



### Navigation System

1 Symbolic goal

2 Quere about current semantic robot location

3 Reply about current semantic robot location

4 Quere about semantic robot location

5 Reply about semantic robot location

6 Quere about environment information

7 Reply about environment information

8 Reply about environment information

9 Reply about environment information

10 Quere about semantic position properties

11 Reply about semantic position properties

12 Quere about semantic position properties

13 Reply about current semantic robot location

14 Geometric sub-goal

15 Geometric sub-goal

16 Sub-goal success/ failure event

17 Request for next sub-goal

18 Sub-goal failure notification

19 Failure cause

20 Modification / change in subgoal

21 Failure notification (with suggestions)