Moving line source for PET Detector Calibration:

This is a short instruction guide on how to use **motorGUI.py** to control a VXM stepper motor. The VXM motor is used to move a Ge-68 line source across the face of our PET detectors at various speeds and distances for imaging calibration. This page details the prerequisites and installation procedures in order to use the python script. The second page is a quick tutorial on using the GUI to control the motor.

Prerequisite Programs and Python Libraries:

Python
Serial Library* (pyserial for pip install)
Time Library
platform Library
Tkinter Library * (tk for pip install)

* needs to be pip installed (e.g., does not come standard with python)

To install any of these:

1) Navigate to terminal
2) Type and enter "pythonN -m pip install libraryname"
   Where N is your python version and libraryname is the name of the python library you wish to install.

For example, to install tkinter for Python 3.9, one would enter into terminal:

python3.9 -m pip install tk

and for pyserial:

python3.9 -m pip install pyserial

How to use the GUI:

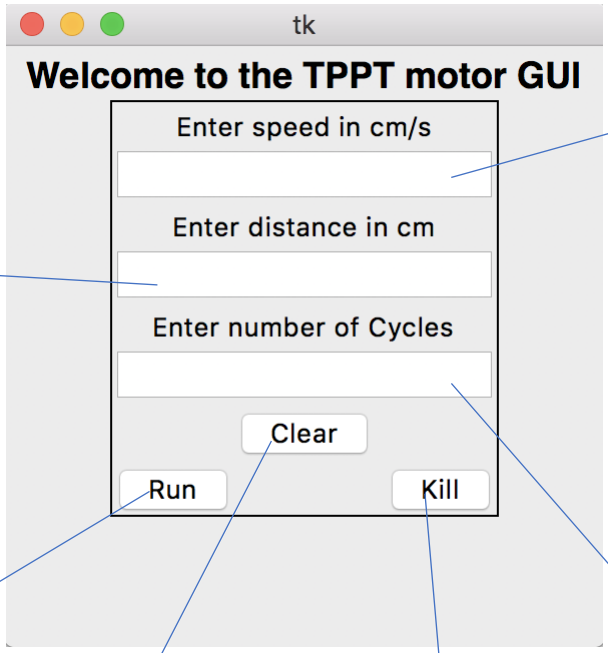
- Start up the GUI by simply running motorGUI.py

Enter the distance in cm that you wish the source to travel in each direction here.

- The initial direction of motion is set by the sign of the value.

- A negative sign sets the initial motion away from the motor itself.

- No sign (implied positive) sets motion toward the motor.



Enter the speed in cm/s that you wish the source to move at here.

- Enter the speed in absolute value only.

- Speeds must be entered in incremental values of 0.005 cm/s.

- The slowest speed allowed is 0.005 cm/s

Once parameters are set above, press “Run”, and the source will begin to move.

Changing the parameters and hitting run while another run is currently in progress will not do anything. Press “kill” if you would like to stop a run.

Press “clear” to clear all the text boxes. This does NOT stop a run or reset previous parameters.

Enter the desired number of cycles here.

- One cycle is defined as traveling the set distance and back one time.

- Enter 0 if you want the source to travel one direction and then stop after the set distance.

Press “Kill” to stop a run that is currently in session. Before the session is stopped, you will be prompted with secondary confirmation.