**Virtual Pi2Go Programming: WS5&6 Sample Answers and Troubleshooting**

**WS5**

**Troubleshooting:** The biggest cause of bugs in the exercises in WS5 are likely to be spelling errors (and possibly spacing errors if the students indent anything for some reason). If they do get errors they should be encouraged to look at the line number indicated in the error message and check for spelling.

The IDLE IDE is good at highlighting syntax errors and the like. If the program won’t even run then students should be encouraged to look at the parts of the code highlighted in the IDE.

**Sample Answer 1:** The robot lights up its LEDs. Bright students may realise that although the program contains pi2go.forward(10) they don’t see this execute because it is interrupted by pi2go.stop() soon after.

**Sample Answer 2:**

import simclient.simrobot as pi2go

pi2go.init()

pi2go.forward(10)

pi2go.setAllLEDs(2000, 2000, 2000)

pi2go.stop();

pi2go.setAllLEDs(0, 0, 0)

**Potential Problems:**  Until WS6, there are no commands available to delay the execution of the next command in a Pi2Go program. There is obviously quite a lot of scope for confusion here that may need explaining.

**WS6**

**Troubleshooting:** Students can still type commands into the IDLE window (e.g. pi2go.stop()) even after running a program from a file.

**Sample Answer 1:** The robot moves forward for 10 seconds and then stops.

**Sample Answer 2:** Changed the input for time.sleep(10) to time.sleep(20).

**Sample Answer 3:**

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.sleep(30)

pi2go.forward(10)

time.sleep(10)

pi2go.spinRight(10)

time.sleep(10)

pi2go.stop()

**Exercises 6: Simple Programs**

**Sample Answer 1:**

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.spinRight(10)

time.sleep(2)

print(pi2go.getDistance())

pi2go.stop()

**Sample Answer 2:**

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.setAllLEDs(0, 0, 2000)

time.sleep(5)

pi2go.setAllLEDs(0, 2000, 0)

time.sleep(5)

pi2go.setAllLEDs(2000, 0, 0)

time.sleep(5)

**Sample Answer 3:** Note that the answers may vary depending upon the speed the robot turns

import simclient.simrobot as pi2go, time

pi2go.init()

print(pi2go.getLight(0))

print(pi2go.getLight(1))

print(pi2go.getLight(2))

print(pi2go.getLight(3))

pi2go.spinLeft(10)

time.sleep(9)

print(pi2go.getLight(0))

print(pi2go.getLight(1))

print(pi2go.getLight(2))

print(pi2go.getLight(3))

pi2go.spinLeft(10)

time.sleep(9)

print(pi2go.getLight(0))

print(pi2go.getLight(1))

print(pi2go.getLight(2))

print(pi2go.getLight(3))

pi2go.spinLeft(10)

time.sleep(9)

print(pi2go.getLight(0))

print(pi2go.getLight(1))

print(pi2go.getLight(2))

print(pi2go.getLight(3))

pi2go.spinLeft(10)

time.sleep(9)

pi2go.stop()

**Sample Answer 4:** Note speeds may vary!

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.forward(10)

time.sleep(10)

pi2go.forward(20)

time.sleep(10)

pi2go.forward(30)

time.sleep(10)

pi2go.stop()

**Sample Answer 5:** Note LED values may vary

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.setLED(0, 0, 1000, 2000)

pi2go.setLED(1, 1000, 2000, 0)

pi2go.setLED(2, 2000, 0, 1000)

pi2go.setLED(3, 2000, 2000, 2000)

pi2go.forward(10)

time.sleep(10)

pi2go.setLED(0, 1000, 2000, 0)

pi2go.setLED(1, 2000, 0, 1000)

pi2go.setLED(2, 2000, 2000, 2000)

pi2go.setLED(3, 0, 1000, 2000)

pi2go.spinLeft(10)

time.sleep(10)

pi2go.reverse(10)

pi2go.setLED(0, 2000, 0, 1000)

pi2go.setLED(1, 2000, 2000, 2000)

pi2go.setLED(2, 0, 1000, 2000)

pi2go.setLED(3, 1000, 2000, 0)

time.sleep(10)

pi2go.stop()

**Sample Answer 6:** Note answers will vary depending upon the speed and how much the students are prepared to have the robot hit walls as it travels round.

import simclient.simrobot as pi2go, time

pi2go.init()

pi2go.spinRight(10)

time.sleep(5)

pi2go.forward(10)

time.sleep(25)

pi2go.spinLeft(10)

time.sleep(9)

pi2go.forward(10)

time.sleep(15)

pi2go.spinRight(10)

time.sleep(8)

pi2go.forward(10)

time.sleep(25)

pi2go.spinLeft(10)

time.sleep(9)

pi2go.forward(10)

time.sleep(20)

pi2go.stop()



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