RBE 595 — FAIR-AV
Assignment #4

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Problem 1

Download PythonRobotics to a folder in your local computer and run the fast_slam2.py in /PythonRobotics/SLAM/FastSLAM2. Capture a screen of the SLAM figure and the terminal you used to run the Python code. Upload the picture as the evidence of successfully running fast_slam2.py.

Solution

After cloning the repository via git and running the recommended set up command which is as follows:

```
conda env create -f requirements/environment.yml
```

I created the conda environment and activated it. I then tried to run the `fast_slam2.py` file in the `PythonRobotics/SLAM/FastSLAM2` directory. However, I ran into the error of the utils directory not being found. I then edited the `fast_slam2.py` file to append the path of the parent's parent directory to the `sys.path` variable. This eliminated the error. After this I was able to successfully run the `fast_slam2.py` file. The output of the terminal for these steps is shown in Figure 1. The output of the git diff command is shown in Figure 2 (this shows the lines I added to the `fast_slam2.py` file). The output of the SLAM figure is shown in three different time points in the Figures 3, 4, and 5.

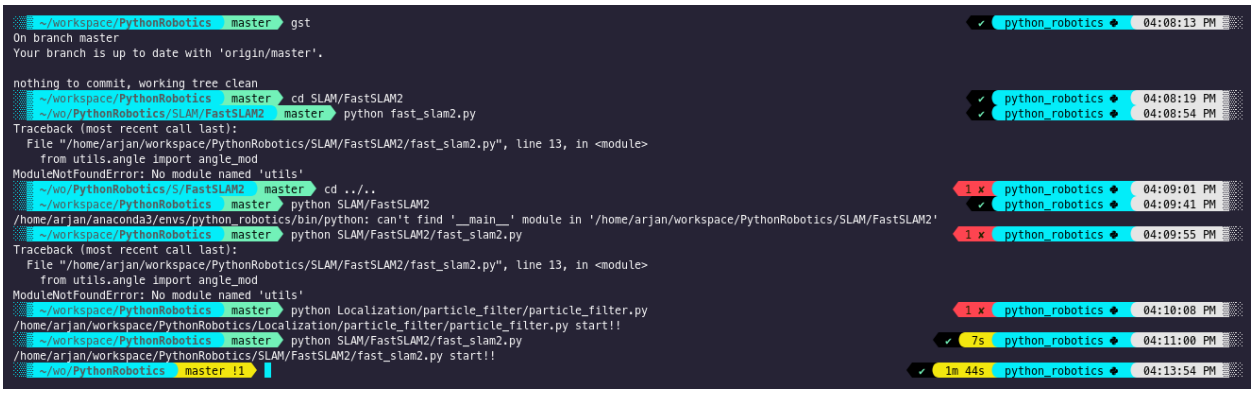

Figure 1: Output of the terminal steps to successfully run the `fast_slam2.py` file.

```
diff --git a/SLAM/FastSLAM2/fast_slam2.py b/SLAM/FastSLAM2/fast_slam2.py
index d4cf0d8..d48cfa5 100644
--- a/SLAM/FastSLAM2/fast_slam2.py
+++ b/SLAM/FastSLAM2/fast_slam2.py
@@ -5,6 +5,9 @@ FastSLAM 2.0 example
 author: Atsushi Sakai (@Atsushi_twi)

 """
+import sys
+import pathlib
+sys.path.append(str(pathlib.Path(__file__).parent.parent.parent))

 import math

(END)
```

Figure 2: Output of the git diff command to show the lines I added to the `fast_slam2.py` file.

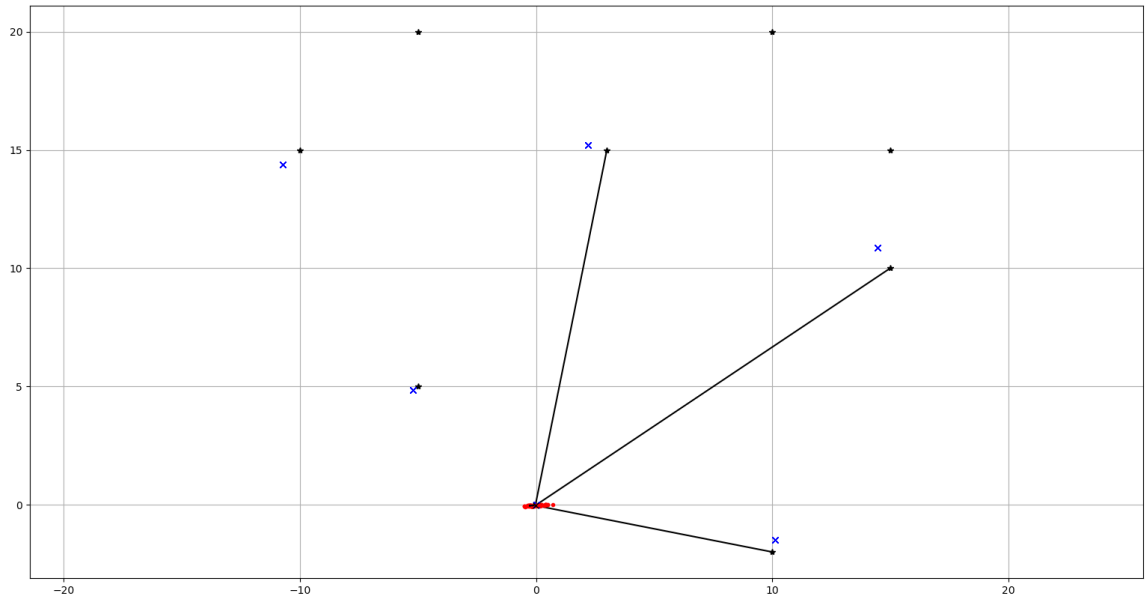

Figure 3: Output of the SLAM figure at a few seconds into the run.

Problem 1 continued on next page...

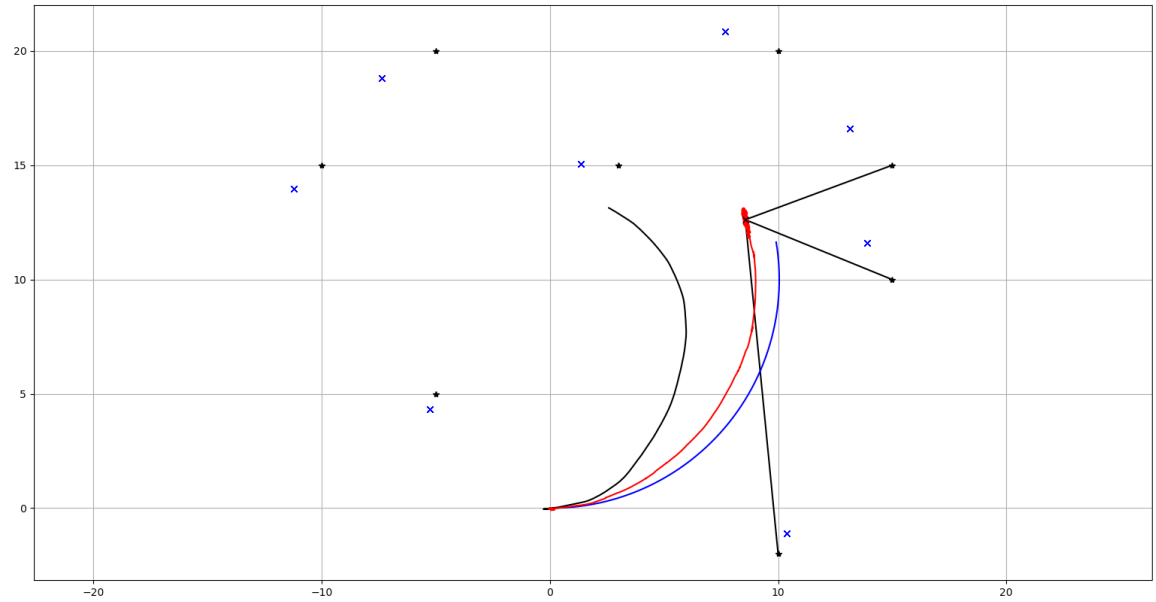

Figure 4: Output of the SLAM figure about 30 seconds into the run.

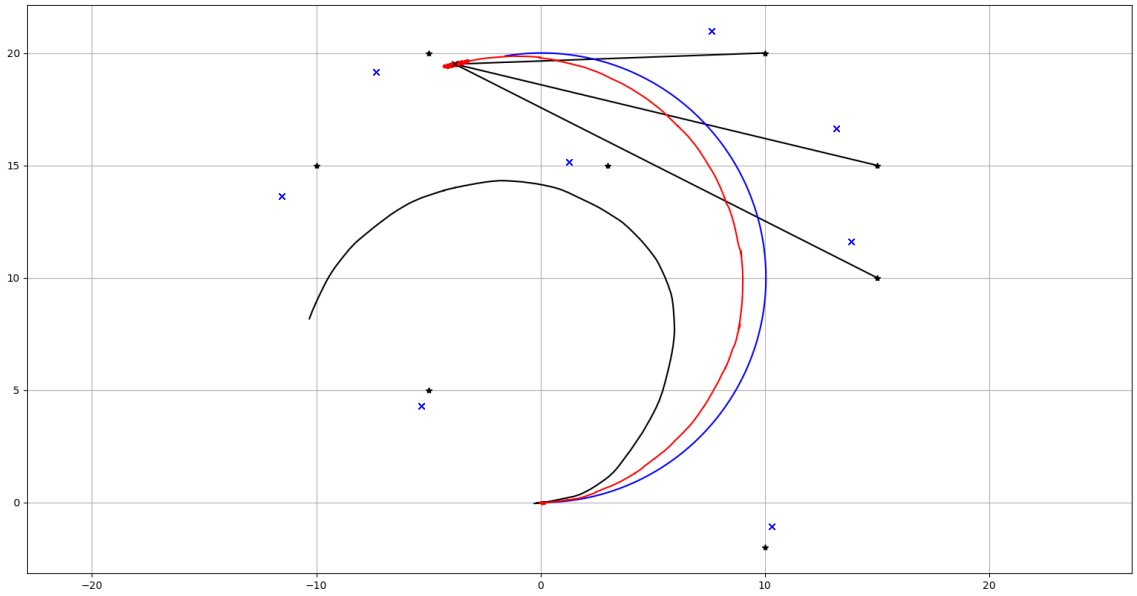

Figure 5: Output of the SLAM figure after over a minute of the runtime.