**Obstacle Management**

For obstacle avoidance, our robot uses a combination of HuskyLens AI Camera and IR distance sensors. The HuskyLens is configured in color recognition mode to identify specific color blocks (such as red and blue cubes), while IR sensors assist in detecting nearby obstacles.

**Strategy and algorithm:**

* The robot detects colored objects using HuskyLens and calculates their position relative to the robot’s heading.
* Based on the object’s horizontal position (x-axis), the robot adjusts its steering to keep the object on the designated side (left or right).
* Proportional control is used to adjust the steering angle smoothly based on the error (distance between the object’s current position and the desired position).
* If no object is detected, the robot relies on IR sensors to follow walls and avoid collisions.

**Code logic:**

The algorithm includes:

* Object detection loop to track the nearest object continuously.
* Steering control that dynamically adjusts based on the object’s offset from the center.
* Obstacle bypass routine that ensures the robot keeps a safe distance from static obstacles using IR sensors.