Assignment 2

Meet Maratha

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1 Problem Statement

The environment consists of 3 e-puck robots, out of which 2 are moving obstacles that move in a straight line. Other than them, there are 4 cylindrical obstacles in the environment and a start and goal position for the 3rd robot.

2 Method

The e-puck robot which needs to reach the goal uses the bug 0 algorithm for its movement. When it encounters an obstacle it encircles it in the left direction till it finds a line of sight to the goal. The other e-puck robots act as an obstacle for the above-mentioned robot. They move in a straight line with two points, which are chosen as the goal for them iteratively. These robots have a region of 0.5m around them where entering it is considered a collision. The size 0.5m is used after scaling a 2m radius to a smaller scale for visualization.

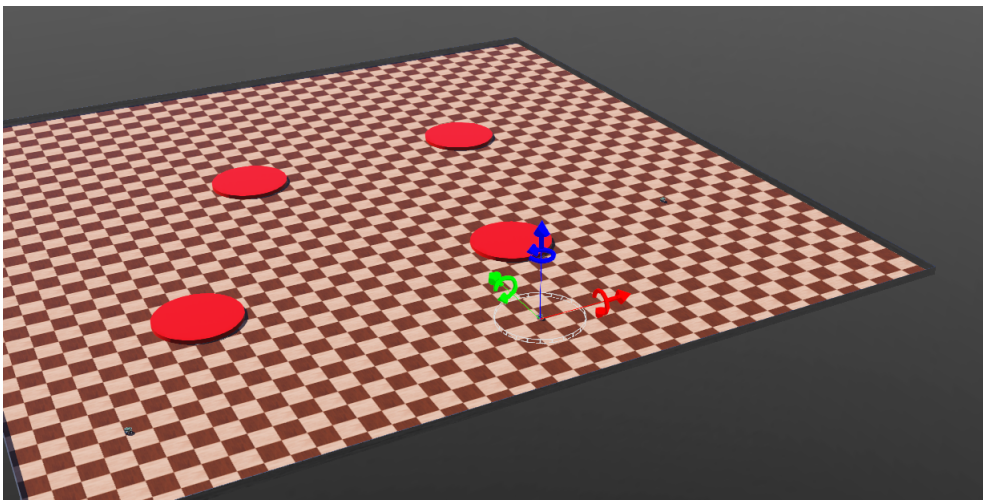

Figure 1: Webots Environment

3 Conclusion

The robot reached the goal location successfully. The method can further be improved using a gradient field for path planning where a static gradient field is generated using 4 stationary obstacles and generating a gradient field for moving obstacles in each iteration and planning the next move based on it.