Instructions for using SMACH in Sayabot

# Packages Required:

1. smach\_ros – link:[**http://wiki.ros.org/smach\_ros**](http://wiki.ros.org/smach_ros)
2. smach\_viewer – link:[**http://wiki.ros.org/smach\_viewer**](http://wiki.ros.org/smach_viewer)
3. actionlib – link: [**http://wiki.ros.org/actionlib**](http://wiki.ros.org/actionlib)

# **Instructions:**

1. Install required packages.
2. Make a flow chart or state diagram for the whole robot based on its operations.
3. Then define each state as a class in python file.
4. This file can be stored in the folder states in src directory . The path for the directory is shown below

~/sayabot\_ws/src/saya\_hospitality\_scenarios/saya\_hospitality\_states/src/states

1. Create each file for each module's state. Like create a separate file for defining states of sayabot\_hospitality\_face\_tracking package.
2. After defining the states, State Machine can be created with this states.
3. To do so we need to create a SMACH container python file in a directory scripts.
4. Once the SMACH contanier is created with the defined states, it can be runned.

## Steps to import SMACH state python file to SMACH container file :

SMACH states for the sayabot are defined in the directory /src/states. This states file can be imported to SMACH container file i.e stoed in directory /scripts.

1. To import python file, we need to make that file as a libraries file.
2. Let us create a python libraries in directory called /states. This directory is stored in directory /src i.e /src/states.

$ cd ~/sayabot\_ws/src/

$ mkdir states

$ cd states/

$ touch \_\_init\_\_.py

1. \_\_init\_\_.py file has to be created in the directory where python libraries are stored.
2. Now create a python files i.e SMACH state files in the folder /src/states.
3. Then create a file called setup.py inside a package.

$ cd ~/sayabot\_ws/  
 $ gedit setup.py

copy the following code to setup.py file

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## ! DO NOT MANUALLY INVOKE THIS setup.py, USE CATKIN INSTEAD

from distutils.core import setup

from catkin\_pkg.python\_setup import generate\_distutils\_setup

# fetch values from package.xml

setup\_args = generate\_distutils\_setup(

packages=['states'],

package\_dir={'': 'src'},

)

setup(\*\*setup\_args)

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1. Then open CmakeLists.txt and uncomment the following statement:

catkin\_python\_setup()

1. Then once again build the workspace

$ cd ~/sayabot\_ws/

$ catkin\_make

1. Now you can import the pythan library files from the states folder into any python file.
2. Goto /scripts folder create a SMACH container program.

Filename: sayabot\_test.py

$ ~/sayabot\_ws/scripts

$ gedit sayabot\_test.py

1. use the following statement in python file to import python libray files from states folder.

import states.sayabot\_state\_filename.py as local\_name