**Initio Programming: The Time Module**

**AIM:** After completing this worksheet you should be able to use commands from Python’s Time module to delay execution of commands on the Initio. You should also be able to explain how to import a module into Python.

**You Need:** To complete this worksheet you need to have an Initio that is connected to a keyboard, mouse and monitor (see WS1), to understand how to start and stop IDLE from the Linux Command Line (see WS2), and to be able to use files to store Programs (WS5). You also need to know the commands to operate the Initio motors (WS3).

When we program we don’t always want to write everything the program should do from scratch. When someone has already solved a problem, for instance, delaying the execution of a command, then we would like to be able to use their solution. This is done by importing *modules* (in some languages called libraries) of pre-programmed commands into our program.

You are already using a module in your programs. The statement import robohat as initio; at the start of all your programs is importing the robohat module which contains the commands for operating your Initio robot and renaming this module initio.

In this worksheet we will use the time module to delay the execution of some of those commands.

Create a file containing the following program and execute it:

import robohat as initio, time

initio.init()

initio.forward(10)

initio.sleep(10)

initio.stop()

**Question 1:** What happens?

**The Sleep Command:** The command time.sleep(*seconds*); makes the program pause for the number of seconds before executing the next command.

**Exercise 1:** Adapt the program to make the robot move forward for 20 seconds before stopping.

**Question 2:** What did you change?

**Exercise 2:** Write a program to make the robot wait for 30 seconds (giving you time to unplug the monitor and keyboard), move forward for 10 seconds, turn for 10 seconds and then stop.

Write your program below:

**Remember:** When you have finished working with the robot, type initio.cleanup()at the command line, quit IDLE, then select Shutdown from the Raspberry Pi menu item. Once the robot has shut down, switch it off.



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