

BUSITEMA UNIVERSITY
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DEPARTMENT OF COMPUTER ENGINEERING
A FINAL YEAR PROJECT REPORT

TITLE: CARBON TRADING MANAGEMENT SYSTEM FOR FACTORIES

BY

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DECLARATION

I **MUBIRU ERIAB WILLIAM** declare to the best of my knowledge that this is my original work and it has not been submitted or duplicated in any institution of higher learning for any ward.

Signature.....



Date.....

03/09/2019

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APPROVAL

I certify that the project report entitled “**CARBON TRADING MANAGEMENT SYSTEM FOR FACTORIES**” has been under my supervision and is ready for examination.

Signed.....

Date.....03/09/2019

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ABSTRACT

Factories emit a lot carbon monoxide in the atmosphere which qualifies them as one of the biggest contributors of pollute in the atmosphere. The effects of too much carbon monoxide further more reflect in the current climate experiencing that are taking on the world. Government agencies in Uganda responsible, NEMA (National Environmental Management Authority) continuously make sensitizations to the public to plant more trees to combat the effects of environmental degradation that's attributed to pollution on the atmosphere by these factories.

Therefore, my aim is to design and create a carbon trading management system based on a device that meters how long the factories spend polluting the atmosphere with carbon monoxide and the carbon monoxide sensor value as read from the pollutant. Having a threshold value of 150 units for my carbon sensor, the billing will be based in a ratio of every 20 units more than threshold will correspond to a tree. The party responsible of pollution therefore is billed in a currency (I will use trees for my prototype). Therefore, a factory would be required by the relevant authority or policy to plant a number of trees per month that corresponds to the number of units that were metered by this device.

The device has a carbon monoxide sensor, which triggers a timer inbuilt in the system. For this system the server time will be used as to show the time of pollution. When the carbon monoxide sensor value exceeds the threshold, the system will activate the GSM that will through the server pick the start and end time of pollution plus the average of the sensor value from start to finish of pollution. For every 20 units more of the threshold value, the factory will be tasked to plant one tree that bringing out the issue of the billing.

In general Carbon is measured in tonnes hence units of carbon emissions

LIST OF ACRONYMS

UNFCC	United Nations Framework on Climate Change
NGGIS	National Greenhouse Gas Inventory System
IMF	International Monetary Fund
GHGs	Green House Gases
CET	Carbon Emission Trading
NEMA	National Environmental Management Authority
CEM	Carbon Emission Metering
GSM	Global System for Mobile communication
PHP	Hypertext Preprocessor
HTML	HyperText Markup Language
CSS	Cascading Styles Sheet
IDE	Integrated Development Environment

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Carbon emission trading is a form of emissions trading that specifically targets carbon dioxide.

Uganda like any other countries believe industrialisation is key in development of a nation. There are strong facts that backup the governments believe, however they all gear up to improving and growing the economies of scale. Various organisations have been setup in respective countries to help in making flexible policies in aiding investors to setup factories. This is a great move however for a country like Uganda; little is being done around the offspring of industrialisation which is carbon emissions in Uganda.

In 1997, an international treaty called the Kyoto Protocol was extended as part of the 1992 UNFCCC that commits pattern states to reduce green gas emissions. This came into force on 16th February 2005, partner states needed to implement the objectives of UNFCCC majorly to reduce the onset of global warming by reducing greenhouse concentrations in the atmosphere to a level that would prevent dangerous anthropogenic interference with the climate system[1].

In the 21st century, the effects of carbon emission are not debatable and for countries like china which contribute more than 20% to the world's carbon emission percentage are experiencing ravaging climate change conditions. According to World Bank, the carbon emission per capita for Uganda in 2014 were 0.13 metric tons. In Uganda alone, it was evident in 2017 as there was a drift the weather patterns. This was highly attributed to the environmental pollution that is not highly being focused on. The New Vision, on 14th November 2017 published an article that indicated Uganda's carbon dioxide emissions were set to rise.

The Ugandan government has responded to the increasing rates for carbon emissions in a number of ways including the following;

- a) In 2016, it established the NNGIS that marked a critical step in meeting its contribution to the global effort emission reduction under the Paris Agreement for Climate change[2].
- b) It also submitted six action points to the UNFCCC NEMA registry among which include the city councils target to increase the rate of recycling and re-use of solid waste by 60%[3].
- c) The Kampala city council Authority committed to reduce the emissions rates in the city by 22% in 2017[4].

All these responses are a showcase of an instrumental action towards reducing the rates of the carbon emissions. However, there is still a huge challenge on this undertaking that would possibly attribute to either slow success or even fail the different organisations from hitting their targets.

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