
CPS 499/592 — Intro to Robotics
Spring 2023 — Lab 03

Assigned: 2023-02-20

Due: 2023-03-06

OVERVIEW

The purpose of this assignment is to ensure that you are familiar with the software suite we will use going forward:

- The code can be found at https://github.com/DrR0b0tN1ck/Create2_Library

TASK 1: INDIVIDUAL FILE(S)

If you look at the repository listed above you will see several files and directories:

directory - createlib

Python File - create_o1.py

Python File - create_robot.py

Python File - create_serial.py

Python File - packets.py

Python File - repeat_timer.py

directory - docs

- iRobot_Roomba_600_Open_Interface_Spec.pdf

Python file - Create2_proj.py

License file - License

Your first task is to go through all of the Python files and familiarize yourself with its contents. What are the:

- Objects
- Functions
- Data Types
- etc

that are used.

Are there things you have never seen before?

- namedtuple
- “Wrapper” functions
- a python “decorator” function
- an RLock()
- etc

The expectation is that your report on this code base goes through each file, and provides sufficient detail to convince someone reading your report (a set that includes Dr. Stiffler) that you understand what is going on.

TASK 2: GETTING A PROGRAM TO RUN

The main “driver” code can be found in `Create2_proj.py`. This code should be similar to what we have been using in our `Create2_TetheredDrive.py` file.

The primary questions you will be asked to answer are:

- What changed between these two files?
- Moving forward, how would you use this new code to add program functionality? (To make this easier, ask yourself what would it take to recreate the last lab?)
- Are there any features from the original file that didn’t make it when the migration happened? Do you think these features should be incorporated?

CPS 499/592 – DELIVERABLE – LAB 03

I will be accepting one document for the deliverable. Below are the details regarding this document.

Filetype: pdf **if it is not a pdf ... 5 points will be deducted**

Filename: Lab 03.pdf

The header of the document should look like the following example:

Team Members: Nicholas Stiffler, Student1 (YYYY), Student2 (ZZZZ)
Course: CPS 499/592
Assignment: Lab 03

There is 1 major component to the deliverable:

1. Report

This component requires you do the following:

- Write a report that is *at least* 3-pages in length that demonstrates that you have spent some non-trivial amount of time looking at the code. The more familiar you are with the code suite, the easier it will be to do projects moving forward.
 - You may use tables to supplement your writing,
 - You may use figures to supplement your writing,
 - You **must** use complete sentences.

Below is the grading rubric I will use when evaluating your submission.

- The deliverable should be a single pdf file for the report.

Note:

- This assignment does not require you to submit your code.
- This assignment does not require you to demo the project.

CPS 499/592 – COVER SHEET – LAB 03

Documentation (100):

- ☐ Report is complete and clear?
- ☐ Required sections exist?
 - **Task 1: Individual Files – 60%**
 - Python File - create_oil.py
 - Python File - create_robot.py
 - Python File - create_serial.py
 - Python File - packets.py
 - Python File - repeat_timer.py
 - **Task 2: Getting a program to run – 40%**
 - Python file - Create2_proj.py

Team number: _____

Names:

Other comments:

Total: