ROBOTICS CLUB (SNTC)

Robotics Club's **Vision**

Story

The city was abuzz with excitement as the annual competition was about to begin. People from all over the town had gathered to witness the spectacle. The competition was simple yet challenging - a bot had to collect one color ball each from different types of balls scattered around the arena, and then shoot the ball into a specific poll beside a person statue.

The bot, named Bolt, was ready to take on the challenge. Its owner, a young engineer named Alex, had worked hard to prepare Bolt for this moment. As the competition began, Bolt darted around the arena, scanning and collecting different colored balls with lightning speed.

ARENA

The arena environment is a rectangular space, 20 meters long and 10 meters wide, enclosed by a fence that is 2 meters high. Inside the arena there is a car parked in the middle and statues are on the left and right side of the car. The car is yellow. 4 meters long and 2 meters wide with its engine turned off. The statue is of different color, 3 meters tall and 1 meter wide, depicting a human figure.
There is a poll on one side of Rectangle, it’s measurement is 5 meters tall.

Game Play

1. The player begins by driving the car from the starting point and pick up the ball.
2. Once the car has picked the ball, the player must then turn the car towards the shooting statue.
3. They must shoot the statue of the specific color that was designated at the beginning of the game.
4. The game can be played with a time limit and with a set number of attempts, depending on the level.
5. To increase the level, the player can be required to shoot statues of the specific color with specific color of ball ,which it has to pick up from the surface

Problem Statement 1

The arena consists of 1 ball and 1 humanoid.
The humanoid and the ball are at an angle of 135 degress with each other.
The player is required to grip the ball and move towards the humanoid and then shoot it.
The player must use precise movements to complete the task within a given time frame.
The challenge lies in balancing the speed and accuracy of the movements while and anticipating the movements of the humanoid.

Problem Statement 2

This task involves multiple balls as well as multiple humanoids.
A player is required to pick up a ball of a specific colour, move to the designated poll, and maintain their position inside the white circle of the poll. They must then shoot the ball towards a humanoid target of the **same colour**. The challenge is to complete this task within a specified time limit and with the highest possible accuracy. The player has to complete the stage without hitting any obstacles and the player is able to maintain control of the car. The player must also avoid hitting other balls in the pool or moving out of the white circle, as this will result in a penalty.

Judging Criteria

PS1

Time starts when the player begins driving the car and ends with the player shoots the designated statue.

- Stage 1:Successfull pickup the ball - 50 points.
- Stage 2: Successfull hit on humanoid - 100 points.

Max point on PS1 : 100 + 50 =150 points

PS2

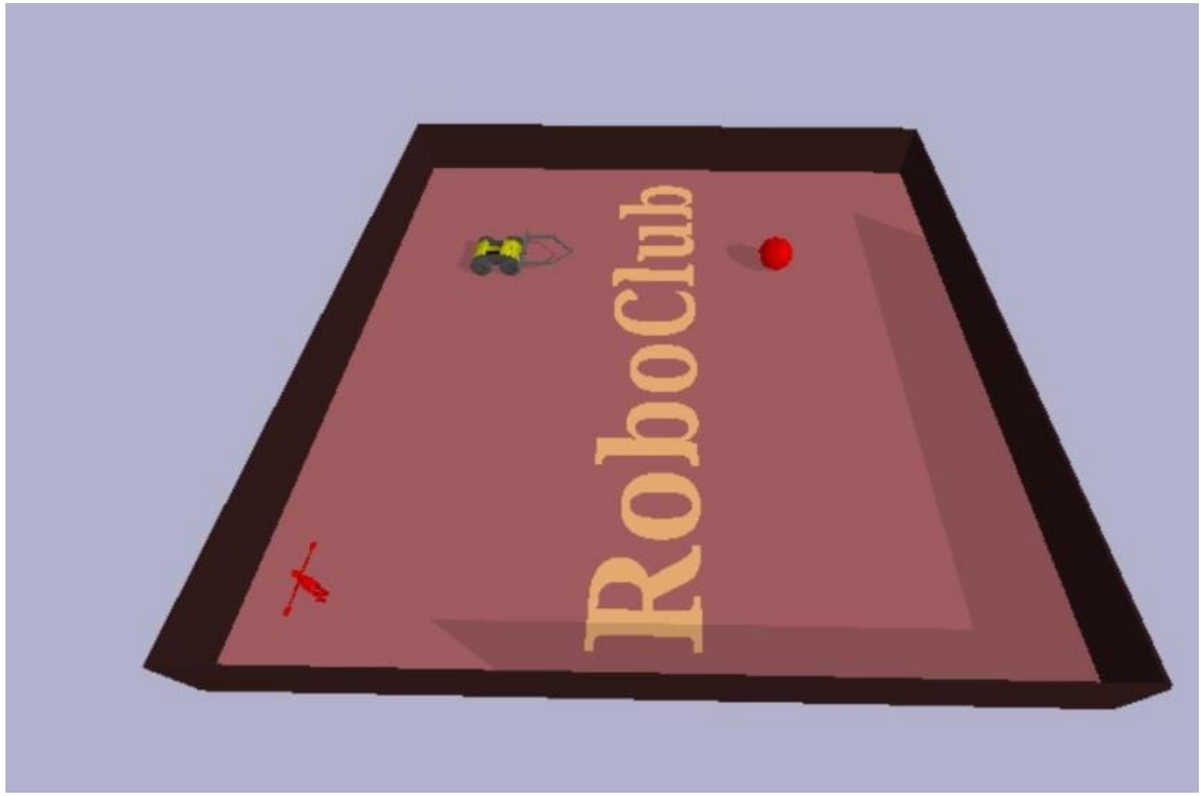
Time starts when the player begins driving the car.

- Stage 1 : Successfull pickup of the ball :- 50 points.
- Stage 2 : Successfull reaching within the white area of the pole with the car containing the ball within the grippers :- 30 points .
- Stage 3 : Successfull hit of the humanoid of the same color as of the ball :- 50 points.
- **Bonus points** : The player who successfully completes the game in the shortest time gets 100 points and then the Second player gets 90 points and so on (with next each team deduction of 10 points).

NOTE :- While moving the car from one location to another if the car or the ball somehow touches the humanoid and it falls down then that humanoid will not be considered again and no points will be alloted for that humanoid although you can use that ball for stage 1 and stage 2 .

Max point on PS2 : 50*(4)+30*(4)+50*(4)+Bonus points

***Final points will be awarded after summing the points of both the tasks.**



Arena 1

Arena 2