1st Kibo Robot Programming Challenge

Programming Manual
Appendix:
Common Issues

Version 1.0.0 (Released Date: July 15th, 2020)

Japan Aerospace Exploration Agency (JAXA)

General Point of Contact: Z-KRPC@ml.jaxa.jp

We have listed common issues which some participants encountered in running their simulations.

1. Astrobee suddenly moves to another place or jumps out of the ISS module.

There are several causes of this issue.

A) A tolerance-violation error occurred.
Infinite loop in your program, multi-threading programming or other heavy processing can cause this error. As written in PG Manual, these are not recommended. Check your codes if there are any infinite loops or multi-threading programs. Also, check "rosout" topic in simulation.bag (a rosbag file) to see what happened to Astrobee.

B) Astrobee crashed into the wall because of the airflow in the ISS module.
You need to consider the effect of the airflow and not to move Astrobee too close to the wall.

C) Something went wrong due to an issue of the Astrobee simulator (in rare cases).

The web simulator will restart your simulation automatically when it detects this issue.

Please refer to Chapter 5.1 of PG Manual as well.

2. Astrobee does not move from the start position.

There are several causes of this issue.

A) Astrobee could not find a valid route.
This often occurs due to a KIZ/KOZ violation when Astrobee is moved by the airflow. Please consider adding a re-routing algorithm to avoid it.

B) A tolerance-violation error occurred.
Check your codes in the same way as 1-A) above.

C) The Android emulator stopped responding.
This may occur due to a heavy processing such as infinite loops or multi-threading programs.

The web simulator will restart your simulation automatically when Astrobee doesn't move from the start position in the first 5 minutes.

Please refer to Chapter 5.2 of PG Manual as well.

3. Astrobee's camera view becomes from outside the ISS or completely black.

In most cases, this seems to be caused by the Astrobee simulator's issue.

The web simulator will restart your simulation automatically when it detects this issue.

In some cases, the code that has infinite loops or multi-threading programming causes this issue, so if you often encounter this issue, check your codes and fix them.