

## SEVEN STONES

### Event Description:

“There is always one moment in childhood when the door opens and lets the future in.”

-GRAHAM GREENE, *The Power and the Glory*

Well here's your chance to travel back to your childhood days and play the game of “7 Stones”, but with a twist. Seven Stones is a traditional game that finds its roots in India and is touted as one of the most complex children's game. It is a game played between two teams in a bounded area involving a ball and a pile of flat stones. A member of one team (ATTACKERS) throws a soft ball at a pile of stones to knock them over. Now, the members of the other team, the STACKERS try to restore the pile of stones while the opposing team, the “Attackers”, try to stop them by throwing a ball at them. If the ball touches any one of the “Stackers”, he is no longer a part of the game and his team continues without him.

But the twist lies in the fact that this game is to be played between robots and not humans. Why should humans have all the fun after all?

### Event Format:

1. All the registered teams will be divided into two groups - Group A and Group B.
2. In the preliminary round, each team will play against every other team in their respective group. Top two teams from each group will proceed to the semi-finals.
3. In the semi-finals, the 1st position of Group A will play against the 2nd position holder of Group B; and 2nd position holder of Group A will play against the 1st position holder of Group B. Winners of the semi-finals proceed to the finals.

- Each Game is one to one match involving a “Team Red” and a “Team Blue”.
- Each team has a Stack bot and an Attack bot.
- The arena is divided into two zones -one for each team.
- Each zone is further divided into two sub zones– a “Stacking Zone” and a “Shooting Zone”.
- In the centre of the arena, there is a ramp which leads to a platform on which there is a structure containing red and blue coloured balls. A trigger in the form of a button has to be activated to release the balls onto the arena floor.

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- Each stack zone has 7 cubes each of different size. The largest box has a provision to place balls.
- The stack zone has a circle in which the boxes have to be piled up.
- The attack zone has a predefined loading spot where shooting balls will be loaded manually.
- Each game is divided into two segments – “Autonomous Period” and “Manual Period”

Autonomous Period:

(Time Duration: 30 seconds)

- Only the attack bot is activated and it is supposed to be programmed to perform the following tasks-
  - It must start from its initial position climb up the ramp towards the structure having the coloured balls.
  - On reaching the structure, it should activate the Trigger to release the balls onto the arena floor.
  - Then it should climb down the ramp and head back to the arena floor.
  - If none of the attack bots are able to release the coloured balls onto the arena floor, it will be done by the event managers manually at the end of the Autonomous Period.
- There will be 30 seconds of transition time for
  - Releasing the coloured balls manually
  - Placing the attack bots on the arena floor at the respective start positions.

Manual Period:

(Total Time Duration: 8 minutes)

Initial 5 minutes is the Stack Period and rest 3 minutes is the Attack Period.)

- During the stack period, the stack bot is expected to do the following tasks-
  - It should place the balls in the larger box.( 30 points per ball)
  - Keeping the largest box as the base, it should stack the remaining six boxes on top of each other.(Dimensions of the circle in the stacking zone is 70cm)
- During the attack period-
  - The attack bot has to load the shooting balls from the loading area.
  - The attack bot has to shoot and disturb the piled up boxes of the opponent team.
  - Also, the stack bot can still try stacking the box.
  - The points are evaluated as given below:

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- 10 points for the base box and ten more points are cumulated for every additional box stacked further.
- For example, 10 points for the base, 20 points for the second box, 30 points for the third box. So the total on staking three boxes would add up to 60.

- The box dimensions are given in this format ( Length x Breadth x Height) cm

1. Base Box (20x20x10)cm

This box contains an opening of diameter 10cm so that balls can be placed inside this box

2. Other Boxes are of the following dimensions 15x15x8

12x12x8

10x10x6

8x8x6

6x6x6

6x6x6

