Object Avoidance in Autonomous Mobile Robotics

Mike Ounsworth

Cisc 491
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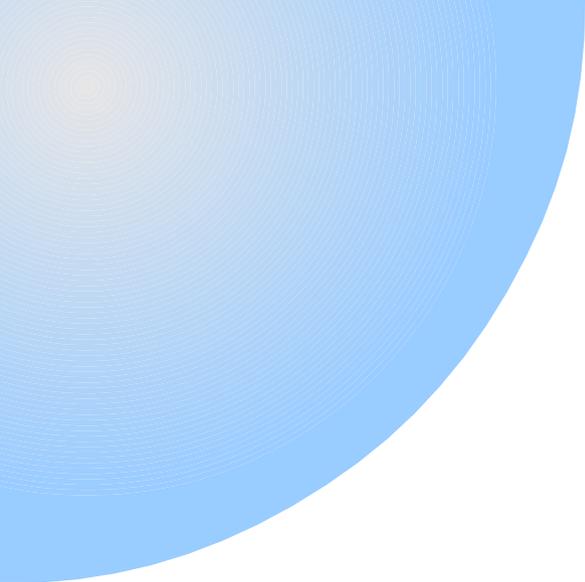
Def'n: Autonomous:

No external input at runtime

(human with joystick, offboard sensors, etc).
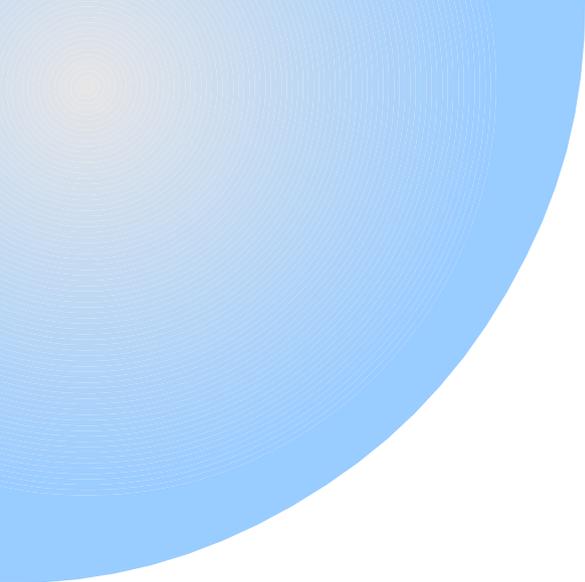
Def'n: Mobile Robotics

Robots that are free to move around the world.

Example: Mobile Robots
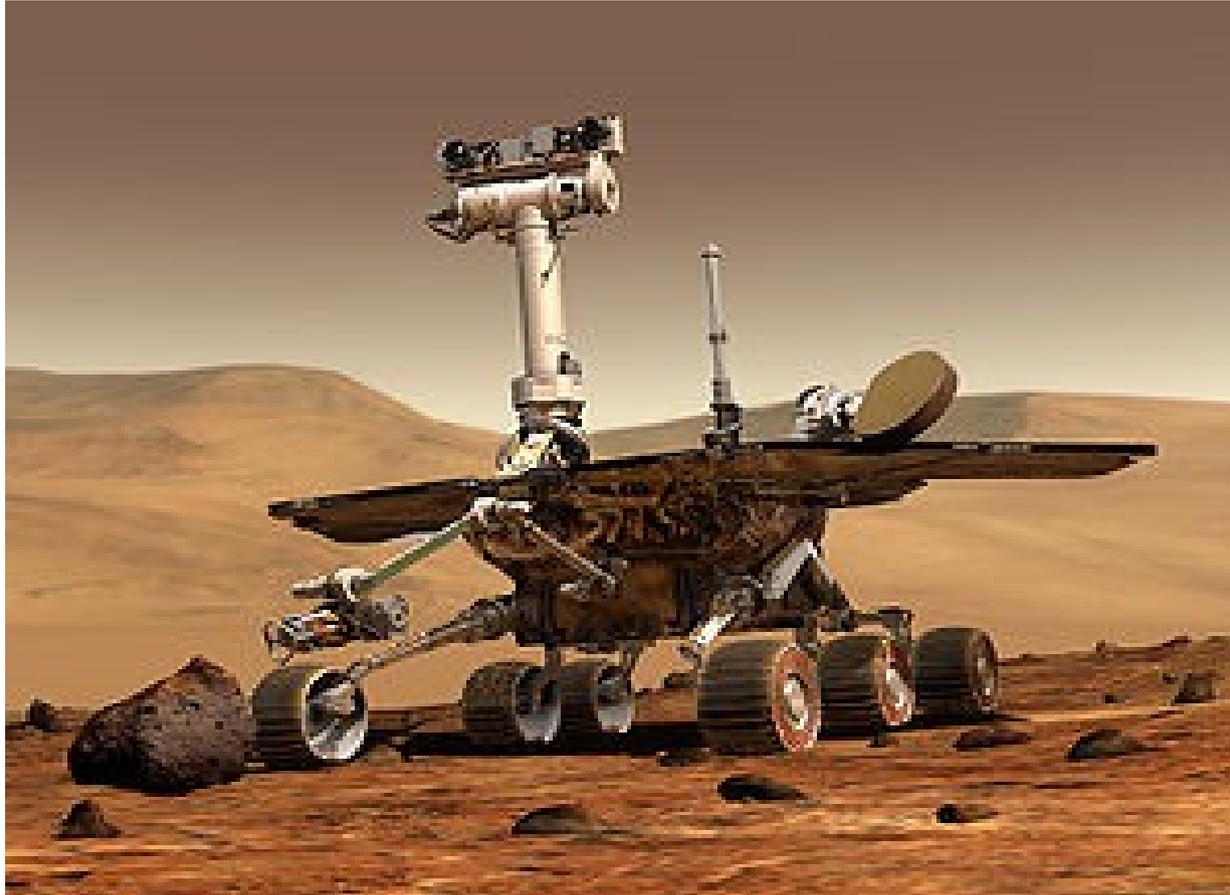
Example: Mobile Robots

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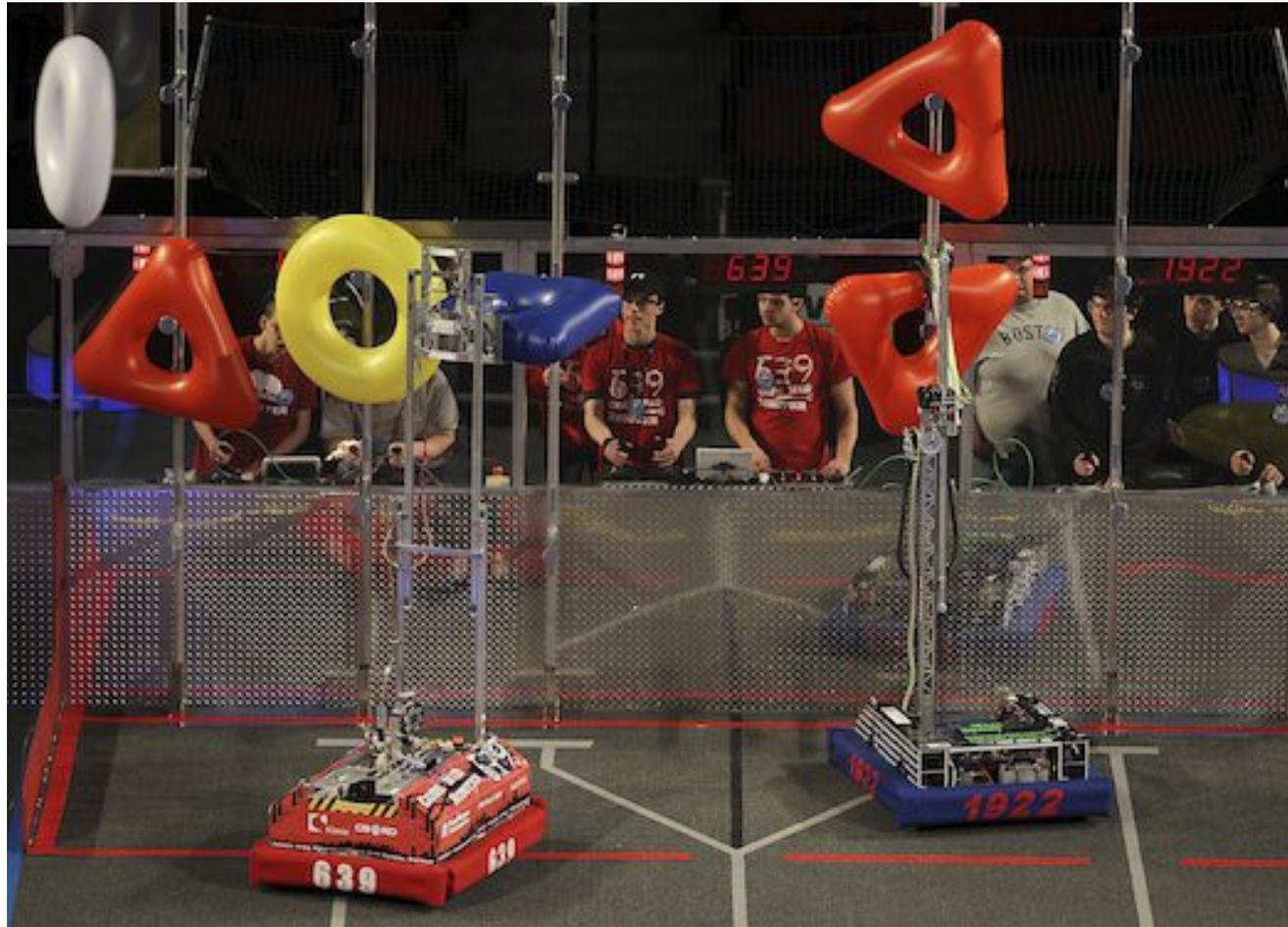
Example: Mobile Robots
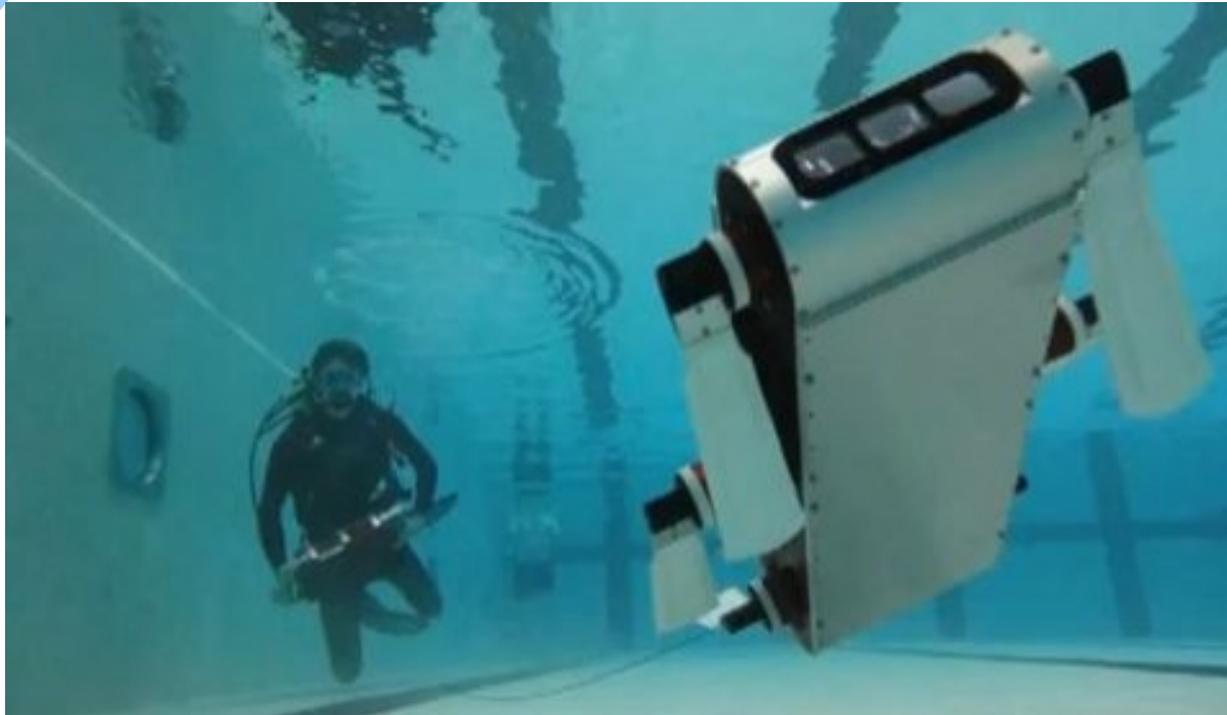
Example: Non-mobile Robots

2006 Chrysler photo of the Belvidere plant at allpar.com

Fuzzy logic techniques for mobile robot obstacle avoidance

Patrick Reignier *

LIFIA, IMAG, 46, Av. Félix Viallet, 38031 Grenoble, France

Autor: 08.03.12

- Small educational robot.

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- Range sensors on Left, Front, and Right.

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- With 3 sensors and 2 levels of granularity they need ~ 3,000 rules.

  (they estimate that with 5 levels of granularity they would need ~1,000,000 rules)

They distinguish 8 possible situations:
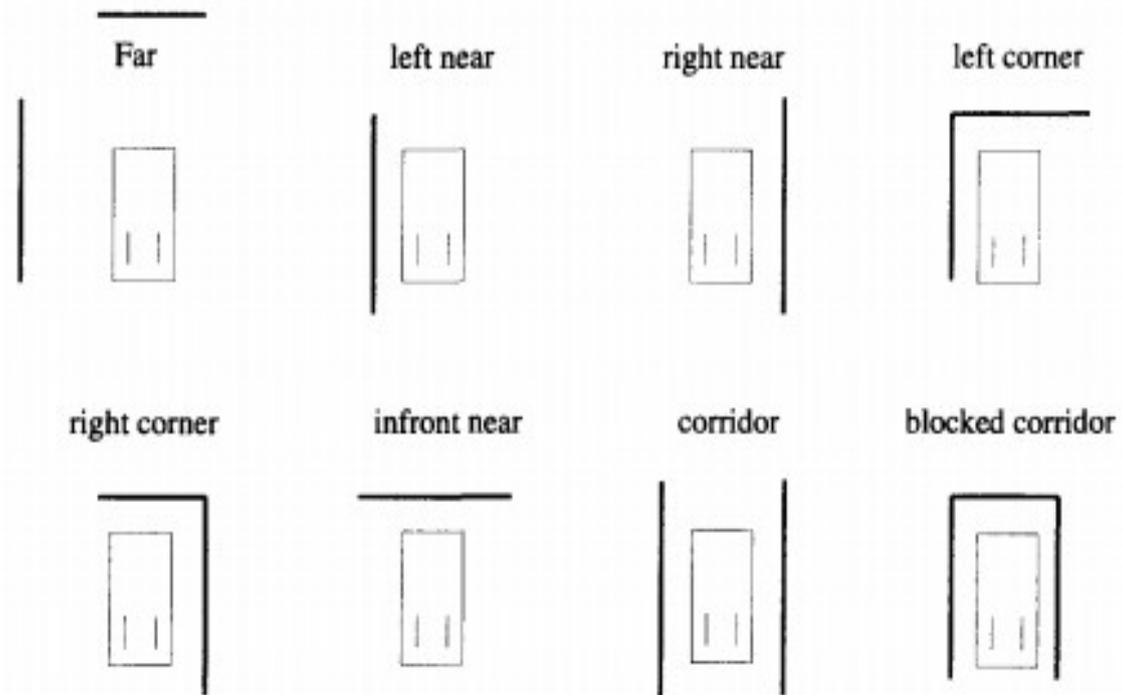
Fig. 10. There are 8 different perceptual situations. A different reaction is associated to each of these situations.

Navigation Controller:

Results