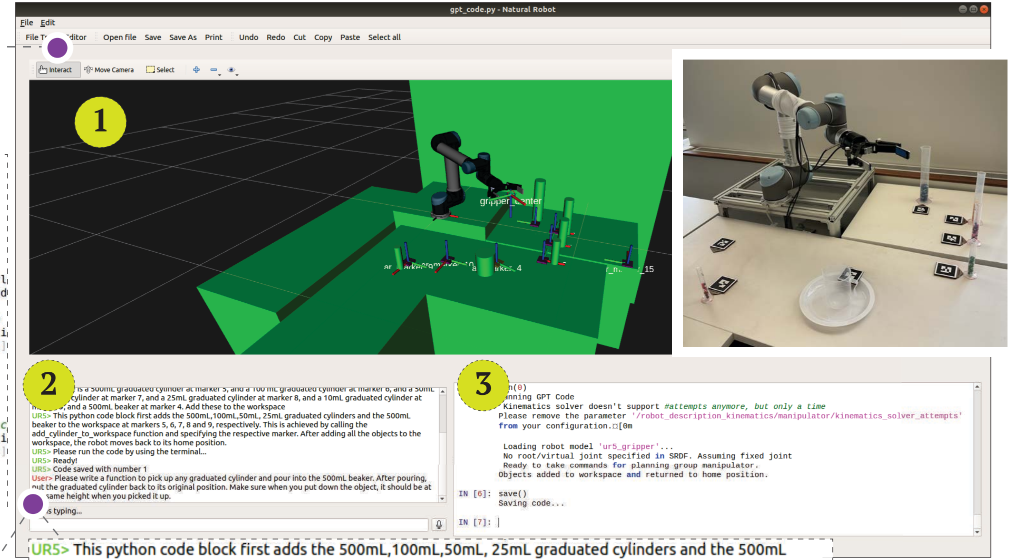
Allowing end-user developer
to edit the generated code

4

```
from Lib.ur5.FunctionLibrary import FunctionLib
import rospy

def pour_liquid(cylinder_name, beaker_name):
    # Initialize rospy and function library
    rospy.init_node('gpt')
    lib = FunctionLib()

    # Get the object dimension and location
    cylinder_dims = lib.get_object_dimensions(cyl
    cylinder_loc = lib.get_object_location(cylind

    # Move to the cylinder, grasp it and move up
    lib.go(cylinder_loc[0], cylinder_loc[1], cyli
cylinder_loc[3], cylinder_loc[4], cylinder_loc[5]
    lib.close_gripper(cylinder_name)

    # Pour the contents into the beaker
    lib.pour(beaker_name)

    # Move back to the starting location of the c
    lib.go(cylinder_loc[0], cylinder_loc[1], cyli
cylinder_loc[3], cylinder_loc[4], cylinder_loc[5]

    # Release the cylinder
    lib.open_gripper()

    # Return to home position
    lib.move_to_home_position()
    rospy.sleep(0.5)
```


gpt_code.py - Natural Robot
File Edit
File T Editor Open file Save Save As Print Undo Redo Cut Copy Paste Select all
Interact Move Camera Select
1
gripper_center
marker_4
_15
2
3

is a 500mL graduated cylinder at marker 5, and a 100 mL graduated cylinder at marker 6, and a 50mL cylinder at marker 7, and a 25mL graduated cylinder at marker 8, and a 10mL graduated cylinder at , and a 500mL beaker at marker 4. Add these to the workspace

UR5> This python code block first adds the 500mL,100mL,50mL, 25mL graduated cylinders and the 500mL beaker to the workspace at markers 5, 6, 7, 8 and 9, respectively. This is achieved by calling the add_cylinder_to_workspace function and specifying the respective marker. After adding all the objects to the workspace, the robot moves back to its home position.

UR5> Please run the code by using the terminal...

UR5> Ready!

UR5> Code saved with number 1

User> Please write a function to pick up any graduated cylinder and pour into the 500mL beaker. After pouring, put the graduated cylinder back to its original position. Make sure when you put down the object, it should be at same height when you picked it up.

s typing...

```
 n(0)
 nning GPT Code
 Kinematics solver doesn't support #attempts anymore, but only a time
Please remove the parameter '/robot_description_kinematics/manipulator/kinematics_solver_attempts'
from your configuration.¤[0m

 Loading robot model 'ur5_gripper'...
 No root/virtual joint specified in SRDF. Assuming fixed joint
 Ready to take commands for planning group manipulator.
Objects added to workspace and returned to home position.

IN [6]: save()
        Saving code...

IN [7]: |
```

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UR5> Please run the code by using the terminal...

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User> Please write a function to pick up any graduated cylinder and pour into the 500mL beaker. After pouring, put the graduated cylinder back to its original position. Make sure when you put down the object, it should be at the same height when you picked it up.

Conversation-based
robot program generation