau of Standards
ADT	Android Development Tool(s)
IDE	Integrated Development Environment
SDK	Software Development kit
UI	User Interface
GUI	Graphical User Interface
QEMU	Quick Emulator
PC	Personal Computer
App	Application
A/R	afforestation/reforestation

## LIST OF FIGURES

<b>Figure 4.1: soil type samples</b> .....	13
Figure 4.2: Data Flow chart .....	17
Figure 4.3: System Physical Design .....	18
Figure 5.1: code that inserts tree data obtained from user (on phone) into the database.....	20
Figure 5.2: Sample code for the login.....	21

## LIST OF TABLES

Table 2- 1 Structure of Uganda’s forests .....	5
Table 2- 2 weaknesses of Existing methods .....	7
Table 4.1: soil type characteristics .....	13
<b>Table 4.2: Soil types by Sub County</b> .....	14
<b>Table 4.3: Tree Species-Soil Suitability</b> .....	15



## **ABSTRACT**

Deforestation results from human activities including charcoal burning, agriculture and timber harvesting among others and Leads to environmental degradation and global warming. Globally 7 million to 8 million hectares a year are destroyed by deforestation compared to global reforestation rate of 2.5 million hectares a year. In Uganda annual deforestation rates stood at 1.8% (1990 to 2005), 5.4 % (2005 to 2010) [4].

Reforestation to replace the lost forest cover still lags behind deforestation not because of lack of knowledge about tree planting (A/R). This is as a result of immense difficulties in obtaining tree seedlings and seeds due to lack of information/awareness about the tree providers, how/time to access them (for the case of busy working class and those in remote areas), and lack of prior knowledge about the soils suitable for the growth of the different trees species.

This project was therefore aimed at developing a mobile application that would solve the above problem through connecting tree sellers/providers and tree buyers as well as providing information about tree-soil relationship/suitability.

The work is arranged mainly in six chapters, Chapter one includes the introduction of a Tree seedling access and soil suitability mobile application. Chapter two discusses the literature related to the system, Chapter three illustrates the methodologies used in coming up with the working prototype of the system, Chapter four includes system design and analysis, Chapter five comprises of the implementation and testing of the system and chapter six contains the summary of the work, , discussions and recommendations.

## TABLE OF CONTENTS

DECLARATION .....	i
APPROVAL .....	ii
LIST OF ACRONYMS .....	v
LIST OF FIGURES .....	vi
LIST OF TABLES .....	vii
ABSTRACT .....	viii
CHAPTER ONE: INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 PROBLEM STATEMENT .....	2
1.3.1 Main Objective .....	2
1.3.2 Specific Objectives .....	3
1.4 JUSTIFICATION/ SIGNIFICANCE.....	3
1.5 SCOPE .....	3
CHAPTER TWO: LITERATURE REVIEW .....	4
2.0 INTRODUCTION.....	4
2.1 KEY TERMS .....	4
2.1.1 Forest: .....	4
2.1.2 Afforestation: .....	4
2.1.3 Deforestation .....	4
2.1.4 Reforestation:.....	4
2.1.5 Biological diversity.....	4
2.1.6 Mobile Application.....	4
2.1.7 Soil type:.....	4
2.2 Structure of forest in Uganda. ....	5
2.3 Existing methods. ....	6
<b>2.3.1 The Forest Resources Assessment Program .....</b>	<b>6</b>
<b>2.3.2 Uganda Community Reforestation Project .....</b>	<b>6</b>
<b>2.3.3 National Forest Authority .....</b>	<b>6</b>
2.4 WEAKNESSES AND STRENGTHS OF THE ABOVE EXISTING SYSTEMS .....	7

2.5 PROPOSED SYSTEM.....	7
CHAPTER THREE: METHODOLGY .....	8
3.0 INTRODUCTION.....	8
3.1 Requirement gathering/elicitation .....	8
3.1.1 Data collection methods. ....	8
3.1.2 Data Analysis.....	8
3.2 System Design.....	8
3.3 System design and Implementation.....	9
3.4 SYSTEM REQUIREMENTS .....	9
3.4.1 Functional requirements .....	9
3.4.2 Non-functional requirements .....	9
3.5 TESTING AND VALIDATION.....	10
3.5.1 Testing .....	10
3.5.2 Validation .....	10
CHAPTER FOUR: SYSTEM ANALYSIS AND DESIGN.....	11
4.0 Introduction .....	11
4.1 System Analysis .....	11
4.1.1 Functional Analysis .....	11
4.1.2 Requirements Analysis .....	11
4.2 Soil Type and Tree Suitability. ....	12
4.2.1 Soil Type determination .....	12
4.2.2 Tree Species and Soil Suitability [District Forestry Office, Pallisa District] [21] [3] .....	15
4.3 System Design.....	16
4.3.1 Entity Relationship Diagram .....	16
<b>4.3.2 Data Flow Diagram</b> .....	17
4.3.4 Physical design .....	18
CHAPTER FIVE: IMPLEMENTATION AND TESTING .....	19
5.0 Introduction .....	19
5.1 Development Platforms.....	19
5.2 Code Designs.....	20
5.3 The System Operation.....	21
5.4 System Testing .....	21

5.5 Verification.....	22
5.6 Validation.....	22
5.7 System Evaluation.....	23
CHAPTER SIX: DISCUSSIONS AND RECOMMENDATIONS.....	24
6.0 Introduction.....	24
6.1 Summary of the work.....	24
6.2 Critical analysis/appraisal of the work.....	24
6.3 Proposals/recommendations for the future work.....	25
6.4 Conclusion.....	25
REFERENCES.....	26
APPENDENCIES.....	a

# CHAPTER ONE: INTRODUCTION

## 1.1 BACKGROUND

Uganda has suffered serious deforestation with reforestation lagging behind the latter, yet forests and woodlands are a mainstay in the three pillars of sustainable development namely, the economy, society and the environment. Uganda's forest resources provide energy, raw materials for industry, environmental services, high biodiversity values and employment. We need forests to maintain a friendly ecosystem, to get rainfall, oxygen and feed water bodies. We also need forests to sustain the construction industry, provide energy and food, among other benefits. However, despite clear evidence that forests and people's livelihoods are intertwined, we continue to be oblivious of the destruction going on around us. Uncontrolled degradation and conversion to other types of land use like the need for charcoal, fertile soils for agriculture, grazing grounds, settlement and so on are threatening Uganda's forests. A reduction of the area under forest resources endangers several production sectors [1].

Deforestation is influenced by increasing human needs, agricultural expansion and environmentally harmful mismanagement, for example, lack of adequate forest fire control measures (e.g. the seasonal burning for fresh pasture in the rangelands of Karamoja/Teso, Mbarara/Ntungamo, and Masindi/Nakasongora areas), unsustainable commercial logging especially pit sawing, charcoal burning and fuel wood collection. Overgrazing, unregulated browsing and all economic measures leading to the loss of biodiversity have been of global concern. Sustainability is a key issue to consider when problems of deforestation and forest resource management are raised. Uganda's forests should be managed to meet the needs of this generation without compromising the rights of future generations [2].

Some of the services provided by forests, like serving as carbon sinks, reduction of pollution, climate modification and ecological balance are not measurable to many people. The majority envisages short-term economic gain from forests rather than long-term benefits. As a result deforestation continues to bite hard nationally, regionally and in totality, it is a global problem. Loss and degradation of forests causes soil erosion (Kabale, Mbale, Moroto), loss of biological diversity (e.g. over 30% of Uganda tropical high forests are classified as degraded) [2], Animal species are threatened due to loss of wildlife habitats and degradation of watershed areas.

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