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Artificial Intelligence
Lab 01

Explain not what you did, but the ideas behind it, i.e. the reasoning behind your decisions. Use the following questions to guide your deliberations:

1. What problems did you come across during the lab?

We came across different problems during the lab.

- *The pattern*: This was a minor problem we had, and perhaps the silliest. After talking it as a team, we settled with doing an *hourglass* shape. Several sketches and miscommunications later, we finally settled on a way to program our hourglass.
- *The sensors*: This problem we came across in the second part of the Lab. We couldn't really decide on which sensor we wanted to use, and when we did, we couldn't get it to work. It was only after *hours* (I'm lying, minutes) of exhausting trial and error that we got it.
- *The NXT*: A big, big problem that wasn't entirely our fault. The first set of equipment that was given to us was faulty, to say the least. We spent nearly 5 hours trying to get the robot to work, only to find out that it didn't work because one of the cables was faulty. Joy. Our NXT also succumbed to the ticking epidemic that affected most of the robots and barely escaped with his life. It also died several times for reasons unknown.
- *Programming*: This closely ties in with the sensors. Since we focused on the movement first, we did functions for every movement. However, when it was time to add the second behavior, we had troubles handling it. The

problem was that our movements were continuous and it would check the sensor until the movement was finished.

2. What modification would be required to turn your behaviour into a solution for any real problem? i.e. Where could it be used and how?

Part of our behavior was to use the ultrasonic sensor to detect obstacles and interrupt the movement. This behavior can be used for *crash detection*. This technology is what's hot right now in the world of self driving cars. However, it has other applications as well. For example, it is extremely important for robots not to run into walls. It can also be used in the context of disasters, since it would be able to detect obstacles at all times. It could also be used in exploration, be it caves or underwater locations.

To turn our behavior into a solution, it should have a better sensor. Not to be rude, or ungrateful, but the sensors provided can detect only basic stuff. It can't detect fabric, for example. So it'll need a new sensor, but not everything is on the hardware. It will also need a plan of what to do when the movement is interrupted. For now our robot backs up from the obstacle, turns around and then resumes the movement, this would not be viable in a disaster situation.