

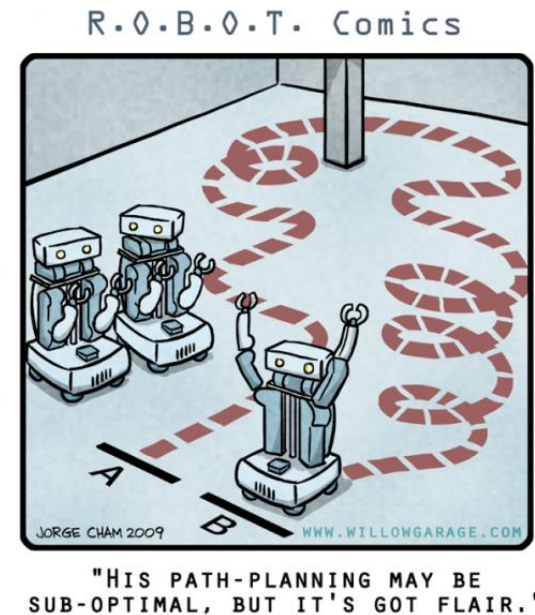
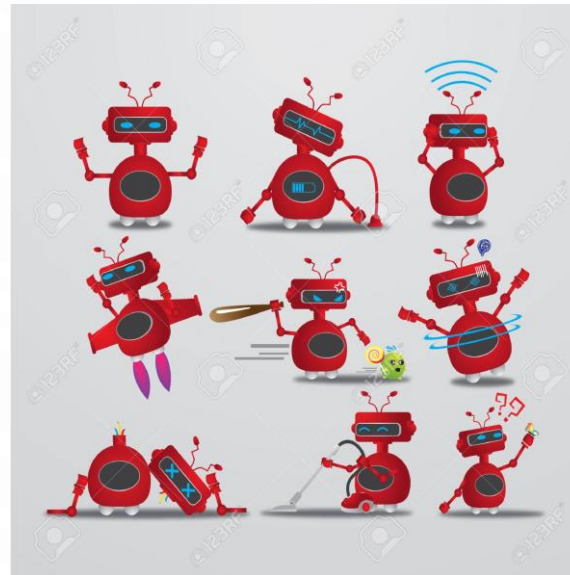


ROBOTICS PLANNING



PLANNING

- **Planning** in robotics refers to the algorithms a robot employs to determine its next course of action
 - Control flow (e.g., selections) give us the primitive operations for a robot to make a decision



EXAMPLE: DETERMINING IF A ROBOT HITS SOMETHING

- Assume our robot has a "bump" sensor that can detect whether it hits something, i.e., it returns 0 if it is not activated and 1 if it is activated
- Then the following algorithm might be employed:

```
if bump == 0:  
    robot.forward()  
else if bump == 1:  
    robot.stop()
```

How can we mimic this with a GoPiGo?

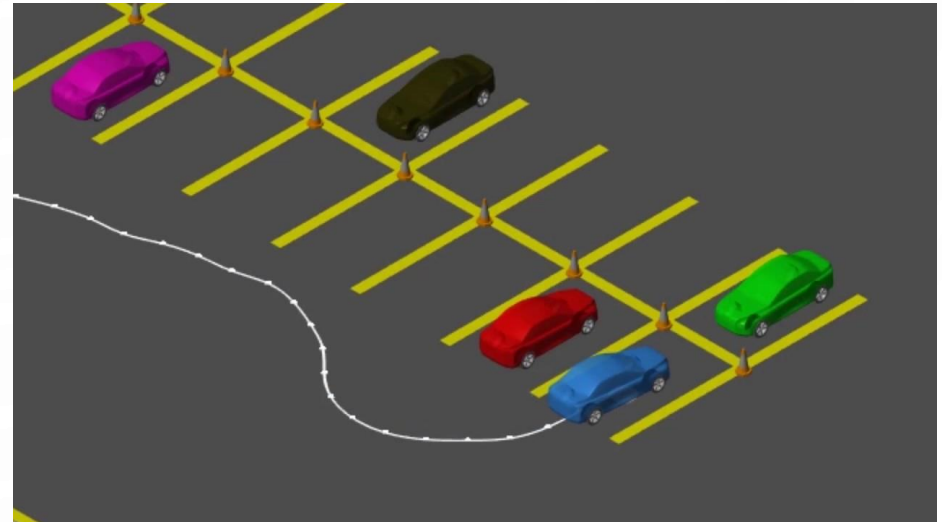


EXERCISE

- Write a program to make a decision about whether a GoPiGo was "hit"
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PLANNING

- There are many planning algorithms out there, and selections only let us make very primitive decisions
 - Any idea on what we are missing?



EXERCISE

- Write a program that detects and avoids light
 - If the light is too bright, have the robot turn around
 - If the light is too dark, have the robot move forward by 1 meter and then detect light again
 - If the light is too bright, turn around and go forward 0.5 meters
 - Otherwise stay put