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REPORT 2

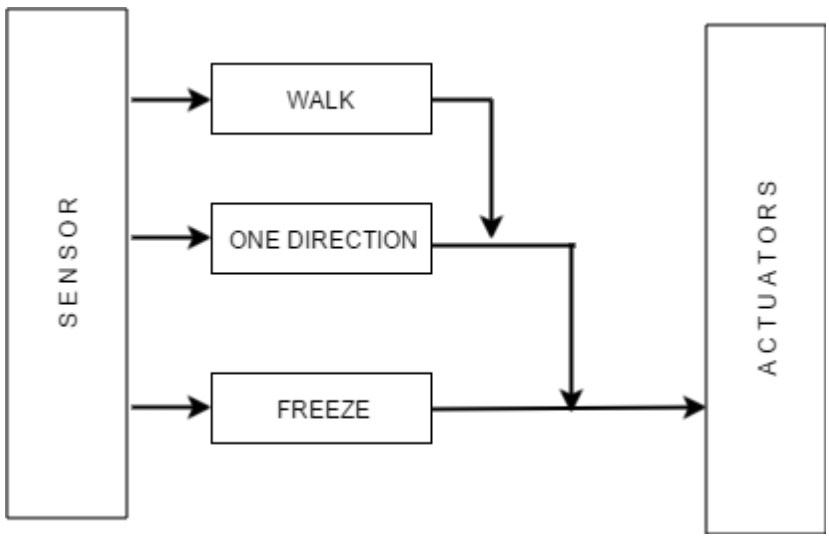
1. Describe the behaviours you changed and the reasons why you chose it in 100-200 words.

For this lab, we decided to implement the following behaviors:

- Walk
- One direction
- Freeze

The reason why we chose these behaviors is because we wanted to implement a simulation of a car that is driving in a city, if it finds an obstacle it will avoid it (using the ultrasonic sensor) and it will change its direction. Using the Sound sensor the robot will detect if there is a person nearby and will stop for a while so that the pedestrian can safely cross.

2. Include your agent final architecture. Use the concept of "Subsumption Architecture" (see next item) to explain your architecture. Explain behaviors, the hierarchy and the conditions under which the behaviors activate.



Behaviors:

1. Walk: The robot walks straight.
2. One direction: The robot turns to the left.
3. Freeze: The robot stops for 3 seconds.

Hierarchy and conditions:

1. The behavior with the most important hierarchy is “Freeze”, it is activated by the Sound sensor, the condition is when the value received by the sensor (decibels) is higher than 64 the behavior is triggered.
2. The second place in the hierarchy is “One direction”, it is attached to the ultrasonic sensor, when this sensor detects something in a distance less than 32 the behavior is activated.
3. Finally, the less important one is “Walk”, while the sound and ultrasonic sensor don’t reach their conditions this is the default robot’s behavior.

3. Based on what you saw in this lab, what are the advantages and disadvantages of reactive agents? Can they achieve complex tasks? (Explain your answer in 100 - 200 words). Hint: look at the slide deck accompanying this class for some theoretical background: https://app.schoology.com/course/927444274/materials/gp/927444426 (From slide 30)

Reactive agents can be implemented in a very simple and straightforward way, while still achieving useful results. They are specially helpful in highly dynamic and non accessible environments because in those cases it is usually more important to be able to react on time rather than deeply analysing the environment and planning a long term set of actions.

However, reactive agents are also very limited when it comes to complex tasks, because they don’t have the ability to plan. So a reactive agent could easily get stuck in an infinite chain of reactions that seem to make sense in the short term, but are not actually related with its intended goal (for instance, a maze solving reactive agent could get stuck in a loop and it would never figure out how to get out).