VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi-590018

A

PROJECT REPORT

ON

"SAFETY FEATURES OF BUCKET WHEEL EXCAVTOR"

Submitted in Partial fulfillment of the Requirements for the award of the Degree of Bachelor of Engineering

In

MINING ENGINEERING

For the academic year 2017-18

Submitted By

AJIN PANDI QUPET SIRIL A	(1GV14MI002)
ANISH J	(1GV14MI008)
JAWAHAR SRINATH S	(1GV14MI020)
KALAIYARASAN S	(1GV14MI021)

Under the Guidance of

Mr. VIJAYA RAGHAVAN . P

Associate Professor

Department of Mining Engineering, Dr. TTIT

DEPARTMENT OF MINING ENGINEERING

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum, KOLAR GOLD FIELDS – 563120

Department of Mining Engineering

Dr T Thimmaiah Institute Of Technology

CERTIFICATE

Certified that the thesis entitled "**SAFETY FEATURES OF BUCKET WHEEL EXCAVATOR**" carried out by Anish J (1GV14MI008), Ajin Pandi Qupet Siril A (1GV14MI002), Jawahar srinath S (1GV14MI020), Kalaiyarasan S (1GV14MI021) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining of Visveshvaraya Technological University, Belagavi. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library.

Signature of Internal Guide
Mr. Vijaya Raghavan . P

Signature of External Guide
Mr. N. Ramesh

12/6/18

Signature of HOD
Mr. Paul Prasanna Kumar

Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technology,
Oorgaum, K.G.F.-563 120.

12/6/18

Signature of Principal
Dr. Syed Ariff

Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F.-563 120.

Names of Examiners

1. 12/6/18
2. 12/6/18

ABSTRACT

Open pit mines with a continuous excavation use bucket wheel excavator as basic mining machine in the process of soft and medium-hard materials excavation. Excavators are being constructed today with a daily production capacity greater than 2,00000 m^3 due to constantly growing demand of greater quantities of excavated material. This project proposes the development of a monitoring system to be applied for a production system and safety features on gear system. The main objective of the detection system is to obtain in real time reliable decisions on the presence of overburden and avoid disturbances or failures of production process and avoid damages on machine.

Our project deals with the " **Safety features of bucket wheel excavator**" that is in order to protect the in advert collision control of bucket wheel gear box to the face during working operation of machine.Currently only manual method is used for checking the slewing direction and to check whether the gear box gets hit to the face or not. The main problem in damage of the bucket wheel gear box is heavy production loss, cost of purchasing new gear box is very high, time consumption for reinstalling new gear box as well as maintenance also increased, once gear box oil pump is drained again oil has to be refilled, and a separate person is always to be available to check the slewing direction and he often has to give signal to avoid collision of gear box and oil pump to the bench or face. Hence in our project we have an idea of implementation of placing a **INFRARED PROXIMITY SENSOR** near the gear box, which can reduce all the above problems and it is a automatic process it automatically sense through the transmitter receiver present in the sensor and damage can be reduce to an higher extent and safe working nature can be created.

ABSTRACT

Our project deals with the " **Safety features of bucket wheel excavator**" that is in order to protect the inadvert collision of bucket wheel gear box to the face during working operation of machine.

Currently only manual method is used for checking the slewing direction and to check whether the gear box gets hit to the face or not.

The main problem in damage of the bucket wheel gear box is heavy production loss, cost of purchasing new gear box is very high, time consumption for reinstalling new gear box as well as maintenance also increased, once gear box oil pump is drained again oil neede to be refilled, and a separate person is always to be available to check the slewing direction and he often has to give signal to avoid collision of gear box and oil pump to the bench or face.

Hence in our project we have an idea of implementation of placing a **INFRARED PROXIMITY SENSOR** near the gear box.which can reduce all the above problems and it is a automatic process it automatically sense through the transmitter receiver present in the sensor and damage can be reduce to an higher extent and safe working nature can be created.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Belagavi-590018

2017-2018

A Project Report On

"ASSESSMENT OF SLOPE STABILITY ANALYSIS USING InSAR TECHNOLOGY"

SUBMITTED IN THE PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE VIII SEMESTER, PROJECT WORK 10MN85 FOR THE AWARD OF DEGREE

Of

Bachelor of Engineering

In

MINING ENGINEERING

By

AKSHAYA KUMAR B	1GV14MI005
MARAM SAI KRISHNA	1GV14MI025
SHARATH GOWDA L S	1GV14MI037
VENUGOPAL V	1GV14MI042

Under the Guidance of

Mr. PAUL PRASANNA KUMAR
HOD, Dept. of Mining

Dr.S KUMAR REDDY
Scientist-II, NIRM, Bangalore

DEPARTMENT OF MINING ENGINEERING

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

KOLAR GOLD FIELDS - 563 120.

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

KOLAR GOLD FIELDS -563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the project work entitled

"ASSESMENT OF SLOPE STABILITY ANALYSIS USING InSAR TECHNOLOGY"

Is a bonafide work carried out by

AKSHAYA KUMAR B

(1GV14MI005)

MARAM SAI KRISHNA

(1GV14MI025)

SHARATH GOWDA L S

(1GV14MI037)

VENUGOPAL V

(1GV14MI042)

The students of the 8th semester B.E in mining engineering under our supervision and guidance submitted in partial fulfillment of the requirements for the award of degree of bachelor of engineering of visvesvaraya technological university, during the year 2017-18.

Signature of Internal Guide

11/6/18

(Mr. Paul Prassana Kumar)

Signature of External Guide

11/06/2018

(Dr. S Kumar Reddy)

Signature of HOD

12/6/18

Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technolgy,
Oorgaum, K.G.F.-563 120.

(Mr. Paul Prassana Kumar)

Signature of Principal

12/6/18

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

(Dr. Syed Ahmed)

EXAMINERS

1) ..... 12/6/18 .....

2) ..... 12/6/18 .....

ABSTRACT

Stability analysis of slopes is a very important component of various opencast mining projects throughout the life cycle of the project. A failure of slope in the area being worked in a mine can lead to some severe social, economic as well as a great safety catastrophe. The basic failure conditions are very diverse & complicated. These failure mechanisms are greatly dependent on local geology, which are pretty unique to a specific location of the rock mass. In the recent years too, the method of designing slopes are completely based upon the field knowledge. Better approach can be made through safe designing of slopes.

The aim of the project is to determine stability of the slope using InSAR technology, in this we use two more satellite images and compare them for any changes. For this project we use the Sarproz software to determine the changes in slopes, and also find how the slope deforms with change in time.

Based on slope stability analysis using InSAR technology on the field monitoring of the Pissurlem mine, the following conclusions are drawn:

i. In this study, we analyzed the ground displacement over Pissurlem mine by using the InSAR technology. The process generates change detection maps for the Time period of 3 years. The results indicate the slope deformation taking place from year 2015 to year 2018.
ii. From the INSAR analysis, the deformation has been found in two places in the Pissurlem mine. The deformation of about 0.5-0.6 meters has taken place at pit benches, and deformation of about 0.5-0.6 m has taken place in the area of pit bottom.
iii. The stability of the slope decreases with the time due to creep properties of the rock mass and presence of water.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama", Belagavi-590018

A

PROJECT REPORT

ON

"DUST MONITORING AND CONTROL MEASURES IN NLC INDIA LIMITED"

Submitted in Partial fulfillment of the Requirements for the award of the Degree of Bachelor of Engineering

In

MINING ENGINEERING

For the academic year 2017-18

Submitted By

ALLEN AKASH A	(1GV14MI006)
DINESHKUMAR M	(1GV14MI014)
NAVEENKUMAR S	(1GV14MI027)
YUGINDER H	(1GV14MI045)

Under the Guidance of

Mr. JOHN GLADIOUS J

Assistant Professor

Department of Mining Engineering, Dr. TTIT

DEPARTMENT OF MINING ENGINEERING

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum, KOLAR GOLD FIELDS – 563120

Department of Mining Engineering

Dr T Thimmaiah Institute Of Technology

CERTIFICATE

Certified that the thesis entitled **"Dust Monitoring and Control Measures in NLC-India Limited"** carried out by Allen Akash A (1GV14MI006), Dineshkumar M (1GV14MI014), Naveenkumar S (1GV14MI027), Yuginder H (1GV14MI045) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining of Visveshvaraya Technological University, Belagavi. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library.

Signature of Internal Guide
Mr. J. John Gladious

Signature of External Guide
Mr. Sumesh Kumar
Safety Division/Mine-I
NLC Ltd., Neyveli.

12/6/18

Signature of HOD
Mr. Paul Prasanna Kumar
Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technolgy,
Oorgaum, K.G.F.-563 120.

12/6/18

Signature of Principal
Dr. Syed Ariff
PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

Names of Examiners

1. 12/6/18
2. 12/6/18

ABSTRACT

All major opencast mechanized mining activities produce airborne respirable dust. The major dust producing operations are drilling, blasting, loading, unloading, movement of HEMM on haul roads and transportation. Respirable dust deteriorates the environmental air quality in the mining area & its buffer zone and causes serious health hazards to human habitation.

The respirable dust, are mainly toxic and carcinogenic in nature causing serious health hazard to the exposed workers in the form of occupational disease like silicosis and lungs cancer. The concentration of dust measurement is necessary to evaluate the impact of dust generation due to various mining activity in the surrounding environment. The assessment of respirable dust from various opencast mining operations is necessary for prevention of health risks on miners.

This project focuses on collection of respirable dust by using DGMS approved Personal Dust Sampler for determination of Threshold limit value of respirable and the present dust concentration level in the respective mine. The respirable dust samples were analyzed by using Fourier Transform Infrared Spectrophotometer to determine the percentage and TLV of dust for the respective mine.

To achieve this objective, a Large Opencast mine was chosen to collect the site-specific respirable dust sample data and determine the percentage of free silica and TLV for the respective mine. The dust sampling and monitoring was conducted during for all the mines in the month of March, April 2018.

This dust survey covered various mining activities in different locations including overburden loading site, stock yard, loading, drilling, and handling plant. The dust levels were examined to assess miners' exposure to time weighted average respirable dust concentration in different working environment of the Large Opencast Mines.

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

OORGAUM, K.G.F. – 563 120 (KARNATAKA)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project work entitled

"*ProGuard:* Detecting Malicious Accounts in Social-Network-Based Online Promotions"

Is bonafied work carried out by

AVINASH S	**1GV15CS401**
JANCY SWETHA M	**1GV15CS404**
MATHEW SAJJAN S	**1GV14CS027**
MOHAMMED ASHRAF V A	**1GV14CS029**

In partial fulfillment for the award of degree of **BACHELOR OF ENGINEERING** in Computer Science and Engineering of **VISVESWARAYA TECHNOLOGICAL UNIVERSITY**, Belgaum during the year 2017-2018.It is certified that all corrections suggestions indicated for internal assessment has been incorporated in the report kept in the department library. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of Guide	Signature of H.O.D	Signature of Principal
(Mrs. Sophia S)	(Mrs. Vinutha B.A)	(Dr. Syed Ariff)
	External Viva	PRINCIPAL Dr. T. Thimmaiah Institute of Technology Oorgaum, K.G.F. - 563 120.
Name of the Examiners		Signature with Date
1. Manjunath Singh. H		13/6/18
2. VASUDEVA R		13/06/18

ABSTRACT

Online social networks gradually integrate financial capabilities by enabling the usage of real and virtual currency. They serve as new platforms to host a variety of business activities such as online promotion events, where users can possibly get virtual currency as rewards by participating such events. Both OSNs and business partners are significant concern when attackers instrument a set of accounts to collect virtual currency from these events, which make these events ineffective and result in significant financial loss. It becomes of great importance to proactively detecting these malicious accounts before the online promotion activities and subsequently decreases their priority to be rewarded.

Since online social networks play an increasing important role in both cyber and business world, detecting malicious users in OSNs becomes of great importance. Many detection methods have been consequently proposed .Considering the popularity of spammers in OSNs; these methods almost exclusively focus on detecting accounts that send malicious content. A spamming attack can be considered as an information flow initiated from an attacker, through a series of malicious accounts, and finally to a victim account.

In order to effectively detect malicious accounts in online promotion activities by overcoming the aforementioned challenges, we have designed a novel system, namely ProGuard. ProGuard employs a collection of behavioral features to profile an account that participates in an online promotion event. These features aim to characterize an account from three aspects including i) its general usage profile, ii) how an account collects virtual currency, and iii) how the virtual currency is spent. ProGuard further integrates these features using a statistical classifier so that they can be collectively used to discriminate between those accounts controlled by attackers and benign ones.

We have performed extensive experiments based on data collected from Ten cent QQ, a global leading OSN with built-in financial management activities. Experimental results have demonstrated that our system can accomplish a high detection rate of 96.67% at a very low false positive rate of 0.3%.

VISVESVARAYA TECHNOLOGY UNIVERSITY

"JNANA SANGAMA", BELGAUM-590014

A

PROJECT REPORT

On

"*ProGuard:* Detecting Malicious Accounts in Social-Network- Based Online Promotions"

Submitted in the partial fulfillment of the requirement for the award of Degree of

BACHELOR OF ENGINEERING

In

COMPUTER SCIENCE AND ENGINEERING

By

AVINASH S	1GV15CS401
JANCY SWETHA M	1GV15CS404
MATHEW SAJJAN S	1GV14CS027
MOHAMMED ASHRAF V A	1GV14CS029

Under the guidance of

Mrs. SOPHIA S

Asst. Prof.,Dept. of CSE.

2017-2018

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

DR.T.THIMMAIAH INSTITUTE OF TECHNOLOGY,

Oorgaum, Kolar Gold Fields-563 122

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

PROJECT REPORT

On

"EVALUATION OF AIRBORNE DUST IN AN UNDERGROUND MINES"

Submitted in the partial fulfillment of the requirement of the university for the Award of Degree of

Bachelor of Engineering

In

MINING ENGINEERING

BY

BOOPATHY R(1GV13MI011)
RAJESH KUMAR R (1GV13MI037)
ALEX PANDIAN S (1GV12MI002)
RAJAMANI G (1GV12MI027)

Under the Guidance of

Mr.VIKRAM P,

Dept. of Mining Engineering

Department of Mining Engineering
Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY
(Formerly Golden Valley Institute of Technology)
Oorgaum Post, Kolar Gold Fields – 563120

2017-2018

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Oorgaum, Kolar Gold Fields – 563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the technical seminar entitled"**EVALUATION OF AIRBORNE DUST IN AN UNDERGROUND MINE**" is a bonafide work carried out by BOOPATHY R(1GV13MI011),RAJESHKUMARR(1GV13MI037),ALEXPANDIAN S(1GV12MI002),.RAJAMANI G(1GV12MI027), in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of Visvesvaraya Technological University, Belagavi during the year 2017-2018.It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the Report deposited in the department library. The seminar report has been approved as it satisfies the academic requirement in respect of seminar 10MN86 prescribed for the Bachelor of Engineering degree.

12/6/18	12/6/18	12/6/18
.....	.....	.....
Signature of the Guide	**Signature of the HOD**	**Signature of the principal**
Mr.vikram P	**Mr Paul Prasanna Kumar**	**Dr.Syed Ariff**
	Head of the Department Dept. of Mining Engineering Dr. T. Thimmaiah Institute of Technology, Oorgaum, K.G.F.-563 120.	PRINCIPAL Dr. T. Thimmaiah Institute of Technology Oorgaum, K.G.F. - 563 120.

12/6/18

12/6/18

ABSTRACT

Opencast and underground mining operations produce large quantities of dust due to increased mechanisation to augment production and enhance productivity to meet the demands of consumer industry. Exposure of miners to high concentrations of dust may cause occupational health hazards. Health risk to miners from dust depends on dust size, concentration and duration of exposure, chemical composition of dust. Exposure of workers to dust concentrations beyond threshold limit values as prescribed limits by statutory enactments and guidelines may adversely affect the health of mine workers. To assess the status of dust concentrations and exposure levels of workers, conduct of systematic dust survey in mines is essential. It will help in assessing the situation so that effective dust control strategies can be adopted to minimize the dust.

Thus the project work was undertaken to carry out dust survey in an underground mine of SCCL Venkateswara Kani (VK) VK7 incline mine to assess the respirable dust levels to ensure the dust suppression methods are adequate and suggest the methods to maintain the dust levels within the permissible limits .

The dust level at the belt transfer point was minimum (1.56 mg/m3) whereas the maximum dust level was found at the continuous miner working (2.81 mg/m3). Although the dust concentration at continuous miner, shuttle car, feeder breaker, load haul dumper, belt transfer point was less than safe working limit (3 mg/m3) whereas when going for the larger production of coal than the present scenario of the dust generation may rises beyond the limits, so some of the methods have been suggested for addressing the respirable dust issue.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

PROJECT REPORT

On

"Automation of LHD (Load Haul Dumper)"

A thesis submitted in partial fulfillment of the requirements for the Degree of

Bachelor of Engineering

In

MINING ENGINEERING

By

GURU NATHAN S (1GV14MI017)
PRABAKAR R (1GV13MI036)
SANTHOSH KUMAR S (1GV13MI042)
SHAKTHIVEL G (1GV13MI044)

Under the Guidance of

Mr. PAUL PRASANNA KUMAR,
HOD, Dept. of Mining Engineering

Department of Mining Engineering

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY
(Formerly Golden Valley Institute of Technology)
Oorgaum Post, Kolar Gold Fields – 563120

2017-2018

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Oorgaum, Kolar Gold Fields – 563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the thesis entitled"**Automation of Load Haul Dumper**" carried out by Guru Nathan S (1GV14MI017), Prabakar R (1GV13MI036), Santhosh Kumar S (1GV13MI042), Shakthivel G (1GV13MI044) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of Visvesvaraya Technological University, Belagavi during the year 2017-2018. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated assessment have been incorporated in the report deposited in the department library.

11/6/18

Signature of the Guide
Mr. Paul Prasanna Kumar

11/6/18

Signature of the HOD
Mr. Paul Prasanna Kumar

12/6/18

Signature of the principal
Dr. SyedAriff

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

Names of the Examiners

1. : 12/6/18
2. Dr. Syed Ariff : 12/6/18

ABSTRACT

The Load Haul Dump (LHD) machine and its operating environment create a complex system. Mine productivity depends on the operation of the LHDs and on the mining environment, including fragmentation, size of boulders, navigation techniques etc. Traditional navigation techniques require a lot of infrastructure to accommodate automatic operation. From fully automated fleets of vehicles, the focus of automation has gradually widened to include more flexible solutions, such as semi-automatic LHD machines, with safety as a main goal. The automatic system used for semi-automation is different from that used for fleet automation in that fewer infrastructures is needed, and the operator controls only one vehicle at a time.

We are going to install some of the sensor and radio frequency board such that HC-05 bluetooth module and RC-522 to operate the machine through application in phone. We are calculating the loading and unloading time through RC-522 frequency board and RFID card.

(Keywords: Dumper, Wireless automation, Arduino, Bluetooth, RC522, RF IDcard)

A

Project Report

On

"DESIGN AND OPTIMIZATION OF PILLAR SIZE IN UNDEGROUND COAL MINES"

In partial fulfillment of the requirements for the award of degree

Bachelor of Engineering

in

MINING ENGINEERING

Of Visvesvaraya Technological University, Belgaum

By

KUMAR NISHANT	1GV14MI023
M ARAVANAN	1GV11MI036
MANISH KUMAR	1GV12MI019
RAKESH KUMAR PATRA	1GV12MI028

Under the Guidance of

Internal Guide
VIJAYA RAGAVAN
ASSOCIATE PROFESSOR, Dr.TTIT.

Department of Mining Engineering

DR.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum (post), Kolar Gold Fields-563120

2017-18

Dr.THIMMAIAH INSTITUTE OF TECHNOLOGY
Kolar Gold Fields-563120

DEPARTMENT OF MINING ENGINEERING

Certified that the project work entitled

"DESIGN AND OPTIMIZATION OF PILLAR SIZE IN UNDERGROUND COAL MINES"

KUMAR NISHANT
(1GV14MI023)
MANISH KUMAR
(1GV12MI019)

M ARAVANAN
(1GV11MI036)
RAKESH KUMAR PATRA
(1GV11MI028)

The students of 8th semester B.E.MINING Engineering under our supervision and guidance submitted in partial fulfillment of the Bachelor of Engineering of Visvesvaraya Technological University, during the academic year 2014-2015.

Signature of the Internal Guide.

.....

P.VIJAYA RAGHAVAN
ASSOCIATE PROFF DR TTIT KGF

12/6/18

Signature of the H.O.D.

Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technolgy,
Oorgaum, K.G.F.-563 120.

PAUL PRASANNA KUMAR

Signature of the Principal

12/6/18

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

Dr. SYED ARIFF

Examiners

1).....14/6/18.....

2).....12/6/18.....

ABSTRACT

The importance of mining is definitely significant to human civilization. Mining is the extraction of valuable minerals or other geological materials from the earth, usually from an ore body vein or coal seam. Mining involves different processes like prospecting for ore bodies, analysing the feasibility of extraction, profitability of the operation, extraction of the desired materials. Mining is the mother industry for other industries. For effectiveness in mining, different methods have been approached keeping in mind are production and safety. One of such method is the bord and Pillar method of mining. Bord and Pillar method of mining is one of the oldest methods. The pillar are the structure which provide means of communication over a gap. The key to the successful of bord and pillar mining is selecting the optimum pillar size.

Indian mines have about 60% of the coal blocked in the form of pillars. This investigation critically reviews the different practice of pillar design followed around the world. If the pillar are too small the mine will collapse. If the pillar are too large then significant quantities of valuable material will be left behind reducing the profitability of the mine. The issue relating to the stability of pillar and effective extraction from it is major concern now a day .

The most important parameter before designing a pillar is the safety factor. The main purpose of this project is to increase the extraction ratio of bord and pillar working without compermising the safety factor.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

PROJECT REPORT

On

"A BLAST DESIGN AND INDUCED VIBRATION IN OPENCAST MINES"

A thesis submitted in partial fulfillment of the requirements for the Degree of

Bachelor of Engineering

In

MINING ENGINEERING

By

GOBBINATH K (1GV13MI023)

RAMESH S (1GV13MI041)

MUGILAN M(1GV13MI054)

SHIVAJI G (1GV13MI062)

Under the Guidance of

Mr.John Gladious,

Assistant professor, Dept. of Mining Engineering

Department of Mining Engineering

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Oorgaum Post, Kolar Gold Fields – 563120

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum, Kolar Gold Fields – 563120

DEPARTMENT OF MINING ENGINEERING

Certificate

Certified that the project work done titledA BLAST DESIGN AND INDUCED VIBRATION IN OPEN CAST MINESis a bonafied work carried out by, K GOBBINATH **USN** 1GV13MI023, S RAMESH **USN** 1GV13MI041, MUGILAN M **USN** 1GV13MI054, SHIVAJI G **USN** 1GV13MI062 in the partial fulfillment for the award of degree of **Bachelor of Engineering in Mining Engineering of Visvesvaraya Technological University**,Belagavi during the year 2017-2018.It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the Report deposited in the department library. The Project report has been approved as it satisfies the academic requirement in respect of project work prescribed for the Bachelor of Engineering degree.

28/06/2018

Signature of **Internal Guide**

(Mr.JOHN GLADIOUS)

Signature of **External Guide**

(Mr. VAITHIYANATHAN) CM, BHD, MINE-1, NLC LTD

CHIEF MANAGER
Blast Hole Drills/M-I & IA

12/6/18

Signature of **HOD**

(Mr. PAUL PRASANNA KUMAR)

Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F.-563120

12/06/2018

Signature of **Principal**

(Dr. SYED ARIFF)

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K. G. F- 563120

Examiners

1) 12.6.2018

2) 12/6/2018

ABSTRACT:

. In mining, surface mining has become more dominant compared to underground workings. Winning of the minerals by surface mining requires large quantities of explosive for rock breaking, resultant blasting give rise to a lot of side effects on environment. These side effects are undesirable and depth of such side effects depends on the efficiency of the usage of explosive energy. The undesirable side effects associated with large blasting are:

A. Ground vibration

B. Air blast

C. Fly rocks

D. Noise or sound

Each of the above either singularly or in a combination with anyone else is sufficient to damage structures in the vicinity of the blast site and cause psychological distress to living beings in the area. The gravity of the problem increases as the mine site advance towards the dwelling like houses.

Rock fragmentation process by proper usage of explosives can be made environmental friendly, this in a large helps the companies from legal problems and could increase the profit by increasing the blast efficiency.

Keeping the above in mind, a mining engineer should design a successful blasting round from an operational point of view, so as to provide a sufficient quantity of suitably fragmented material at the lowest practical cost. It should possess adequate flexibility in its basic design to accommodate changing mining condition and it should also be relatively simple to apply and easy to regulate a few objectionable side effects as possible.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
BELAGAVI – 590018

A

Project Report

on

"INTRODUCTION OF WHEEL WASHING SYSTEM TO CONTAIN POLLUTION IN DEULEM PISSURLEM IRON ORE MINE IN NORTH GOA"

Submitted in the partial fulfillment of the requirement of the University for the Award of Degree of

Bachelor of Engineering

in

MINING ENGINEERING

By

C V SAINATH REDDY	**1GV13MI012**
ASHISH VARMA MANDAPTI	**1GV12MI007**
B PRATHEESH REDDY	**1GV12MI009**
DAIVIK R R	**1GV12MI041**

Under the Guidance of

Mr. G.H.KOTNISE.

Associate Professor., Dept. of Mining

Department of Mining Engineering

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Oorgaum Post, Kolar Gold Fields – 563120

2017-2018

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Oorgaum, Kolar Gold Fields – 563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the technical seminar entitled"**INTRODUCTION OF WHEEL WASHING SYSTEM TO CONTAIN POLLUTION IN DEULEM PISSURLEM IRON ORE MINE NORTH GOA**" is a bonafide work carried out by C.V SAINATH REDDY(1GV13MI012),ASHISH VARMA M (1GV12MI007),B PRATHEESH REDDY(1GV12MI009),DAIVIK R.R(1GV12MI041), in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of Visvesvaraya Technological University, Belagavi during the year 2017-2018.It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the Report deposited in the department library. The seminar report has been approved as it satisfies the academic requirement in respect of seminar 10MN86 prescribed for the Bachelor of Engineering degree.

11/06/2019	10/12/19	10/12/19
Signature of the Guide	**Signature of the HOD**	**Signature of the principal**
Mr.G.H.KOTNISE	Dr. K. RAMESH	**Dr.SyedAriff**
		PRINCIPAL
		Dr. T. Thimmaiah Institute of Technology
		Oorgaum, K. G. F-563120

1) Dr. Manjunath .A — 10.12.19

2) John Gladious. J — 10/12/19

ABSTRACT

A wheel washing system is a device for cleaning the tires of trucks when they are leaving a site, to control and eliminate the pollution of public roads and also helps the trucks in movement in the slurry conditions in the mines. The installation can be made in or above the ground for either temporary or permanent applications. There are two types of wheel washing systems: roller and drive through systems. A key aspect of the philosophy of wheel and tire cleaning mechanism is to use of high volume water flow at low pressure. The high volume flow of water flow serves to clean the tires and effectively remove the wash sludge slurry from the wash platform into recycling and solid collection tanks. The advantage of drive through systems is that vehicle doesn't have to stop for cleaning. As the vehicle passes through magnetic sensor or photo sensor at the entrance. There are nozzles present at an angles for spraying water, the nozzles are mounted angle iron grids which opens the tire threads and flushing the mud for a high cleaning performance. the first modern systems were introduced as the Moby Dick series at a German construction industry trade exhibition. we will test this model on a case study.

VIVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI-590018

2017-2018

A Project Report On

"CONTROL BLASTING NEAR TO SENSITIVE STRUCTURES"

SUBMITTED IN THE PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE VIII SEMESTER,
PROJECT WORK 10MN85 FOR THE AWARD OF DEGREE
OF

Bachelor of Engineering

In

MINING ENGINEERING

By

SRIRAM J	**1GV14MI038**
LOURDU PEPIN D	**1GV15MI401**
SARAVANAKUMAR M	**1GV15MI405**
SHAKTHIVEL G	**1GV15MI406**

Under the Guidance of

Mr.G.H. KOTNISE
Assistant Professor,
Dept.of Mining

Dr. A. RAJAN BABU
Principal Scientist,
NIRM, KGF

DEPARTMENT OF MINING ENGINEERING

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY, KGF-563120

Department of Mining Engineering

Dr T Thimmaiah Institute Of Technology

CERTIFICATE

Certified that the thesis entitled "**Control Blasting Near To Sensitive Structures**" carried out by Sriram J (1GV14MI038), Lourdupepin D (1GV15MI401), Saravana Kumar M (1GV15MI405), Shakthivel G (1GV15MI406) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining of Visveshvaraya Technological University, Belagavi. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library.

Signature of Internal Guide

12/6/2018

Mr. G.H.Kotnise

12/6/18

Signature of HOD

Mr. Paul Prasanna Kumar
Head of Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F.-563 120.

Signature of External Guide

16/6/18

A. Rajan Babu
Officer-In-Charge of Registered Office
Dr. Rajan Babu
Principal Scientist, Centre for Testing Services
HoD, Seismotectonics & Slope Stability Cell
NIRM, Champion Reefs, KGF - 563 117

16/6/18

Signature of Principal

Dr. Syed Ariff
PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

Name of Examiners

1. 13/6/18
2. 13/6/18

ABSTRACT

The ground vibration and fly rock is the major problems both in open pit mines and quarries and often it is causes severe damages to building and sensitive structures. The goal of efficient control blasting techniques is to maintain stability of the nearby sensitive structures and buildings. This can be quite challenging due to the many factors that influences ground vibration. To develop efficient design it is important to understand the failure mechanisms, study of local geology, strength of rock mass and as well as limitation of control blasting techniques. In addition, it is imperative, design by precisely implemented, evaluated and refined on a continuous basis. Release of energy during blasting produces reactive forces, which causes the damage to the near civil structures and sensitive structures. Control Blasting is the key technique adopted to minimize or to reduce the ground vibration and to minimize or reduce the fly rocks and to avoid damages to the sensitive structures and residences. The key parameter to obtain the excellent control blasting it requires. Selecting the type of explosive, type of detonator, drilling pattern, depth of the hole, diameter of the hole, angle of drilling, bench geometry and delay timing of detonator.

"CONTROL BLASTING NEAR TO SENSITIVE STRUCTURES"

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

BACHELOR OF ENGINEERING

in

MINING ENGINEERING

Under

VIVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI

by

SRIRAM J (1GV14MI038)

LOURDU PEPIN D (1GV15MI401)

SARAVANA KUMAR M (1GV15MI405)

SHAKTHIVEL G (1GV15MI406)

Under

The Internal Guidance of

MR.G.H.KOTNISE

Special officer

Dr. T.Thimmaiah Institute of Technology

Kolar Gold Field

563120

The External Guidance of

DR.RAJAN BABU

Principal Scientist

National Institute of Rock Mechanics

Kolar Gold Field

563120

Department of Mining Engineering

Dr T Thimmaiah Institute Of Technology

CERTIFICATE

Certified that the thesis entitled "**Control Blasting Near To Sensitive Structures"** carried out by Sriram J (1GV14MI038), Lourdupepin D (1GV15MI401), Saravana Kumar M (1GV15MI405), Shakthivel G (1GV15MI406) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining of Visveshvaraya Technological University, Belagavi. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library.

Signature of Internal Guide

Mr. G.H.Kotnise

Signature of External Guide

Dr. Rajan Babu

Signature of HOD

Mr. Paul Prasanna Kumar

Signature of Principal

Dr. Syed Ariff

Name of Examiners

1.

2.

A

Project Report

On

"OPTIMIZATION OF QUARRIES AND CRUSHER & IMPROVEMENT OF SAFETY STANDARD IN STATE OF KERALA"

Submitted in the partial fulfillment of the
Requirement for the VIII Semester, Project–10MIP85
For the award of degree of

Bachelor of Engineering

In

Mining Engineering

Visvesvaraya Technological University, Belagavi

By

1. SUDIP NANDI.
1GV14MI044

2. SURESH KUMAR.D.
1GV15MI4077

3. GK. RAJESH KUMAR
1GV15MI404

4. PRADEEP.R
1GV13MI033

Under the Guidance of

Mr.VIKRAM.P
Asst prof , Dept. of mining engg
Dr. TTIT, KGF

Prof,Ch.S.N MURTHY
PhD. Scholar, NITK Suratkal

2017–2018

Dr. T.THIMMAIAH INSTITUTE OF TECHNOLOGY.
(Formerly Golden Valley Institute of Technology)
Department of Mining Engineering
Oorgaum, Kolar Gold Fields – 563120

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)
Oorgaum, Kolar Gold Fields – 563120
DEPARTMENT OF MINING ENGINEERING.

CERTIFICATE

This is to certify that the Project work entitled

"OPTIMIMIZATION OFQUARRIES AND CRUSHER &IMPROVEMENT OF SAFETY STANDARD IN STATE OF KERELA "

Is a bonafide work carried out by

1. SUDIP NANDI
1GV14MI044

2.SURESH KUMAR D.
1GV15MI407

3. GK.RAJESH
1GV15MI404

4. PRADEEP.R
1GV13MI033

The students of 8th Semester B.E. Mining engg, under our supervision and guidance submitted in partial fulfillment of the requirements for the award of degree of Bachelor Of Engineering In Mining engineering of Visvesvaraya Technological University Belagavi, during the academic year 2017-2018

.....	.....	.....
Signature of Guide	Signature of HOD	Signature of Principal
MR VIKRAM.P	Paul prasana kumar	Dr. Syed Ariff

Name of the Examiners

1

2

Signature with date

Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. 563 120.

Principal
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

ABSTRACTS

Enhancing of safety standards & optimization of Quarries & Crusher in & around State of Kerala.

Logical thinking of improving the safety standard was main focus & the motive behind this is there are enormous number of Quarries (Aggregate Blue Metals) in & around Kerala, which are to be sub-standards towards safety & unscientific way of working, which about 2,308 quarries out it 487 of long term (life of mine is about 12 years above) are registered with the Department of Mines & Geology. But there standard of safety & working methods is sub-standard,

Which is mainly used as a building material aggregates M-Sand & GSB (Ground Sub Base). It is one of main source for construction industries, after banding of river sand from MOEF, the main logic of this project was to make the quarry owners to understand the benefits & gains.

Enhancing safety & optimization of Quarry & Crusher which finally improve the overall productivity & to reduce the cost of production per ton.

The first move to avoid the unscientific way of working method & adopt the systematic and scientific method of working.

This was initially done with an introducing few approaches by providing

1. PPE (personal protective equipment).
2. Onsite safety induction classes
3. Changes in Methodology of working
4. Benefit of scientific of working
5. Time Management & Quality Management
6. Adopt mining software in Quarries & Crushers

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

PROJECT REPORT

On

"DESIGN OF BENCH SLOPES WITH RESPECT TO THE ROCK PROPERTIES FOR A BETTER PRODUCTIVITY AND SAFETY AT GOA MINES"

A thesis submitted in partial fulfillment of the requirements for the Degree of

Bachelor of Engineering

In

MINING ENGINEERING

By

PURUSHOTHAMAN	1GV15MI403
ALLWIN SYLVESTER A	1GV13MI068
JOHN MILTON D	1GV13MI069
SUNNY GLADSON	1GV14MI040

Internal guide
Mr. John Gladious
Dept. of Mining Engineering

External guide
Dr. Kumar Sandi Reddy
Scientist, NIRM

Department of Mining Engineering
Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY
(Formerly Golden Valley Institute of Technology)
Oorgaum Post, Kolar Gold Fields – 563120

2017-2018

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Oorgaum, Kolar Gold Fields – 563 120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the thesis entitled "**DESIGN OF BENCH SLOPES WITH RESPECT TO THE ROCK PROPERTIES FOR A BETTER PRODUCTIVITY AND SAFETY AT GOA MINES**" carried out by Allwin Sylvester A(1GV13MI068), Purushothaman P (1GV15MI403), John Milton D(1GV13MI069), Sunny Gladson(1GV14MI040) in the partial fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of Visvesvaraya Technological University, Belagavi during the year 2017-2018. The thesis has been approved as it satisfies the academic requirement in respect of Project 10MN85 prescribed for the Bachelor of Engineering Degree. It is certified that all corrections/suggestions indicated assessment have been incorporated in the report deposited in the department library.

13/6/18

.....

Signature of the HOD
Mr. Paul Prasanna Kumar
Head of the Department
Dept. of Mining Engineering
Dr. T. Thimmaiah Institute of Technology,
Oorgaum, K.G.F. - 563 120.

.....

Signature of the internal Guide

13/6/18

.....

PRINCIPAL
Dr. T. Thimmaiah Institute of Technology
Oorgaum, K.G.F. - 563 120.

Signature of the principal
Dr. SyedAriff

13/06/18

.....

Signature of the external

Names of the Examiners :

1. 13/6/18
2. 13/6/18

ABSTRACT

Slope stability involves the analysis, weather a slope of soil is safe or not, and how to possibly enhance the stability of the slope. Slopes either occur naturally or are engineered by humans. Slope stability problems have been faced throughout history when men and women or nature has disrupted the delicate balance of natural soil slopes. An understanding of geology, hydrology, and soil properties is central to applying slope stability principles property. Analysis must be based upon the model that accurately represents site subsurface conditions, ground behavior, and applied loads. Slope stability analysis forms an integral part of the opencast mining operations during the life cycle of the project. In Indian mining conditions, slope design guidelines were not yet formulated for different types of mining practices and there is a growing need to develop such guidelines for maintaining safety and productivity. Till date, most of the design methods are purely based on field experience, rules of thumb followed by sound engineering judgment.

The issues concerned with slope stability in the open cast mines have come to forefront in the mining operations due to increasing pit depth. The cut slope stability has the most prominent influence in the productivity and longevity of a mine, collapse of which can lead enormous damages to man and machinery. It is always considered as economic burden to mine production. A comprehensive study is necessitated to ensure stable slopes which are aided by numerical, analytical, physical, kinematic and empirical analyses. During the last four decades, the concepts of slope stability analysis have emerged within the domain of rock engineering to address the problems of design and stability of excavated slopes.

In most applications, the primary purpose of slope stability analysis is to contribute to the safe and economic design of the excavations, embankments, earth dams, landfills, and spoil heaps. Slope stability evaluations are concerned with identifying critical geology, material, environment, and economic parameters that will affect the project, as well as the understanding of the nature, magnitude, and frequency of potential slope problems. Slope failures occur when the downward movement of the material due to gravity and shear stresses exceeds the shear strength. Therefore, factors that tend to increase the shear strength or decrease the shear strength increase the chances of failure of a slope.