**ESOF486 – Senior Design**

Fall 2015

Project Task A21 – “Freeze” Robbie by touching her head sensor.

Name: Nikki Espinosa

Max Score: \_\_\_\_ Student Score: \_\_\_\_ Late Penalty: \_\_\_\_ Quality Bonus: \_\_\_\_\_ TOTAL: \_\_\_\_

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Est Size** | **Act Size** |  | **Start**  **Date** |  | **Est Effort** | **Act Effort** |  | **Est Dlv Date** | **Act Dlv Date** |
| na | na |  | 01/13/16 |  | 8 hr | 16hr |  | 02/02/16 | 02/23/16 |

**Briefly discussion of estimates and actuals**

* I’ve done some research already and information gathering is going well, but actual experimentation and testing with the robot might require at least a couple of weeks.

**General**

1. Make initial effort and date estimates for this task and put this updated sheet in Dropbox with the suffix “\_est”.
2. Do Parts 1 & 2 below
3. Turn in this sheet with Estimates and Actuals and completed log to the dropbox folder ESOF486\_7f15s16/ESOF486\_7PrjA/A21 with the suffix ”\_done”

Part 1 – “Freeze” by Touching Head Sensor

1. We have agreed that the only safety feature we will have in ShowRobbie is to be able to “freeze” her in her tracks by touching her head sensor. Obviously we will need some way to “unfreeze” her. You might be able to do this my just modifying the code in A06 without getting involved with the new TestFrameWork.

Part 2

Log your effort with detailed comments on this task below. Requirements:

* There should be at least some short comment with every time entry!
* Use the following guidelines for what you should cover in your comments:
  + If you used any source material help you do this project give enough information that the instructor can follow up
  + If there were any problems that came up, how did you solve them?
  + If any code was involved with this task you should mention it, and if it is new to this task, or was modified it should be included.
  + If any of the C++ or Choregraphe operation instructions need to be changed even slightly to accommodate the features of this task, new, modified versions should be mentioned in the comments and included with the task folder.
  + Anything else that might be useful for instructor to know. Please also mention in class so we can update these guide lines

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Time** | **Who** | **Effort in hours** | **Comments** |
| 01/19/16 | 2:30am | Nikki | 1.5 | I searched through some documents on the Aldebaran documentation site and Aldebaran community site. I came across the following pages, which I think will be helpful: <https://community.aldebaran.com/en/forum/stop-behaviour-head-tactile-6743>, <http://doc.aldebaran.com/2-1/family/robots/leds_robot.html#robot-led-head>, <http://doc.aldebaran.com/1-14/naoqi/sensors/alsensors-api.html#FrontTactilTouched>, <http://doc.aldebaran.com/1-14/naoqi/sensors/alsensors.html#alsensors> . Next up is experimentation with the robot, more extensive searching of the forums and a possible new post on the forum (what is the login information?). |
| 01/21/16 | 12:00pm | Nikki, Mitch | 2 | These are the web pages we found useful in trying to get Robbie to react to his head tactile sensors: <http://doc.aldebaran.com/1-14/dev/python/reacting_to_events.html#python-reacting-to-events>, <http://doc.aldebaran.com/1-14/naoqi/core/albehaviormanager-api.html?highlight=stopallbehaviors#ALBehaviorManagerProxy::stopAllBehaviors>, <http://doc.aldebaran.com/1-14/naoqi/core/almodule-api.html#almodule-api>, <http://doc.aldebaran.com/2-1/nao/nao_interacting.html?highlight=exiting%20activity>, <https://community.aldebaran.com/en/search/define%20behavior>.  We modified the Python code found in the first link (this modified code can be found in the A21 folder along with this document). We simply ran this modified code in PyCharm and it reached Robbie. With the modified code, we succeeded in getting Robbie to respond to his middle head tactile sensor being pressed. At first, we had Robbie say “Hello, you.”  Then, we tried to modify the code so that it stopped all other behaviors when the head tactile was pressed. We tested our code by having Mack run some speech code on Robbie from another laptop and then running our code on Mitch’s laptop. It didn’t work.  Questions: Does Robbie have to respond to all three sensors being pressed simultaneously? Or can she respond to any of the sensors being pressed? Should Robbie “freeze” or go back to a standing position? Freezing in certain positions may cause him to fall over.  Upcoming Steps: Did our “stop all behaviors” code not work because the code Mack ran was not explicitly defined as a “behavior?” Research this and possibly see what actual code Choreographe produces when using the solution defined in the first link in the 01/19/16 entry above. ~~Also, re-familiarize with Python in general.~~ ~~Put a comment in the modified code indicating its origin~~.(Done) See if Nao can even say “Hello, you” while other code is running from another laptop first…or second. Maybe we can get away with just having Nao stop moving, rather than stop talking/other behaviors too. We could try running a Choreographe program and using our Python program to try and stop it. |
| 01/26/16 | 00:36:00 | Nikki | 1 hr 14 min | I found the following informative web pages: <http://doc.aldebaran.com/2-1/dev/python/making_nao_move.html?highlight=post>, <http://doc.aldebaran.com/2-1/dev/python/running_python_code_on_the_robot.html>, motionProxy.stopMove() stops walk, motionProxy.rest() puts Nao in a resting position, <http://doc.aldebaran.com/2-1/dev/python/examples/motion/walk.html#python-example-motion-walk>, <http://doc.aldebaran.com/2-1/dev/python/examples.html>, <https://community.aldebaran.com/en/forum/install-and-run-behavior-python-3770>, <https://community.aldebaran.com/en/forum/there-any-way-interrupt-saying-words-dialog-1703>, <http://doc.aldebaran.com/2-1/naoqi/core/albehaviormanager.html?highlight=behavior>. Looking at these web pages, I came up with some ideas for testing with the robot later today (see the entry above).  <http://doc.aldebaran.com/2-1/naoqi/motion/control-walk.html#control-walk> |
| 01/26/16 | 12:00 | Nikki | 2 hr | I tried some of the testing ideas I listed above, but I ended up testing out the code accompanying this document in the A21 folder. I changed the code from how I left it last time. I added code to make Robbie walk, hoping that when I pressed his head, he would still say the words we had him saying last time. It did not work. At first, Robbie did not respond at all to his head being pressed. Upon subsequent tries, the computer we were running the code from froze up and had to be restarted.  I was instructed to close out this A21 assignment, so I will. However, since there is no new assignment up for freezing Robbie in his tracks, I will list new information in the section below this one (in the \_ongoing version of this document) as I find it. |
| 02/02/16 | 4:25:00 | Nikki | 4 hrs | read the section about walk protection in the Locomotion control overview page.  Make test code for moveToward instead of moveTo  Test other walk examples  Read up on other walk examples  Read up on creating proxies like self.tts  Read up on creating exceptions (it might have to be one to  stop the walking) (try exception blocks)  Should there be more to the “if \_main\_” thing at the end? In some examples, it has “parser” stuff there  Look at the code from the Choreographe from 01/19/16  Tried the test code, and Middle Sensor Feedback 1.2 basically worked with a couple of minor modifications, such as placing a “sit” command at some point in the code. Why this worked I’m not sure. However, the code that worked is on Mack’s computer and I will have to upload it later. Did not have time to test Middle Sensor Feedback 2.2, or to do any of the other listed items above. Will have to do that later. |
| 02/16/2016 | 12:00:00 | Nikki | 3 hrs | Divided the working code from AnyHeadTactilTouched1\_1 into a few different files/classes: BotFreezerModule.py, BotFreezerTester1\_2.py, BrokerController.py, NonBlockWalk.py. I am not sure why I need a broker to define proxies (some code does not), so I read about it here (http://doc.aldebaran.com/2-1/dev/naoqi/index.html#naoqi-overview), but did not find any real answers. |
| 02/23/16 | 1:15:00 | Nikki | 1 hr | Searched Aldebaran documentation for info on throwing exceptions or creating interrupts, but found almost nothing. This page has the most information I’ve found: <http://doc.aldebaran.com/2-1/software/choregraphe/objects/python_script.html?highlight=thrown%20exception#script-exception>. Other than that, I polished up BotFreezerModule.py, BotFreezerTester.py (as it is now called), BrokerController.py, and NonBlockWalk.py. And I closed up this document. |

**Rubric**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **%** | **Pts** | **Your Pts** |
| Estimates & Actuals and Comment | 10 |  |  |
| Part 1 | 60 |  |  |
| Part 2 | 30 |  |  |
| *TOTAL* | *100%* |  |  |