	Workspace Name	Package Name	Subdirectories	Includes Files & directory	Purpose of Include these files	Add Company Tag	Changes
			Nox_robot/	Arduino, CAD, docs, nox, nox description			
1	catkin_ws	src	Nox_robot/CAD	solidworks/	Essential for proper robot operation. Affects /cmd_vel.	Yes	Keep the file to avoid issue with robot control.
2	catkin_ws	src	costmap_converter	cfg, include, msg, src, test	A ros package that includes plugins and nodes to convert occupied costmap2d cells to primitive type	Yes	optimized the .h and .cpp files
3	catkin_ws	src	audio_common	sound_play/action, include, msg, scripts, sounds, src, test	Related to audio processing in the robot.	Yes	No changes
4	catkin_ws	src	follow_waypoints	lunch, nodes, readme_images, saved_path, src	manage navigation through predefined waypoints	Yes	A package that will buffer `move_base` goals until instructed to navigate to all waypoints in sequence.
5	catkin_ws	src	x2_cartographer	bags, ydlidar	Used for mapping and localization (SLAM).	Yes	used to create a demonstrator of using YDLIDAR X2 with Google Cartographer(when its deleted bot jumping from goal location).
6	catkin_ws	src	Nox_robot/nox/cfg	rviz_amcl_navigation.rviz, rviz_slam_base_local_planner.rviz, teb_local_planner.yaml	YAML files in ROS typically store configuration data such as paraameters for different nodes, sensors	Yes	modified yaml file
7	catkin_ws	src	Nox_robot/nox/cfg1		YAML files in ROS typically store configuration data such as paraameters for different nodes, sensors	Yes	deletion of unnecessary configuration file.
8	catkin_ws	src	hls_lfcd_lds_driver	application, include, launch, rviz, src, CHANGELOG,rst, CmakeLists.txt, LICENSE, package.xml	includes drivers for a laser distance sensor, used for obstacle detection and mapping.	Yes	modified .cpp file
9	catkin_ws	src	g2o	benchmarks, cmake_modules, doc, g2o, script, unit_test,appveyor.yml, CmakeLists.txt, codecov.yml	optimizing graph-based problems, commonly used in SLAM and other robotic applications.	Yes	update .cpp , .h, .xml files
10	catkin_ws	src	move_base_flex	docs, mbf_abstrct_core, mbf_abstract_nav, mbf_costmap_core, mbf_costmap_nav, mbf_msgs, mbf_simple_nav, mbf_utility, move_base_flex, git-clang-format.py	Manages flexible navigation for the robot.	Yes	remove unnecessary contains
11	catkin_ws	src	open_slamgmapping	build_tools, carmenwrapper, configfile, docs, gfs-carmen, grid, gridfastslam, gui, include, ini, log, navigation_msgs, particlefilte, scanmatcher, sensor, utils,	generating a map of the robot's environment while localizing itself within the map (SLAM)	Yes	modified .cpp file
12	catkin_ws	src	Ydlidar_ros_driver	images, launch, msg, src, startup, CmakeLists.txt, package.xml	Driver for YDLidar, a type of lidar sensor.	Yes	modified .cpp file
13	catkin_ws	src	turtlebot	sounds, .py	turtlebot packages handle moving the robot towards a goal, which is part of the navigation stack	Yes	after delete files are intact to avoid jumping behavior.
14	catkin_ws	src	Navigation Layers	navigation_layers, range_sensor_layer, social_navigation_layers		Yes	optimize .cpp and .h file
15	catkin_ws	src	relaxed_astar	launch, map, src, CmakeLists.txt, package.xml, relaxed_astar_planner	Pathfinding algorithm (for running in straight path)	Yes	optimized the .h and .cpp files
16	catkin_ws	src	robotpose_ekf	images,include, scripts, src, srv, test, CmakeLists.txt, package.xml	Pose estimation using Extended Kalman Filter (EKF).	Yes	optimized the .h and .cpp files
17	catkin_ws	src	Navigation	Audios, Coordinates, dependencies, navigation.py	package for managing robot navigation, including localization, mapping, and planning	Yes	optimized the .h and .cpp files
18	catkin_ws	src	speed_odom	include, src, CmakeLists.txt, package.xml	Handles speed and essential for tracking the robot's position and velocity.	Yes	No changes
19	catkin_ws	src	turtlebot3	turtlebot3, turtlebot3_bringup, turtlebot3_description, turtlebot3_example, turtlebot3_navigation, turtlebot3_slam, turtlebot3_teleop	managing the robot's basic functions and behaviors.	Yes	No changes
20	catkin_ws	src	turtlebot3_deliver	turtlebot3_deliver, turtlebot3_deliver_core, turtlebot3_deliver_images, turtlebot3_deliver_pad, turtlebot3_deliver_service, turtlebot3_deliver_voice	its contains specific behaviors or scenarios for the robot to carry out delivery tasks.	Yes	No changes
21	catkin_ws	src	turtlebot3_msgs	msgs, CmakeLists.txt, package.xml	ROS message definitions for TurtleBot3.	Yes	No changes
22	catkin_ws	src	turtlebot3_simulations	turtlebot3_fake, turtlebot3_gazebo, turtlebot3_simulations	Simulation package for TurtleBot3.	Yes	No changes
23	catkin_ws	src	rosserial	rosserial, rosserial_arduino, rosserial_chibios, rosserial_client, rosserial_embeddedlinux, rosserial_mbed, rosserial_msgs, rosserial_python, rosserial_server, rosserial_test, rosseri	Serial communication for ROS and microcontrollers.	Yes	No changes
24			auto_clear_costmap	src, CmakeLists.txt, package.xml			