

Fig. 14 Obstacle Avoidance Dilemma

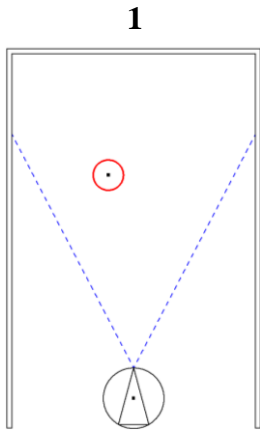


Fig. 14.1: Robot moves forward, detects more optic flow on the left because textured obstacle is closer than the back wall and left of center line.

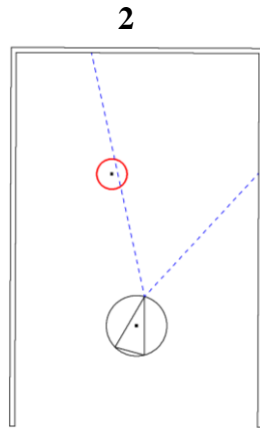


Fig. 14.2: Robot turns 15° right, away from the obstacle. Obstacle at edge of field of view and more optic flow on left side.

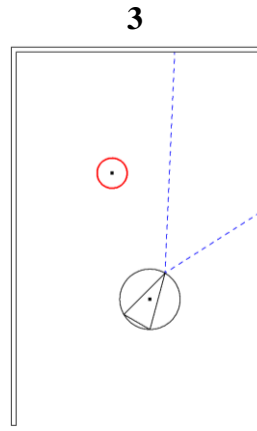


Fig. 14.3: Robot continues to turn away from obstacle until out of field of view.

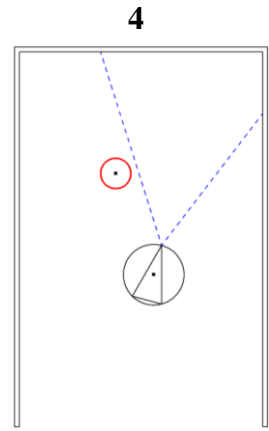


Fig. 14.3: Robot detects optic flow only on right side from the textured wall so it turns left 15°, back towards the obstacle.

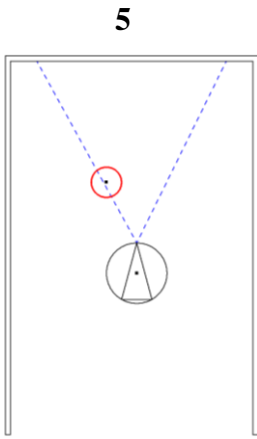


Fig. 14.5: Obstacle appears in field of view, possibly as rightward motion. Another possible theory is that the particles on the back wall may appear as noise and may cause more optic flow to be detected on the right side.

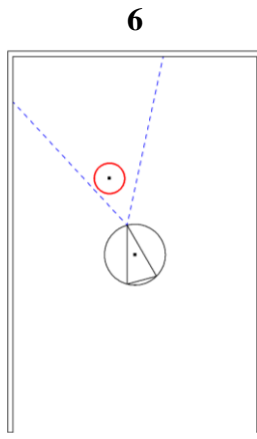


Fig. 14.6: Robot turns another 15° left towards the obstacle. Obstacle takes up most of the camera's field of view.

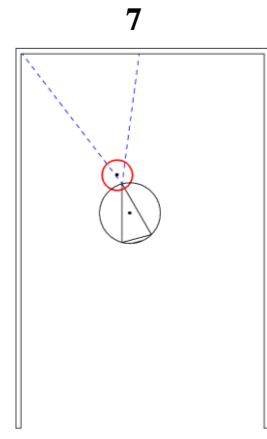


Fig. 14.7: Robot directly facing the textured cylinder detects symmetrical optic flow so continues going straight until it collides into obstacle.

Note: Robot is represented by the circle with the inscribed isosceles triangle. Cylindrical textured obstacle is represented by the red circle. Field of view is represented by the blue dotted line coming from the vertex of the isosceles triangle.