Aim : Smart in-house autonomous robot helper for day-to-day activities.

Flow Diagram :

Gazebo Simulator

Simple Diagram of bot | Setting dimensions | Creating meshes in blenders | Creating xacro and assembling all the links | setting up joints and roscontrol and camera and laser scanner |

ROS

Creating navigational packages and configs | creating map file using SLAM gmapping | creating AMCL launch files and tuning costmap params |

Joining ur5 arm xacro to mobile robot base | attaching end effector '2 finger gripper' | creating manipulation kinematics and inverse-kinematics solver package using moveit | integrating navigation and manipulation packages |

Adding perception using find - object - 2d | using object detection and 3d pose estimation to use autonomous pick and place of objects |

Shivam Chavan vaibhav.dasharathe18@vit.edu