CMSC 143: Introduction to Object-Oriented Programming with Robots

Lab 4: Programmable Behavior
Due September 28, 2009

Submit a copy of your python program (cmsc143_lab4_LASTNAME_FIRSTNAME.py) on moodle. Your program should have your name(s), email(s), and the date at the top of the file as a comment. You should work in teams of two people, but each person should submit a copy of the program. Also, you should work together on each behavior.

Chapter 6 of the textbook begins to explain how to make your robot to exhibit simple behavior. In this lab you are asked to implement three of the four behaviors listed below. Each behavior should be programmed as a function that runs for 60 seconds (except for `pigTranslator` which should quit when the users ask to).

You can use the `timeRemaining()` function exactly once, but can use `currentTime()` as often as you'd like.

Learning Objectives

- Create robot behaviors.
- Use if statements.
- Use while loops.
- Program in pairs.

Behaviors (pick three, or four for extra credit)

1. `coward()` (or `aggressor()`)
   Create a robot behavior that runs away from (or toward) the light or something triggering the infrared detectors.

2. `securityGuard()`
   Do you have a feeling your roommate is snooping through your desk drawer? Write a program that detects if the drawer is opened and takes and saves a picture of the offender and then beeps loudly.

3. `digitalCamera()`
   Write a program that takes a picture when the light sensor is pressed. The left light sensor should take a color picture and the right sensor should take a gray-scale picture.

4. `pigTranslator()`
   Create a robot behavior that asks the user for a word and then repeats the word (using speak), but translated into pig-latin[1]. Pig-latin is where you move the first letter of the word to the end and add 'ay'. So, Keith would be eith-Kay, and computer would be omputer-cay. The function should run until the user enters 'quit' (after speaking uit-qay).

[1] http://en.wikipedia.org/wiki/Pig_Latin