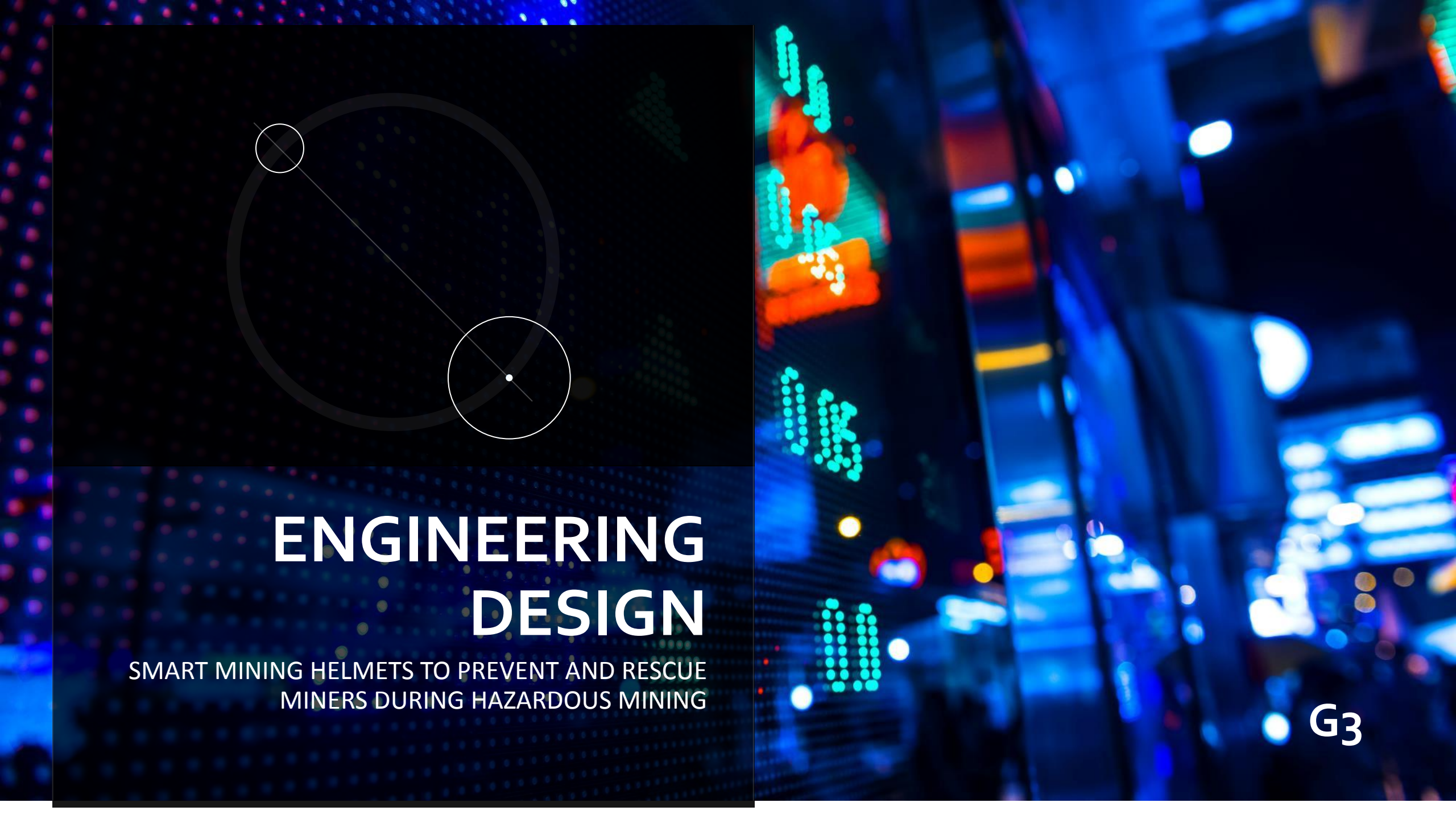
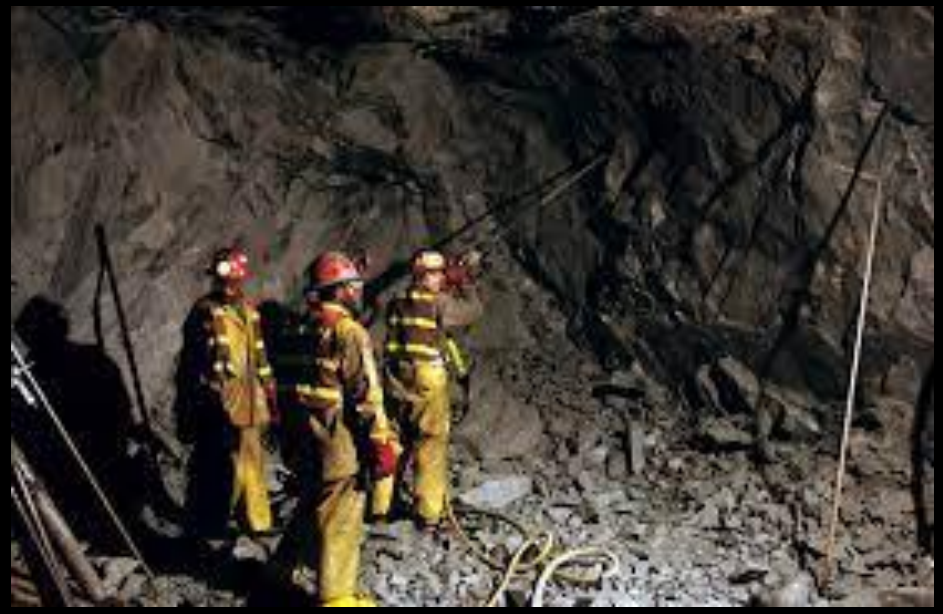


ENGINEERING DESIGN

SMART MINING HELMETS TO PREVENT AND RESCUE MINERS DURING HAZARDOUS MINING

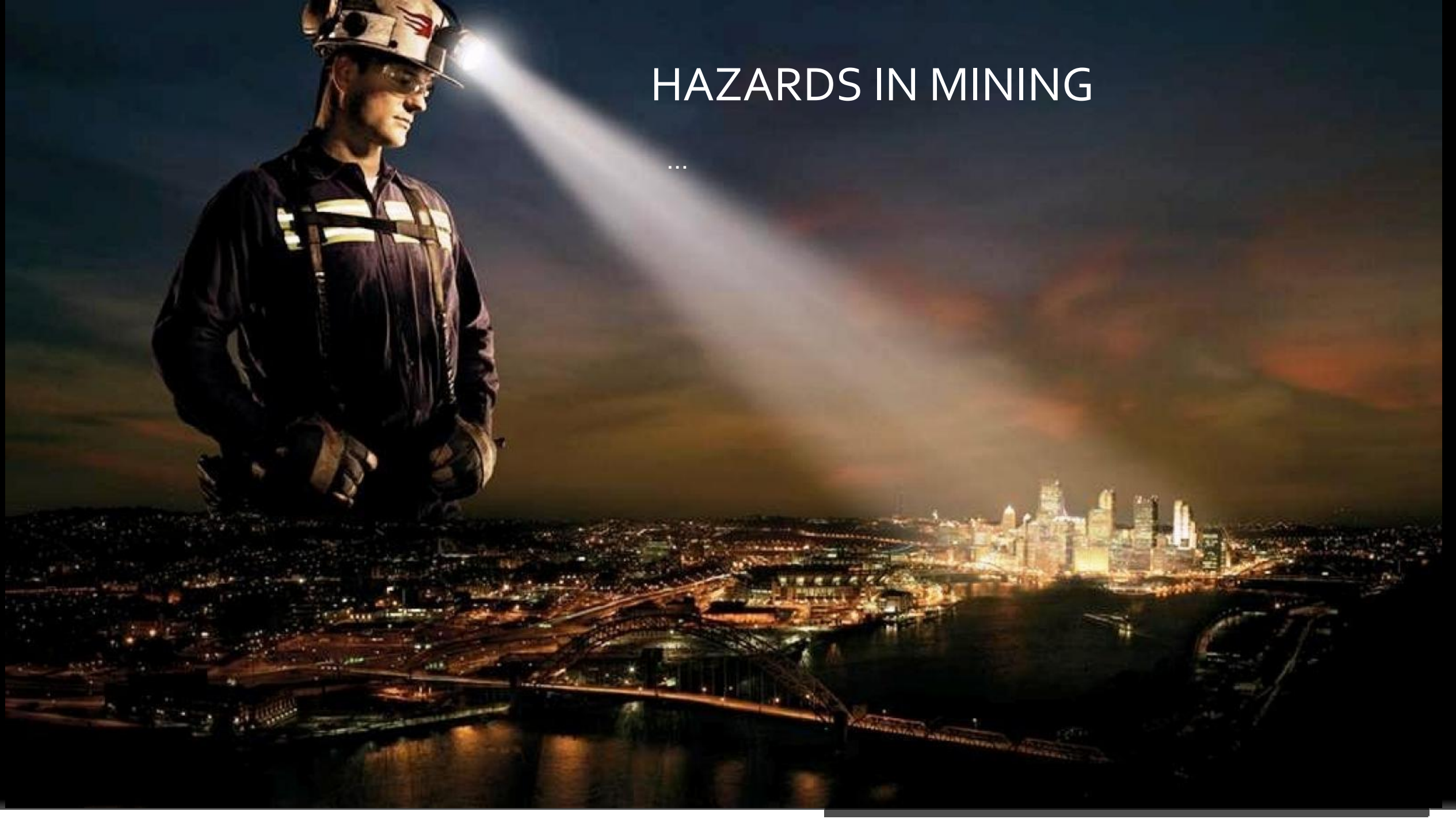
G3



Working in mines is very dangerous. Workers are exposed to toxic gases, high temperatures and thousands of other potential hazards at any moment. Smart helmet is one of the systems that prevents damage to mine workers. The purpose of this system is to protect the health of miners and prevent explosions in mines. There are 7 types of gas in mines, two of which (hydrogen and methane) cause blasts in mines

PROBLEM STATEMENT

MINING HAT OPTIMISSATION FOR HAZARDOUS CLIMATES IN MINES AND TOXIC ATMOSPHERE AND MONITOR THE HEATH OF MINERS



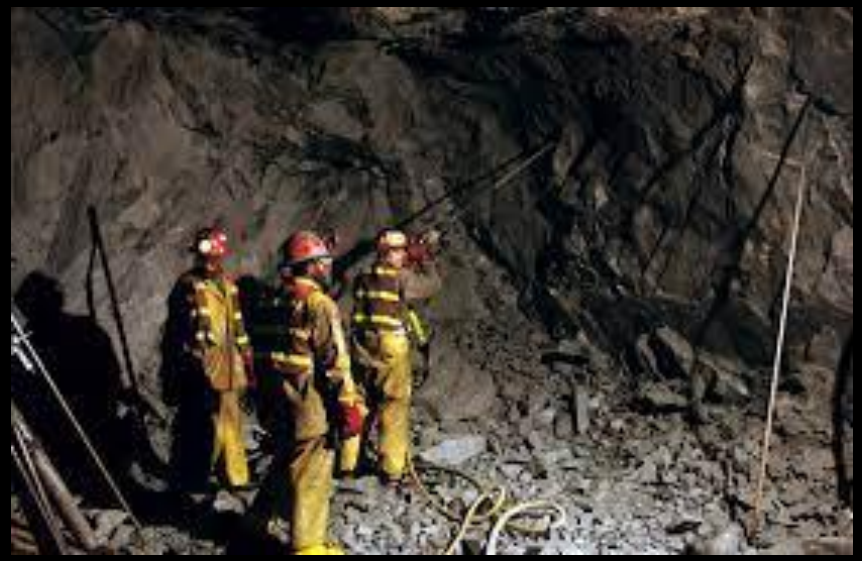
HAZARDS IN MINING

...

Advantages

OLDER VERSIONS

- ....



OPTIMISED NEWER IDEATION

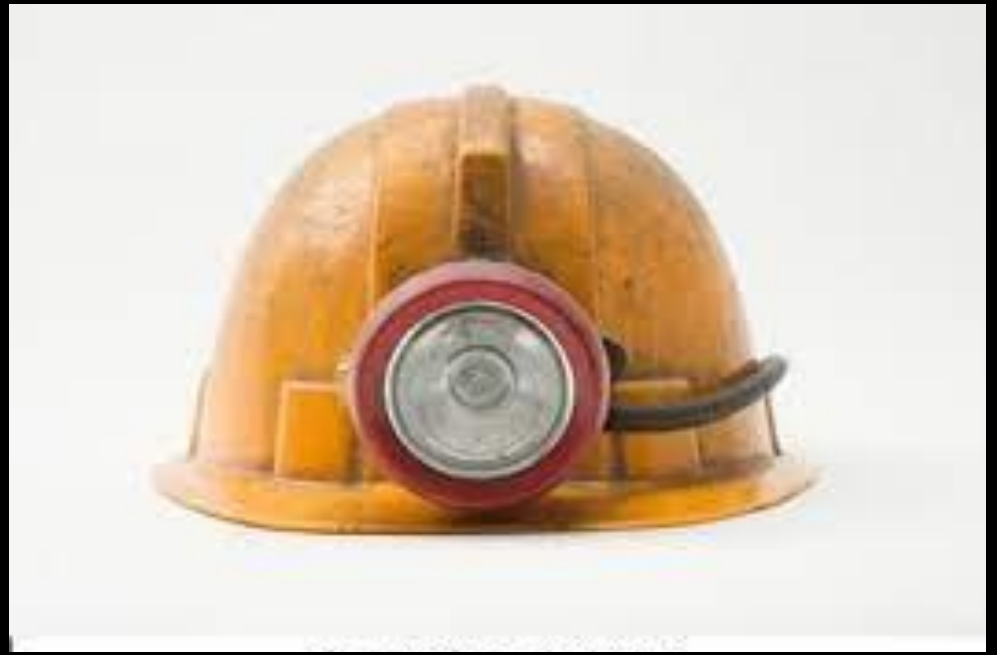
- ....

CURRENT MINING HAT USAGES

- light weighted and with a equipped flashlight as usual. The top peak will be mounted by a GPS to find the location of the miners in the heavily dense caves and mines and to find the ones in need of medical support.

- Planning to have sensors to detect the pulse and the oxygen level of the miner
  - In case of medical emergency or lowering of O_2 in the environment, the GPS will send a signal to the command center to take immediate medical attention.

- The filter will be equipped in front of the hat, needless to wear externally.
- Made of colloid coagulating components like charcoal to reduce the in toxicity of the air intake



PROPOSED MECHANISM

FUNCTIONALITY OF THE MINING HELMET

FEATURES PLANNED TO INCLUDE

- Heath monitor
- Air purity level detector
- GPS
- Intoxicity filters

PLANNED WORK FLOW

BASE IDEOLOGY AND CONSTRUCTION

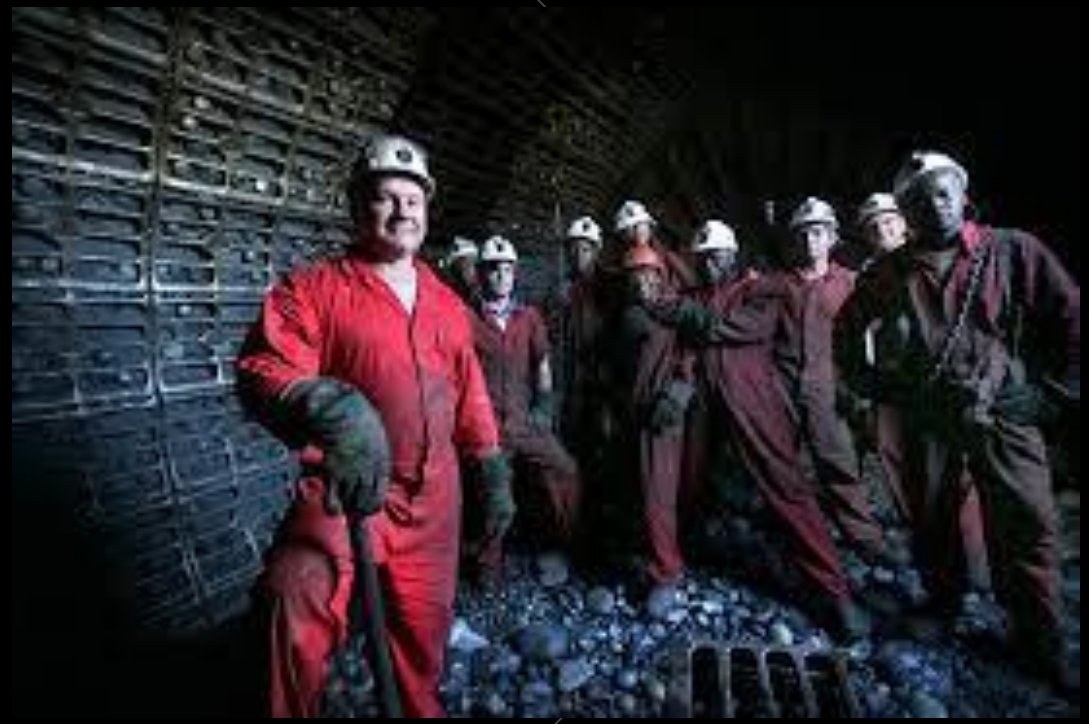
The project will begin by establishment of a proper structure of the mining hat and will proceed modifying the basis of the shape.

Simulations

- The two components – Electrical and Mechanical will be constructed on online platforms like Tinkercad or solid works.
- These components will then tested out separately to ensure successful run

Final Model

- Combining the simulatons, a final model of the proposed design can be made implementing additional features like GPS and a light sensor for efficient mining.



THANK YOU