

Visvesvaraya Technological University

Belgaum, Karnataka-560 018

2020-2021



PROJECT PHASE- 2 REPORT

(17MNP85)

On

“SEQUENCE OF BACKFILLING AND MONITORING THE SLOPE”

Presented

By

ARAVIND L (1GV17MI009)

RAJESH M (1GV17MI010)

REVANTH API K A (1GV17MI017)

SAKTHIVEL D (1GV17MI019)

Bachelor of Engineering

In

Mining Engineering

Under the Guidance of

Mr. JOHN GLADIOUS

Associate Professor,

Department of Mining Engineering,

Dr. TTIT



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY,

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

Kolar Gold Fields – 563120.




(Formerly Golden Valley Institute of Technology)

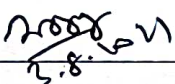
Oorgaum Kolar Gold Fields -563 120

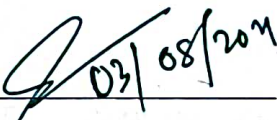
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

It is certified that the Project work entitled "**SEQUENCE OF BACKFILLING AND MONITORING THE SLOPE**" is a bonafied work carried out by Aravind L (USN-1GV17MI009), Rajesh M (USN-1GV17MI010), Revanth Api K A (USN-1GV17MI017) and Sakthivel D (USN-1GV17MI019) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belgaum during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of Project Phase-II (17MNP85) prescribed for the Bachelor of Engineering Degree.


Signature of Guide
Mr. JOHN GLADIOUS


Signature of HOD
Dr. MANAS MUKHOPADHYAY


Signature of Principal
Dr. SYED ARIFF

ABSTRACT

The most influencing factors that contribute to the enhanced slope stability are: cohesion and angle of internal friction. By using cohesion and angle of friction of the soil, the sequence in which the refilling has to be take place in order to maintain the stability is determined

Slope stability is the major issues associated with the overburden dumps in the opencast mining scenario. Statistical data reveals that more than half of the accidents occurring in the opencast working are due to the failure of the slope and reason behind this is the improper design of the benches and insufficient works on finding the geo- technical parameters. The management of risks associated with slope instability is an essential process in the safe and economic operation of open cut mines. The 'slope stability radar' (SSR) has been developed to better manage those risks. The SSR remotely scans rock slopes to continuously measure any surface movement and can be used to detect and alert users of wall movements with sub-millimetre precision.

This project work exhibits the extensive study of the factors contributing to the slope stability, various stabilization techniques for slope stability, laboratory-oriented works regarding finding the geo-technical parameters of the overburden. Slope stability monitoring and evaluating play vital role in the risk management of open cast mines. Generally, Issue of slope failure occurs at open cast mines due to undisciplined mining, impacts of weather conditions. Slope stability radar provide slope stability warning impending failure and also it has used for setting out threshold value.

Visvesvaraya Technological University
Belagavi, Karnataka-590 018
2020-2021



PROJECT PHASE – II REPORT
(15MNP85)
On

“ROCK-DRILL BIT INTERACTION STUDIES”

PRESENTED

By

ARAVINTH M	(1GV16MI004)
DINESH R	(1GV16MI011)
RANJITH M	(1GV16MI021)
VASANTHA KUMAR M	(1GV16MI034)

Under the Guidance of
Mr. VIJAYA RAGHAVAN,
Associate professor,
Department of Mining,
Dr. TTIT, KGF.



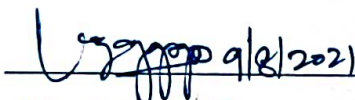
Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY
(Formerly Golden Valley Institute of Technology)
Department of Mining Engineering,
Kolar Gold Fields – 563 120.



(Formerly Golden Valley Institute of Technology)
Oorgaum Kolar Gold Fields - 563 120
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the Project work entitled **"ROCK-DRILL BIT INTERACTION STUDIES"** is a bonafide work carried out by ARAVINTH M (IGV16MI004), DINESH R (IGV16MI011), RANJITH M (IGV16MI021), VASANTHA KUMAR M (IGV16MI034) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The Project has been approved as it satisfies the academic requirement in respect of Project Phase-II 15MNP85 prescribed for the Bachelor of Engineering degree.

 9/8/2021

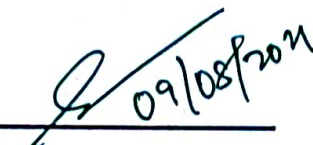
Signature of Guide

Mr. VIJAYA RAGHAVAN

 9/8/2021

Signature of HOD

Dr. MANAS MUKHOPADHYAY

 09/08/2021

Signature of Principal

Dr. SYED ARIFF

ABSTRACT

To study the rock-drill interaction and also study the wear rate of the drill bits. In this project we are going to study the complete wear rate of the drill bits (i.e. button bits). The field visit will be carried out in hard rock metal mines. In most of the metal mines, the button bits are commonly used and these bits are used for getting high production of the mines. The life of the bit basically depends on the total meter age drilled will be studied in details. These studies will be carried out in different type of rock conditions. Rock sample will be collected from the mines, to study the petrological and mineralogical characteristics and to study its influence on the drill bit wear rate. The main objective of the project is to determine the rate of wear for different button bits and evaluation of drilling performance and suggest suitable measures to achieve their rated production.

Visvesvaraya Technological University

Belagavi, Karnataka-590 018

2020-2021



Project Phase-II (17MNP85)

Report on

**“DEVELOPMENT OF REAL TIME MONITORING SYSTEM TO DETECT
DUST POLLUTION IN OPEN CAST MINES”**

Submitted in partial fulfillment of the requirement for the VIII semester Project
work for the award of the degree of

Bachelor of Engineering

in

Mining Engineering

By

ARUN KUMAR B.K

1GV17MI004

GUNTAMADUGU CHANDU

1GV17MI007

GANESH D

1GV18MI401

SHIVANANDA

1GV18MI405

Under the Guidance of

Dr. MANJUNATH A

Associate professor,

Department of Mining Engineering,

DR TTIT, KGF



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

Kolar Gold Fields 563120



(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields-563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the **Project work** entitled "*Development of Real time Monitoring system to Detect Dust Pollution in Open cast Mines*" is a bonafide work carried out by **Arun Kumar B.K (1GV17MI004), Guntamadugu Chandu (1GV17MI007), Ganesh D (1GV18MI401), Shivananda (1GV18MI405)** in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year **2020-2021**. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental 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.

Signature of Guide

Dr. MANJUNATH A.

Signature of HOD

Dr. MANAS
MUKHOPADHYAY

Signature of Principal

Dr. SYED ARIFF

Name of the Examiner

- 1)
- 2)

Signature with date

- 1)
- 2)

ABSTRACT

Air quality in the mining sector is a serious environmental concern and associated with many health issues. Air quality management in mining regions has been facing many challenges due to lack of understanding of atmospheric factors and physical removal mechanisms. A modeling approach called the Real time monitoring of Dust pollution is developed to predict dust particulate concentration in the mining region. Opencast mining dominates major portion in India . Different sensors detected data were utilized to compute dust generation due to different mining activities. Work zone air quality, ambient air quality and seasonal variations are described revealing high pollution potential due to suspended particulate matter and consequent impact on human health. So for this a continuous air monitoring is required for environmental protection and geological mining it is required for the mineral mining plant to protect its surroundings from the effects of mining operations.

Visvesvaraya Technological University
Belgaum, Karnataka-560 018



**“ASSESSMENT OF STABILITY OF PANEL IN AN
UNDERGROUND COAL MINE USING NUMERICAL
MODELLING”**

PROJECT PHASE-2 REPORT

(17MNP78)

Submitted by

AURANGAZIB A	(1GV17MI005)
SHIVA P N	(1GV17MI015)
PRAVEEN KUMAR Y	(1GV17MI016)
NAVINPRASATH G S	(1GV15MI024)

in partial fulfilment of the requirement for the award of the degree of

Bachelor of Engineering in

Mining Engineering

Under the Guidance of

Mr RAJA S.

Associate Professor



Dr T. THIMMAIAH INSTITUTE OF TECHNOLOGY,
Kolar Gold Fields – 563120
Department of Mining Engineering
2020-21

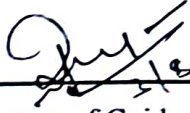


Oorgaum Kolar Gold Field

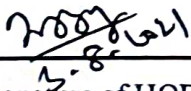
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

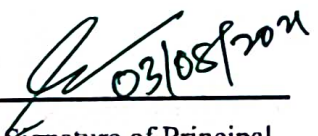
It is certified that the Project work entitled ***"ASSESSMENT OF STABILITY OF PANEL IN AN UNDERGROUND COAL MINE USING NUMERICAL MODELLING"*** is a bonafide work carried out by AURANGAZIB A (USN-1GV17MI005), SHIVA P N (USN-1GV17MI015), PRAVEEN KUMAR Y (USN-1GV17MI016) and NAVINPRASATH G S (USN-1GV15MI024) in the fulfilment for the award of the degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belgaum during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of Project Phase-2-17MNP85 prescribed for the Bachelor of Engineering Degree.


Signature of Guide

Mr. RAJA S.


Signature of HOD

Dr. MANAS MUKHOPADHYAY


Signature of Principal

Dr. SYED ARIFF

ABSTRACT

The success rate of underground coal mining at a greater depth of coverage depends on the safe and risk-free mining environment. The stability of a panel is an uncontrollable event in deep-seated underground mining. Hence, the evaluation of the stability of a panel of an underground coal mine helps to reduce risk and improve the safety of the workplace. To estimate the panel stability of an underground mine, the numerical modelling technique is a promising tool for conducting a parametric study to understand the behaviour of the working place for distinctive mining conditions. The physic-mechanical properties like depth of the seam, rock mass rating, Young's modulus of the coal seam, floor and roof plays a major role in the stability of a panel in an underground mine. Hence, a comprehensive study to assess the panel stability of a bord and pillar mining method is done to understand the behaviour of the rock mass for increasing safety and ensuring the production for varying geo-mining conditions of underground coal deposits by using numerical modelling.

Keywords:

Panel Stability, Numerical Modelling, Underground Coal Mining, Local Mine Stiffness, Strain Energy

Visvesvaraya Technological University
Belagavi, Karnataka-590 018
2020-2021



Project Phase-II Report
(17MNP85)

On

**"IoT BASED WATER LEVEL MONITORING SYSTEM IN
BOREHOLE – NEYVELI LIGNITE CORPORATION INDIA
LIMITED"**

Presented

By

SATHYANARAYANAN M	1GV15MI067
SUBA RAJGURU	1GV16MI030
CHARAN P M	1GV17MI006
SHEIKSULAIMANSATE A	1GV17MI020

Bachelor of Engineering

In

Mining Engineering

Under the Guidance of

Mr. PAUL PRASANNA KUMAR S

Associate Professor,

Department of Mining,

Dr. TTIT.




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



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

CERTIFICATE

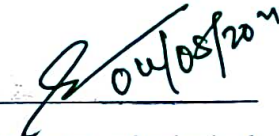
Certified that the Project work entitled “IoT Based Water Level Monitoring System in Borehole- Neyveli Lignite Corporation India Limited” is a bonafide work carried out by Sathyanarayanan M (1GV15MI067), Suba Rajguru (1GV16MI030), Charan P M (1GV17MI006), Sheiksulaimansate A (1GV17MI020) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of Project Phase-II (17MNP85) prescribed for the Bachelor of Engineering Degree.


04/08/2021

Signature of Guide
Mr. PAUL PRASANNA KUMAR


4-8-2021

Signature of HOD
Dr. MANAS MUKHOPADHYAY


04/08/2021

Signature of Principal
Dr. SYED ARIFF

ABSTRACT

The monitoring and management of the Neyveli hydrogeological basin is essential for the region's long term lignite development. Due to water in the artesian aquifers beneath the lignite seam exerting an upward pressure, mining of lignite from the Neyveli lignite field has a hydrological difficulty, which is controlled by pumping at an optimal level. To overcome this issue, NLCIL uses a dipmeter to measure the water level in the borehole on a daily basis. This research looks at an IoT based real time water level monitoring system. To demonstrate this, sensors were installed on top of the borehole to detect the water level and compare it to the depth of the borehole. AVR arduino microcontroller, LCD screen, Wi-Fi adaptor for data transmission, and buzzer are all used in the system. The LCD panel is utilised to show the status of the liquid levels in the containers exceeding their maximum capacity. The buzzer begins to ring, and the user's phone's alarm also begins to ring.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

JNANASANGAMA, BELAGAVI-590018

2020-2021



Project phase-II report

on

"ROCK AND SLOPE FAILURE IN OPENCAST MINES"

Submitted in partial fulfilment of the requirements for the award of degree

BACHELOR OF ENGINEERING

IN

MINING ENGINEERING

BY

HEMASUNDAR (1GV16MI014)

SHANTHKUMAR (1GV16MI027)

MADHAN B S (1GV16MI040)

MURALIDHAR M R (1GV16MI039)

Under the guidance of

Mr. VIKRAM.P.

Assistant Professor

Department of mining engineering Dr.TTIT KGF



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

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

Certified that the project work of phase-II entitled "ROCK AND SLOPE FAILURE IN OPENCAST MINES" carried out by Mr. /Ms HEMASUNDAR (1GV16MI014), SHANTHKUMAR (1GV16MI027), MADHAN B S (1GV16MI040), MURALIDHAR M R (1GV16MI039) a bonafied students of VIII semester Mining Engineering in partial fulfilment for the award of Bachelor of Engineering in Dr. T. Thimmaiah institute of technology of Visvesvaraiah Technological University, Belagavi during the year of 2020-2021. It is certified that all correction/suggestion indicated for Internal Assessment been incorporated in the report. The project report has been approved as it satisfied the academic requirements in respect of project work phase-II prescribed for the side degree.

Signature of Project guide

Mr. VIKRAM P

Signature of HOD

Dr. MANAS MUKHOPADYAY

HOD
DEPARTMENT OF
MINING ENGINEERING
Dr. T. THIMMAIAH INSTITUTE
OF TECHNOLOGY
OORGAUM, KGF- 563 120

Signature of Principal

Dr. SYED ARIEF

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

Name of Examiners

- 1.
- 2.
- 3.

Signature with date

ABSTRACT

Slopes either occur naturally or engineered by humans for mining or excavations, embankments, earth dams, landfills, etc. The formation of Benches in an opencast mine is basic to the mining operation and these benches are made at a certain angle called "Slope". Any imbalance of these slopes may cause failure which is always a serious concern both for men and machineries. The slope stability has the most prominent influence in the productivity and longevity of a mine collapse of which can lead to enormous damages to men and machineries. The main objectives of slope stability are analysis of finding endangered areas, investigation of potential failure mechanism. The various types of failures which occurs are plane, wedge, toppling, rock fall, and rotational (circular/non-circular). The sample has to be taken from Devapur Limestone mines, atleast 25 kgs of samples has to be taken from the bench slope which represents the entire bench. These samples has to be tested in Dr.T.Thimmaiah institute of technology laboratory. The samples result can help to protect the slope and ensure safety for better productivity. The slope may fail in different modes depending on the rock structures and the loading environment. The types of slope failure are primarily controlled by material properties, water content and foundation strength. Hence, an understanding of geology, hydrology, and soil properties are central for applying slope stability principles, groundwater, and surface water.

Visvesvaraya Technological University

Belgaum, Karnataka-560 018

2020-2021



**PROJECT PHASE-II REPORT
(17MNP85)**

on

**“SOIL AND WATER QUALITY MONITORING IN
OPENCAST MINES”**

Presented

By

JOHNSON LOURDU XAVIER A 1GV17MI001

MADHALAI TITUS A 1GV17MI002

THENTAMILAN A 1GV17MI003

CHENNAKESAVAN K 1GV17MI008

Bachelor of Engineering

In

Mining Engineering

Under the Guidance of

Mr. JOHN GLADIOUS

Associate Professor,

Department of Mining,

Dr. TTIT.



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY,

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering


Kolar Gold Fields – 563120



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


CERTIFICATE

Certified that the Project work entitled "SOIL AND WATER QUALITY MONITORING IN OPENCAST MINES" is a bonafied work carried out by Johnson Lourdu Xavier A (USN-1GV17MI001), Madhalai Titus A (USN-1GV17MI002), Thentamilan A (USN-1GV17MI003) and Chennakesavan K (USN-1GV17MI008) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagaum during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of Project Phase-II (17MNP85) prescribed for the Bachelor of Engineering Degree.



10/8/21

Signature of Guide
Mr. JOHN GLADIOUS



10/8/21

Signature of HOD
Dr. MANAS MUKHOPADHYAY



10/08/2021

Signature of Principal
Dr. SYED ARIFF

Name of the Examiner Signature with date

1)

1)

2)

2)

ABSTRACT

The opencast mining deteriorates the environment in numerous ways. One of the aspects of environment, it harms the most to the Soil and Water. Thus, estimation of quality of Soil and Water is extremely important for proper assessment of the associated hazards. Due to lack of proper planning and negligence of regulations, an appreciable amount of environmental degradation and ecological damage to Soil and Water occurs.

The soil samples are collected from the mines. To analyse the parameters like pH, organic carbon, soil nitrogen, calcium, magnesium, potassium and sulphur of soil.

The water samples are collected from the mines. To analyse various physical, chemical, metallic and organic parameters were found which included determination of turbidity, conductivity, solids, iron, chromium content, pH, hardness, ammonia, nitrate, sulphate, phenol, fluoride, phosphate and organic parameters of importance such as Dissolved oxygen, Bio-chemical Oxygen Demand and Chemical Oxygen Demand.

For control the soil and water pollution it is suggested that appropriate steps must be taken by the industry, State Pollution Control Board and the Government to prevent pollution of soil and water. Implementation of preventive measures proposed can be helpful to a great extent.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020 -2021



Project Phase-2 Report

On

“ ROCK FRAGMENTATION ANALYSIS USING WIPFRAG ”

Submitted in the partial fulfillment of the requirement
for the VIII Semester Project for the award of degree of
Bachelor of Engineering

In

Mining Engineering

By

MANOJ SEEMAN S	1GV17MI011
PARASHU RAMU PRASAD K	1GV17MI014
SHREEPATH R C	1GV17MI021
NISHATH FATIMA	1GV17MI032

Carried at

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Dr. Manas Mukhopadhyay

Professor, Department of Mining Engineering, Dr.TTIT., K.G.F.



Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

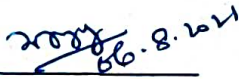
Kolar Gold Fields – 563120.




Oorgaum, Kolar Gold Field
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE


It is certified that the Project work entitled “**ROCK FRAGMENTATION ANALYSIS USING WIPFRAG**” is a bonafied work carried out by **Manoj Seeman S (1GV17MI011)**, **Parashu Ramu Prasad K (1GV17MI014)**, **Shreepath R.C (1GV17MN021)** and **Nishath Fatima (1GV17MI032)** in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of **Project Phase - 2 - 17MNP85** prescribed for the Bachelor of Engineering Degree.


Signature of Guide

Dr. MANAS MUKHOPAHDYAY


Signature of HOD

Dr. MANAS MUKHOPAHYAY


Signature of Principal

Dr. SYED ARIFF

ABSTRACT

Size of rock fragments subsequent to blasting has direct impact on cost of transportation and processing. The cost increases with the increasing size of the fragments. This necessitates quick and accurate measurements of size distribution of fragmented rocks to decide further course of action for optimizing the cost of entire operation. There are many such measurement methods available and used by industry/researchers but most of the methods are time consuming and not precise. In such scenario WipFrag came as an automated image based granulometry system that uses digital image analysis of rock photographs and video tape images to determine grain size distributions. In this project, images of rock pile samples will be captured at different angles using camera and analysis of cumulative size distribution and optimum rock fragmentation will be carried out using WipFrag.

Key words: *Rock fragmentation, blasting, size distribution, WipFrag, image analysis*

Visvesvaraya Technological University

Belagavi, Karnataka-590 018

2020-2021



Project Report

On

**“ASSISMENT OF RESPIRABLE DUST PARTICLES AND ITS COUNTER
MEASURES FOR MINE AIR QUALITY””**

Submitted in partial fulfillment of the requirement for the VIII semester Project work for
the award of the degree of

Bachelor of Engineering

In

Mining Engineering

By

P BALACHANDAR

1GV15MI008

D VINOD KUMAR

1GV15MI009

N NETHAJI

1GV15MI026

V PHILIPH RICHARDS

1GV18MI030

Under the Guidance of

MR. PAUL PRASANNA KUMAR

Associate Professor

Department Of Mining Engineering

DR.TTIT, KGF



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

Kolar Gold Fields 563120



(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields-563120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the Project work entitled "*Assessment Of Respirable Dust Particles And It's Counter Measures For Mine Air Quality*" is a bonafide work carried out by P Balachandar (1GV15MI008), Vinod Kumar D (1GV15MI009), N Nethaji (1GV15MI026), V Philip Richaards (1GV15MI030) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental 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.


16/8/2021

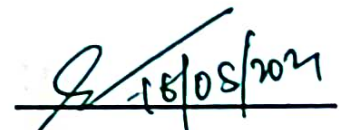
Signature of Guide

Mr. PAUL PRASANNA
KUMAR


16-8-2021

Signature of HOD

Dr. MANAS
MUKHOPADYAY


16/08/2021

Signature of Principal

Dr. SYED ARIFF

Name of the Examiner

Signature with date

1)

1)

2)

2)

ABSTRACT

Dust pollution is the most important environmental issue associated with any opencast mining activity. Drilling, blasting, loading, transportation, crushing, conveying, haul road and the exposed overburden face generate large quantities of fugitive dust. Silica is a potential carcinogen and its exposure to the workers may be detrimental to their health which may result in progress of silicosis and lung cancer. Prediction of dust concentration in and around the mine is essential to have an impact assessment of the mining activity over the surrounding environment.

Visvesvaraya Technological University

Belgaum, Karnataka-560 018

2020-2021



PROJECT REPORT

on

“NOISE SURVEY IN OPEN CAST MINES”

Present

ed by

RAHUL P (1GV14MI030)

NEETHIMAN M (1GV15MI025)

VENKATESH P (1GV15MI060)

Bachelor of Engineering

in

Mining Engineering

Under the Guidance of

Mr. VIKRAM P

Assistant Professor

Department of Mining Engineering

Dr. TTIT



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY,

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering
Kolar Gold Fields - 563120



(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields -563 120

DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

It is certified that the **Project work** entitled “*NOISE SURVEY IN OPEN CAST MINES*” is a bonafied work carried out by **RAHUL P (USN- 1GV14MI030), NEETHIMAN M (USN-1GV15MI025), and VENKATESH P (USN-1GV15MI060)** in the fulfillment for the award of degree of Bachelor of Engineering in **Mining Engineering** of the **Visvesvaraya Technological University, Belgaum during the year 2020-2021**. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of **Project Phase-II (15MNP85)** prescribed for the Bachelor of Engineering Degree.

Signature of Guide

Mr VIKRAM P

Signature of HOD

Dr MANAS MUKHOPADHYAY

HOD

**DEPARTMENT OF
MINING ENGINEERING
Dr. T. THIMMAIAH INSTITUTE
OF TECHNOLOGY
OORGAUM, KGF- 563 120**

Signature of Principal

Dr SYED ARIFF

Oorgaum, K. G. F- 563120

Name of the Examiner

1)

2)

Signature with date

ABSTRACT

Obtaining a suitable work environment for the labourer's is fundamental for attaining higher processing and benefit in both surface and underground mines. Noisy working conditions have negative consequences for the labourer's resolve and badly affect their wellbeing and execution. To survey the status of noise (noisy) levels in mines, various reports on noise reviews are required to be directed utilizing suitable statutory rules so viable control measures might be taken in mines. Keeping this in view, this project work was embraced to do noise review in open cast coal mines of Neyveli.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI - 590018

2020 – 2021



A Project Final- Report

on

**PRECISION JUMBO DRILLING USING ULTRASONIC
SENSORS WITH WIRELESS DISPLAY SYSTEM**

Submitted in the partial fulfillment of the requirement
for the VIII Semester Project for the award of degree of
Bachelor of Engineering

in

Mining engineering

By

1.SHRISHAIL RAMAPPA KADIWAL

1GV17MI022

2.PAVAN REDDY

1GV18MI404

3.SURESH KULLUR

1GV18MI406

4.VINAY SELVANATHAN

1GV18MI407

Carried at

Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

Under the Guidance of

Dr. VIJAYA RAGHAVAN

Associate Professor, Department of Mining Engineering, Dr. TTIT., K.G.F.



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

Kolar Gold Fields – 563120




(Formerly Golden Valley Institute of Technology)

Oorgaum Kolar Gold Fields-563120

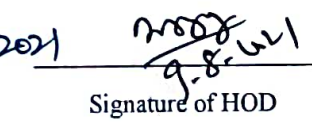
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

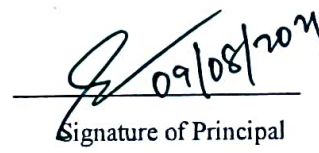
Certified that the Project work entitled "*PRECISION JUMBO DRILLING USING ULTRASONIC SEENSORS WITH WIRELESS DISPLAY SYSTEM*" is a bonafide work carried out by Shrishail Ramappa kadiwal (1GV17MI022), Pavan Reddy RV (1GV18MI404), Suresh Kullur (1GV18MI406), Vinay Selvanathan (1GV18MI407) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental 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.

 9/8/2021

Signature of Guide
Dr. VIJAYARAGHAVAN

 9-8-2021

Signature of HOD
Dr. MANAS MUKHOPADYAY

 09/08/2021

Signature of Principal
Dr. SYED ARIFF

Name of the Examiner

1)

2)

Signature with date

1)

2

ABSTRACT

Jumbo drilling is a major task where accuracy often fails since large drillings requires minute accuracy, here is an attempt to develop a prototype drilling machine. Drilling assembly shall be mounted on a chasse with four wheels and drive. This vehicle is completely wirelessly controlled by using Wi-Fi technology. Drilling angles are set through wireless controller and drilling depth will be continuously monitored and data will be displayed through an LCD. Sensor will be used to monitor the drilling depth and drill hole angle during drilling with Hc-sr04 ultrasonic sensor and angle sensor.

Visvesvaraya Technological University

Belagavi, Karnataka – 590 018

2020-2021



Project Report

on

**“Remote Monitoring System For Mine Safety Using Wireless
Sensor Network”**

A PROJECT PHASE-2 REPORT

(18MNP85)

Bachelor of Engineering

In

Mining Engineering

by

SRINIVAS K

1GV17MI024

VINITH KUMAR P V

1GV17MI029

KRISHNARAJ S

1GV18MI402

NAGARAJ NAYAK

1GV18MI403

Under the Guidance of

Mr. MAHENDRAN J

Assistant Professor,

Department of Mining Engineering,

Dr. TTIT, KGF



DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

Kolar Gold Fields – 563120

2020-2021

Dr.T.THIMMAIAH INSTITUTE OF TECHNOLOGY



(Formerly Golden Valley Institute of Technology)
Oorgaum, Kolar Gold Field - 563120
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the Project work entitled "Remote Monitoring System For Mine Safety Using Wireless Sensor Network" is a bonafiede work carried out by SRINIVAS K (1GV17MI024), VINITH KUMAR P V (1GV17MI029), KRISHNARAJ S (1GV18MI402) NAGARAJ NAYAK (1GV18MI403) in the fulfilment for the award of degree of bachelor of engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved has it satisfies the academic requirement in respect of Project Phase-2 (18MNP85) prescribed for the Bachelor of Engineering Degree.

Signature of the Guide
Mr. MAHENDRAN J

Signature of HOD
Dr. MANAS MUKHOPADHYAY

Signature of Principal
Dr. SYED ARIFF

ABSTRACT

Today safety of miners is major challenge. Miner's health and life vulnerable to several critical issues, which includes not only the working environment, but also the after effect of it. Mining activities release harmful and toxic gasses in turn exposing the associated workers into the dangers of survival. This puts a lot of pressure on mining industry. To increase the productivity and reduce the cost of mining along with consideration of the safety of workers, an innovative approach is required. Miner's health in danger mainly because of the toxic gases which are very often released in underground mines. These gases in critical regions and their effects on miners. A real time monitoring system using wireless sensor network, which includes multiple sensors, is developed. This system monitors surroundings environmental parameters such as temperature, humidity and multiple toxic gases this system also provides an early warning, which will be helpful all miners present inside mine to save their life before any casualty occurs. The system uses Zigbee technology to establish wireless sensor network. which is suitable for operation in harsh environment.

Visvesvaraya Technological University

Belagavi, Karnataka-590 018

2020-2021



Project Phase-II Report

(17MNP85)

On

“ILLUMINATION SURVEY IN OPENCAST MINES ”

Presented

By

ARUN .E

1GV18MI400

SURIYA .A

1GV15MI073

VENU .K.G

1GV17MI028

WILLIAM .K

1GV16MI037

Bachelor of Engineering

In

Mining Engineering

Under the Guidance of

Mr. VIKRAM .P

Assistant Professor,

Department of Mining,

Dr. TTIT.



Dr. T. THIMMAIAH INSTITUTE OF TECHNOLOGY

(Formerly Golden Valley Institute of Technology)

Department of Mining Engineering

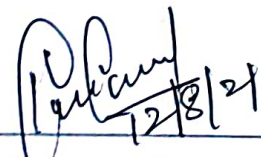
Kolar Gold Fields – 563120

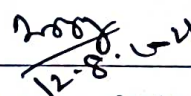



(Formerly Golden Valley Institute of Technology)
Oorgaum, Kolar Gold Field – 563120
DEPARTMENT OF MINING ENGINEERING

CERTIFICATE

Certified that the Project work entitled “**Illumination survey in opencast mines**” is a bonafide work carried out by Arun.E (1GV15MI400), Suriya. A (1GV15MI073), Venu. K.G (1GV17MI028), William. K (1GV17MI037) in the fulfillment for the award of degree of Bachelor of Engineering in Mining Engineering of the Visvesvaraya Technological University, Belagavi during the year 2020-2021. It is certified that all corrections/suggestions indicated for the assessment have been incorporated in the report deposited in the departmental library. The project has been approved as it satisfies the academic requirement in respect of Project Phase-II (17MNP85) prescribed for the Bachelor of Engineering Degree.


Signature of Guide
Mr. VIKRAM .P


Signature of HOD
Dr. MANAS MUKHOPADHYAY


Signature of Principal
Dr. SYED ARIFF

ABSTRACT

The primary objective of the project was to develop a systematic scientific approach for achieving better illumination standards in the mine and ensuring safe visual working environment in the selected opencast mines with regard towards the statutory standards. The research investigation was carried out with the aim to conduct illumination survey to check if the standards were met with respect to Directorate General of Mines Safety (DGMS) standards at different places of work in the mine and of different HEMMs followed by design of appropriate illumination systems based on illumination requirements. The illumination survey of existing lighting system in various working areas i.e., haul road, coal transport road, dump yard, OB and coal faces, dump road, workshops. The instrument used for the survey was a Metravi-1332 Light meter. . The illumination models were designed for haul road, coal transport road and dump road using DIALux software and virtual luminaries were used according to the requirement. The illumination models were designed for haul road, coal transport road and dump road using DIALux software and virtual luminaries were used according to the requirement. The road lighting designs were performed as per CIE EN 13201 standard, which is used internationally for road lighting. The design models satisfied the required minimum lighting as stated by DGMS standards. For OB and coal faces it is better to install a mobile lighting arrangement (tower mounted/truck mounted) as the face moves rapidly and the peripheral lighting provided won't be able to illuminate the face as the face advances.