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| Task. No.: | 7 | Points: | 5 | Turtlesim Mimicking |

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| Objectives:  1. Using launch files to run multiple turtlesim nodes. |

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| Description: This project aims to create two turtlesims (turtlesim1 and turtlesim2) in which turtlesim2 mimics turtlesim1 . |

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| Step | Action |
| 1 | Create a package and call it *beginner\_tutorials* package. |
| 2 | Make a launch directory and create a launch file In the *beginner\_tutorials* package.  $ roscd beginner_tutorials $ mkdir launch $ cd launch |
| 3 | Create a launch file called *turtlemimic.launch* and paste the following:  <launch> <group ns="turtlesim1"> <node pkg="turtlesim" name="sim" type="turtlesim_node"/> </group> <group ns="turtlesim2"> <node pkg="turtlesim" name="sim" type="turtlesim_node"/> </group> <node pkg="turtlesim" name="mimic" type="mimic"> <remap from="input" to="turtlesim1/turtle1"/> <remap from="output" to="turtlesim2/turtl1l"/> </node> </launch>  We start two groups with a namespace tag of turtlesim1 and turtlesim2 with a turtlesim node with a name of sim. This allows us to start two simulators without having name conflicts.  Then, we start the mimic node with the topics input and output renamed to turtlesim1 and turtlesim2. This renaming will cause turtlesim2 to mimic turtlesim1. |
| 4 | Now let's roslaunch the launch file:  $ roslaunch beginner_tutorials turtlemimic.launch |
| 5 | Two turtlesims will start. In a new terminal send the *rostopic* command only to turtlesim1.  $ rostopic pub /turtlesim1/turtle1/command_velocity turtlesim/Velocity -r 1 -- 2.0 |
| 6 | Check if the turtlesim2 mimics the turtlesim1.  a turtle going in a clockwise circle |
| 7 | To better understand what our launch file did, use *rqt\_graph*.  Physical represntation of rqt_graph |
| 8 | Change the launch file to change turtlesim2 background color with setting its parameter in the launch file. |
| 9 | Create a *yaml* file to set turtlesim1 velocity. Then, read its parameter in the *launch* file. |

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