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FACULTY OF ENGINEERING

DEPARTMENT OF MINING AND WATER RESOURCES ENGINEERING

FINAL YEAR PROJECT REPORT

A CONVEYOR BELT SYSTEM SELECTION AND DESIGN SOFTWARE

BY

KYAMBADDE RAYMOND

BU/UG/2012/103

E-MAIL:raymug2@gmail.com

TEL: 0777916386/0751889096

Supervisor:

Mr. NASASIRA HILLARY

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ABSTRACT

Belt conveyor is the transportation of material from one location to another trough a fixed path on a continuous belt rolling on pulleys and rollers. Belt conveyor has high load carrying capacity, large length of conveying path, simple design, easy maintenance and high reliability of operation. Belt Conveyor system is used in ROM transport in mining and distribution of crushed ore in the plant. This report provides the standard design of the conveyor belt system to be used. It includes belt speed, belt width, motor selection, belt specification, shaft diameter, pulley, gear box selection, with the help of standard model calculation imbedded into a desktop application software.

This report mainly shows the procedures that were taken to develop the software that provides steps and calculation results of a required production. It also provides the ways to use the software.

DECLARATION

I, KYAMBADDE RAYMOND registration number BU/UG/2012/103, declare that this report, submitted in fulfillment of the requirements for the award of the degree of bachelor of science in mining engineering , of Busitema University, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

SIGNATURE: .....

DATE: .....

APPROVAL

This is to approve that this report has been submitted to the Department of mining and water by Kyambadde Raymond;

SUPERVISOR: Mr. NASASIRA HILLARY

Signature: .....

Date: .....

ACKNOLEDGEMENT.

First and foremost I thank the almighty God who gave me strength, Courage and direction to accomplish this project.

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ROM.....Run of Mine Ore

CEMA.....Conveyor Equipment Manufacture's Association

VB.....Visual Basic

GUI.....Graphical User Interface

1 CHAPTER ONE

1.1 INTRODUCTION

This chapter consists of the background of the study, problem statement, objectives of the study, justification, significance of the study, scope and the limitations.

1.2 1.1BACKGROUND

Conveyor belt systems have been used for moving a wide variety of goods and materials for many decades(Hastie 2010). They continue to provide the fastest, safest, most effective and economical method of transportation over relatively long distance; often in areas where space is limited and operating under some of the most adverse conditions imaginable(Tatiya 2005). They have become a common choice for long distance transport of bulk materials in mining operation. In comparison with other modes of transport, such as rail and haul truck, belt conveyors offer more reliable system at least cost.(Control et al. n.d.)

Selecting a conveyor belt system requires careful calculation, planning and consideration in order to achieve not only the optimum conveying capacity but also the longest possible operational lifespan of the belt and the minimum amount of production time lost due to avoidable repair and maintenance to the system itself.(Naga et al. 2013)

There are several important technical 'rules', values and calculations involved when selecting a conveyor belt system. This also applies to installing new belts, so that they operate at maximum efficiency; their day-to-day operation, care and maintenance and the identification and correction of problems.(Alspaugh 2004)

The process of selecting a conveyor belt system is very long and tedious which involves a number of steps and procedures that requires a lot of time to follow.

1.3 PROBLEM STATEMENT

Selection of conveyor belt system is a very difficult procedure that needs a lot of calculations, planning and relations which is tedious and takes a lot of time and referencing. So this project is aiming at organizing all procedures and calculations involved in conveyor belt selection into software that will only need the inputs and then it automatically carry out the calculation and at the end it selects the best conveyor belt system according to the conditions that require fulfilling.

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