

# Manual Robot : Planet Exploration Competition

## Objective

Students are encouraged to design flexible gripper to explore the planet but not a mining tool. Robots have to pick up stones (ping pong) and deliver them to a designated storing area. They should pick the 'useful' stones (orange ping pong) and avoid the 'harmful' stones (white ping pong).

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## Game Field Specification

- This game uses a universal playing field. Approximately 200 number each orange and white ping pongs are used as stones.
- The area of playing field is 2440mm × 1220mm with 50mm tall fencing surrounding the four sides.
- A base tank for storing stones (ping pongs) is located at both ends of the universal playing field, the size of the base tank is 300mm long x 300mm wide x 50 mm tall.



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## Robot Dimensions

- The robot, with its arm contracted, cannot exceed 300mm long, 200mm wide and 240mm tall (length, width and height dimensions are not inter-changeable) nor overall weighs more than 1.5kg.
- The robot may employ up to five sets of gear boxes. It must move in walking mode. There is no limit on the number of stones for each pick as long as gripper or hand-folding action is used. 'Shoveling' or 'sweeping' actions are not allowed.
- The robot is controlled by wired manual controller supplied by not more than six pieces 1.5V AA size batteries.

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## Game Rules

- Each robot is controlled by one member.
- The robot attempts to pick as many stones (ping pong) as possible within the 2 minutes game time. Different color stones score different points. The team has the stones in the base tank with the highest accumulated point is the winner. The stones (white and orange color ping pongs) on the body of the robot will not be scored. If the points are same, the team with more orange color stones wins.
- The points scored by different color stones are as follows:

Color	Points
White	-50
Orange	+10

- A robot may not damage or obstruct other competing robots. The judge would serve warning to the offending player. The player would be disqualified after two warnings and asked to leave the playing field immediately.
- During the competition, a robot may receive repair off the field. After repair, the judge then places it back to where it left and continues the game. No extra time would be given to the robot.