Modifying an existing behavior

In Module 6.3, you learned how you can create your robot behavior using FlexBE. We hope you tried playing around with the behavior "*Pick part from conveyor*", included in the Week 6 downloads.

In this first assignment, you will modify the state machine of the behavior "*Final Project*" to perform a more sophisticated version of the pick part, it will start by feeding the box to the conveyor belt and finish with the box on the actuator of robot 1.

Week 6 - Assignment 1 --- 1 Point

Most of the first part of the behavior is already implemented in the code provided.

The goal for this assignment is to add two new states, so you can use the conveyor belt to bring a part (the white box) to the area where the camera can detect it and where the Robot 1 can pick it up.

To do this you need to modify *"Final Project"* behavior. You can do this with the following steps:

Step 1: Open the flexbe app by using the following command.

```
$ rosrun flexbe_app run_app --offline
```

Step 2: Load the Open the *"Final Project"* behavior in the flexbe app.

- Click on load behavior and select *"Final Project"*

Note: *If you don't see the "Final Project" on the behavior list, please make sure you have downloaded files of week 6 and followed the instructions there.*

Step 3: Add your name to the author tag and set the correct date.

Step 4: Edit the state machine by adding and configuring two new states, so that:

- After "Move R1 Home", a new state starts the conveyor belt.
- After "Stop feeder" another new state stops the conveyor belt.

You may revisit videos 6.4.3 part 1 and 6.4.3 part 2 to see what state type to use, how to configure it and if any additional variables are needed.

Step 5: Reconnect the states in the state machine so that, if no state results in the "failed" outcome, the last active state is "Move R1 back Home" and, as a result of executing the behavior, robot1 holds the part.

Step 6: Save your changes in the behavior, check that no error messages appear, and close the FlexBE App.

Important Note: Do not change the name of the behavior. The automated grading algorithm will look for a project called *"Final Project"* and it will fail if it does not find it.

Test your behavior

You can now test the behavior up to this part, to do so please follow these steps.

Step 1: Close the flexbe app and any other CCS you may have running.

Step 2: Launch the final project environment simulation environment using:

```
$ roslaunch hrwros_week6
hrwros_final_project.launch
```

Step 3: On another CCS terminal, open the flexbe App for behavior execution using .

```
$ roslaunch flexbe_app flexbe_full.launch
```

Step 4: Click on load behavior and select *"Final Project"*

Step 5: Go to the "Runtime Control" Tab, and click on "Start Execution"

You can follow the execution in the flexbe app and see the robots moving in the gazebo simulator!

At this point the behavior should end with the Robot 1 holding the Box in its Home position.

This completes this assignment! You can continue with the next one, where you will include the mobile robot!!

Once you have finished all the assignments of this week you will be asked to upload the all the needed files. You do not need to worry about this now!