**Virtual Pi2Go Programming: Exercises with Inheritance**

**AIM:** This exercise sheet provides additional exercises using inheritance.

**Exercise 1:** Create a class LineFollower() that is a sub-class of Pi2GoAgent. This class should follow the line in **line\_following.xml** world when the method run\_agent() is called. The robot should move forward if its line sensors are either side of the line and turn left or right, as appropriate, if one of the line sensors detects the line. The agent will need to start on the line to work properly.

**Exercise 2:** Create a class SwitchActivatedAgent() that is a sub-class of Pi2GoAgent. This agent should

1. add a belief started when the switch is pressed (then wait for a couple of seconds for the switch to be unpressed).
2. The agent should add a belief stopping when the switch is pressed *and* the agent believes started, and then it should drop the belief started.
3. Lastly the agent should stop the pi2go and call the done() method in the Pi2GoAgent class, if it believes stopping.

**Exercise 3:** Adapt your agent from Exercise 1, so that it is a sub-class of SwitchActivatedAgent.

**Exercise 4:** Create a class WallFollower() that is a sub-class of SwitchActivatedAgent. This class should follow a wall when the method run\_agent() is called. The robot should move forward if the agent detects a wall on its right, turn left if it detects an obstacle to the front and a wall to its right, and turn right if it doesn’t detect a wall to its right. The agent will need to start next to a wall to work properly. The agent should also stop if a black surface is detected. You can test this agent in **house.xml** world or **zigzag.xml** world.



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