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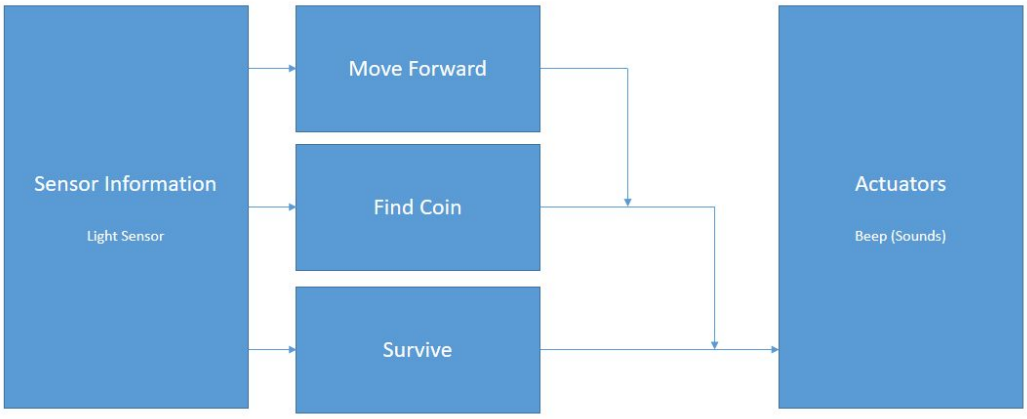
Artificial Intelligence
Lab 02

Report

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

   We changed the last two behaviors. Our robot does three behaviors, it moves, finds 'coins', and it avoids falling from the table. We built our behaviors around the fact that we wanted it to 'find' something. We also thought it would be great if we could use the light sensor. We chose for it to avoid falling from the table because half the team had done a similar activity with another professor.
   With our first behavior, the robot simply moves forward. If it finds a 'coin' it will stop, beep, move backwards and turn around. If it comes in contact with a border, it will move backwards and turn around. As our robot appreciates its life, our most important behavior is 'Survive', which is to avoid falling.

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.



   Move Forward: It prompts the robot to move forward in a straight line. This is the less important behavior in our structure.

Find Coin: If the Light Sensors detects the 'color' of the coin, black, it will trigger the second behavior. The robot will stop, beep, move backwards, and turn around to find more coins.
Survive: Our robot like to live, so if it detects the color white, which we have programmed it to believe it is the edge of the table, it will immediately go backwards and turn around.

We had several problems with our behaviors thanks to the light sensor. If our robot was too fast, it would not detect the colors on time. To resolve this, we slowed down our robot.

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/468804447/materials/gp/468804491 (From slide 30)

The biggest advantage that reactive agents have is, well, they react. If something changes in the environment, it will immediately react to them. It doesn't need to be told there are things there, it can detect them on its own. A disadvantage would be that it needs specific instructions, this means it can't learn. You need to tell it what to do and when to do it.

Can reactive agents achieve complex tasks? Really I would say it depends on the dedication of the programmer. Since reactive agents need specific sets of instructions, it can react to everything you tell it to. However, if the reactive agent doesn't have enough behaviors, it wouldn't be able to complete complex tasks.