Robot Practical Course

Assignment #2

This assignment is supposed to deepen your knowledge and understanding of DH Parameters and URDF descriptions.

Task 2.1 Measuring: Find the wall-mounted `Universal Robot UR5` in the lab in F-326.
Measure the physical properties of the manipulator and make a sketch of the geometry. Use the provided measuring tools and expect the required angles to be right angles.

Task 2.2 URDF description: Create a URDF file using geometric primitives which represents the properties of the `UR5`. Visualize the arm in the visualization tool to verify your URDF description and show your result to a supervisor.
Check the following link for available Syntax in URDF:
`http://wiki.ros.org/urdf/XML`
Visualization-Workflow:

- `roslaunch itr_rpc task_2.launch` launches the visualization tool. You can keep this window open as long as you do not get any errors. At first, the `RobotModel` will be marked red and you will not see a robot model.
- `roslaunch itr_rpc upload_robot_model.launch` loads the urdf model of a simple cylinder. You need to manually refresh the visualization by unchecking and checking the `RobotModel` checkbox.
- Create your own `URDF` file. You may place this file anywhere you would like.
- Repeat the following steps everytime you have altered your robot model
  - `CTRL+C` the previous `roslaunch itr_rpc upload_robot_model.launch`
  - `roslaunch itr_rpc upload_robot_model.launch robot:=full/path/to/robot.urdf` uploads the new description file. The path to the description file must be fully specified relative to the folder you are currently in
  - Refresh the `RobotModel` in Rviz

Task 2.3 DH Parameters: Extract the DH Parameters of the `UR5` from your URDF and present the table to a supervisor.

Joint	a	α	d	θ
1				
2				
3				
4				
5				
6				