iRobot Create Sensors

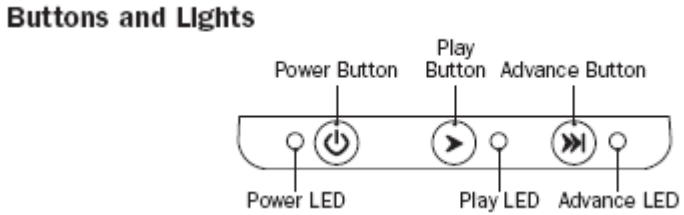
CSSE 120—Rose Hulman Institute of Technology

Create Sensors

- *Given a sensory reading, what should the robot do?*
- *How should the robot act in the environment*
- *A robot's intelligence depends upon the quality and quantity of sensors*
- *There are passive and active sensors that measure inputs, distance, obstacles, signal strength, light and sound*

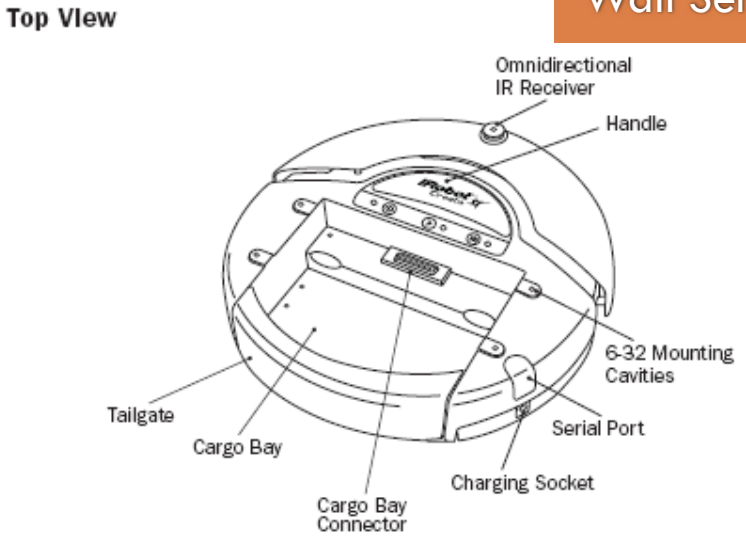
Create Sensors: Active – Contact

- ***Buttons***
  - *for digital input*
  - *Represents an on or off switch*
  - *Power, Play, Advance*
- ***Bumpers***
  - *Detects by hitting an obstacle*
  - *Simple and reliable but may damage the robot or environment*



Create Sensors: Active – Non-contact

- **Home Base**
  - Has 3 infrared transmitters
  - Automatically charges robot's battery
- **Virtual Wall**
  - Emits infrared signals the robot sees with omnidirectional IR receiver
- **Wall Sensor**
  - Infrared sensors
  - Provide distance measurement directly (time of flight) and return signal intensity



Create Sensors (Misc)

- **Cliff Sensors**
  - Infrared sensors
- **Wheel Drop Sensors**
  - Limit switches
- **Encoders**
  - Measure wheel rotation for distance
  - Detect the absence or presence of light reflection