

Primary Goal:

The proposal is to build a robot arm 'BlockBot' whose task is to intercept and block the incoming objects (ball) from crossing/entering/hitting a certain demarcated area or object of interest. It is synonymous to a goalkeeper in hockey and football or imitation of a block by a defender in basketball. The scenario planned is like that of a goalie such that we have a single robot arm, a standard panda arm equipped with a flat paddle to its last joint, instead of a gripper. A demarcated region behind the arm which the robot should prevent the ball from entering. The throw of a ball is initiated using a robot arm on the opposite side of the goal. The ball is thrown towards the goal by the robot arm from random positions (points) taken by it. The trajectories are planned to have just enough accuracy towards the goal.

The perception pipeline is skipped for the task implementation such that the current ball position is directly queried through the API available in the current simulation environment for trajectory planning and ball intercept position calculations.

Applications:

This concept can be used for crowd pulling, fun and entertainment activities. Also, it can be used for football, hockey or basketball practise and training. With a ring or cup shaped attachment it can also be extended for playing throw and catch.