



## Introduction

God sleeps in the minerals, walks in mines and thinks in man.

Arthur Young

The spirit of excavation is buried deeply in how well man can use the minerals that mother earth has to offer. Effective transportation of minerals forms the crux of all evolution relating to present day mining activities.

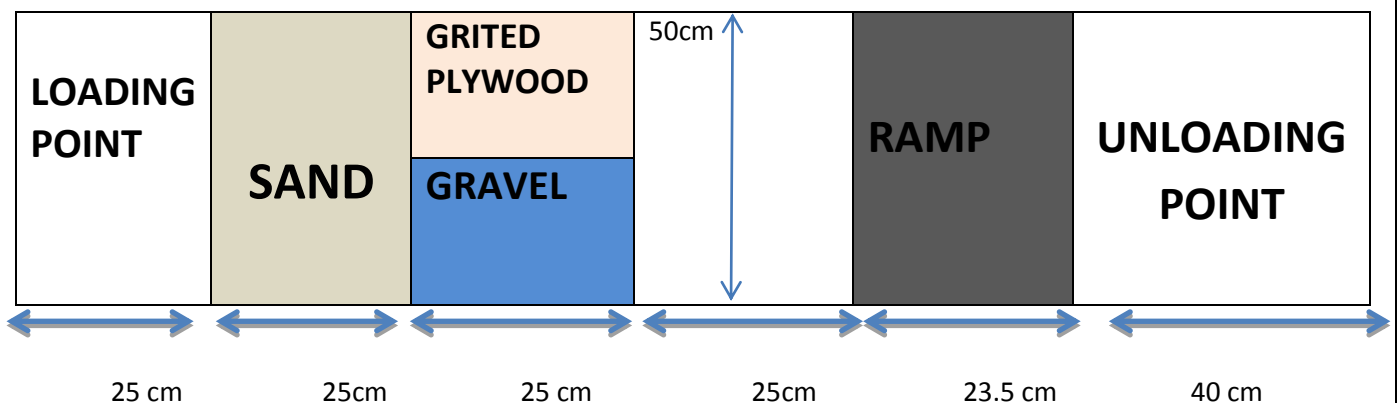
The game is all about how efficiently and effectively you design a device that can transport minerals over gradient.

## Problem Statement

Design a manual robot that can traverse through sand, gravel, grated ply and a gradient and carry minerals simultaneously. The robot has to unload the minerals at the end of the track. The robot can come back to the filling station as many times as possible within given time. The points you score depends upon the mass of minerals you transport within given time.

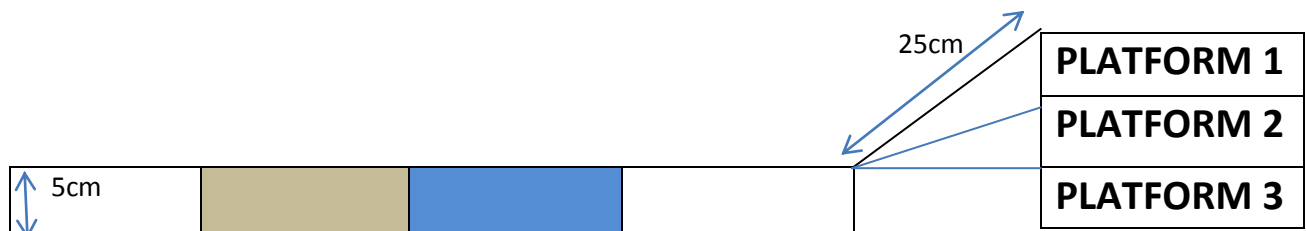
## Arena

Here is the arena on which you will be playing





## SIDE VIEW



Inclination of the ramp to the platform no 1 will be 20 degree and the inclination of the ramp to the platform no 2 will be 10 degree and it will have 0 degree inclination when comes to platform no 3

### Robot specification

The robot should conform to a maximum height of **15cm**, **width of 20 cm** and **length 22cm** Before commencement of the event however the robot can extend its dimensions once it Starts working.

### Rules and Regulation

- The material will be loaded from the loading station. Time will be stopped during this period. The amount of material that can be loaded is not restricted. You can load as much as your robot can bear.
- First, the robot has to go through the sand and then has to choose between gritted plywood and gravel. After that there is some free way to speed up the robot for the coming inclination.
- There will be three different inclinations of the ramp for three different rounds .The robot has to negotiate the ramp with the material and then reach the platform.
- After it has reached the edge of the platform it has to retract the material and it will be collected in a bucket placed after the platform. Points are awarded as per the amount of material deposited.



- The robot will then move down the ramp and pass through either gravel or gritted plywood whichever one it didn't choose when it was going upward.
- At the loading point the time will again be stopped until the robot is loaded. You can complete this loop as many times as you want in a given 2 minute period.
- After completion of the two minutes that round will be over and the angle of ramp will be decreased for the next round. So, for the first 2 minutes the robot moves on platform no 1, for the next 2 minutes, on platform no 2 and then for the last 2 minutes, on platform no 3.
- If at the completion of the two minutes your robot is on the ramp then it will have to be moved down the ramp to the freeway. If your robot is on the platform, it will be stopped and then placed on the lower platform at the same distance from the ramp as it was on the upper platform.

- If you find that a particular round or the inclination is not negotiable then you can ask us to skip that round and go to the next round by which you can save your time and precious points because the time you spend on the arena plays a major role in the score you get.
- Points will be awarded on the basis of the formula

$$\text{Total point scored} = 360 - T + M * k \quad (\text{in a single round})$$

Where

**T** is the total time spent by the robot on the track.

**M** is the mass in grams of material delivered

**k** is a factor which will be informed you in due course.

- You will get two sets of three rounds to play which means you will get 12 minutes to transport material and score points and prove that **YOU ARE THE BEST!!!** .