APPENDIX

A. Configuration Options in ROS `nav core`

TABLE IV: Configuration options in `base local planner`

Parameters	Configuration options	Values/Range
Robot Configuration	`acc_lim_x`	0 - 5
	`acc_lim_y`	0 - 5
	`acc_lim_theta`	0 - 6
	`max_vel_x`	0 - 1
	`min_vel_x`	-0.1 - 0.2
	`max_vel_theta`	0 - 1
	`min_vel_theta`	-1 - 0
	`min_in_place_theta`	0 - 0.5
	`escape_vel`	-0.2 - 0
	`holonomic_robot`	true
	`y_vels`	-0.3 - 0.3
Goal Tolerance	`yaw_goal_tolerance`	0.1 - 3
	`xy_goal_tolerance`	0.1 - 0.4
	`latch_xy_goal_tolerance`	true, false
Forward Simulation	`sim_time`	1 - 2
	`sim_granularity`	0.015 - 0.03
	`vx_samples`	1 - 30
	`vtheta_samples`	1 - 30
	`controller_frequency`	10 - 20
Trajectory Scoring	`meter_scoring`	true, false
	`pdist_scale`	0.1 - 1
	`gdist_scale`	0.5 - 1.5
	`occdist_scale`	0.01 - 0.05
	`heading_lookahead`	0.325
	`heading_scoring`	true, false
	`heading_scoring_timestep`	0.8
	`dwa`	true, false
	`publish_cost_grid`	true, false
Oscillation Prevention	`oscillation_reset_dist`	0.05
Global Plan	`prune_plan`	true, false

TABLE V: Configuration options in `global planner`

Configuration options	Values
`allow_unknown`	0
`default_tolerance`	false
`use_dijkstra`	true
`use_quadratic`	true
`use_grid_path`	false
`old_navfn_behavior`	false
`lethal_cost`	253
`neutral_cost`	50
`cost_factor`	3
`publish_potential`	true
`orientation_mode`	0
`orientation_window_size`	1
`outline_map`	true

TABLE VI: Configuration options in `costmap 2d`

Configuration options	Values/Range
`footprint_padding`	0.01
`update_frequency`	4 - 7
`publish_frequency`	1 - 4
`transform_tolerance`	0.2 - 2
`resolution`	0.05
`obstacle_range`	5.5
`raytrace_range`	6
`inflation_radius`	1 - 10
`cost_scaling_factor`	1 - 20
`combination_method`	true, false
`stop_time_buffer`	0.1 - 0.3

B. Configuration Setting for Root Cause Verification

TABLE VII: Configuration setting for Energy

Rank 1		Rank 3		Rank 4	
Options	Values	Options	Values	Options	Values
Cost_scaling_factor	10	Cost_scaling_factor	10	**Cost_scaling_factor**	2 - 20
update_frequency	4	update_frequency	4	**update_frequency**	1 - 7
publish_frequency	3	publish_frequency	3	publish_frequency	3
transform_tolerance	0.5	**transform_tolerance**	0.2 - 2	transform_tolerance	0.5
combination_method	0	**combination_method**	0, 1	combination_method	0
pdist_scale	0.75	pdist_scale	0.75	pdist_scale	0.75
gdist_scale	0.5 - 4	gdist_scale	1	gdist_scale	1
occdist_scale	0.01 - 2	occdist_scale	0.1	occdist_scale	0.1
stop_time_buffer	0.2	stop_time_buffer	0.2	stop_time_buffer	0.2
yaw_goal_tolerance	0.1	yaw_goal_tolerance	0.1	yaw_goal_tolerance	0.1
xy_goal_tolerance	0.2	xy_goal_tolerance	0.2	xy_goal_tolerance	0.2
min_vel_x	0	min_vel_x	0	min_vel_x	0

TABLE VIII: Configuration setting for Mission Success

Rank 1		Rank 3		Rank 4	
Options	Values	Options	Values	Options	Values
Cost_scaling_factor	10	Cost_scaling_factor	10	Cost_scaling_factor	10
update_frequency	4	update_frequency	4	update_frequency	4
publish_frequency	3	publish_frequency	3	publish_frequency	3
transform_tolerance	0.5	**transform_tolerance**	0.2 - 2	transform_tolerance	0.5
combination_method	0	combination_method	0	**combination_method**	0, 1
pdist_scale	0.75	pdist_scale	0.75	pdist_scale	0.75
gdist_scale	1	**gdist_scale**	0.5 - 4	gdist_scale	1
occdist_scale	0.01 - 2	occdist_scale	0.1	occdist_scale	0.1
stop_time_buffer	0.2	stop_time_buffer	0.2	stop_time_buffer	0.2
yaw_goal_tolerance	0.1	yaw_goal_tolerance	0.1	**yaw_goal_tolerance**	0.05 -1
xy_goal_tolerance	0.01 - 1	xy_goal_tolerance	0.2	xy_goal_tolerance	0.2
min_vel_x	0	min_vel_x	0	min_vel_x	0