

Domains	Probs.	O	F.S	Optimal						Satisficing					
				M1			M2			M1			M2		
				Int. Step	FR	Time(s)	Int. Step	Time(s)		Int. Step	FR	Time(s)	Int. Step	Time(s)	
Elevator	Prob1	4.0	2.6	1.6 ± 1.3	3/5	1.0 ± 2.2	0.1 ± 0.2	18.4 ± 9.5		2.6 ± 1.5	5/5	2.2 ± 2.2	0.7 ± 1.0	33.0 ± 17.5	
	Prob2	4.4	3.8	2.6 ± 2.2	3/5	3.1 ± 2.9	0.6 ± 0.8	102.9 ± 39.8		3.2 ± 2.1	4/5	3.1 ± 2.8	0.6 ± 0.8	43.9 ± 42.6	
	Prob3	6.4	5.0	4.2 ± 2.7	4/5	4.3 ± 3.8	1.8 ± 1.6	120.8 ± 135.6		5.0 ± 2.0	5/5	5.1 ± 2.8	1.44 ± 0.6	141.5 ± 120.9	
	Prob4	5.8	4.6	4.6 ± 1.3	5/5	4.8 ± 1.6	1.1 ± 0.1	78.7 ± 46.4		4.6 ± 1.3	5/5	4.8 ± 1.6	0.8 ± 0.4	77.6 ± 45.5	
	Prob5	6.4	4.2	3.0 ± 1.6	3/5	2.6 ± 2.1	1.2 ± 1.1	52.2 ± 80.2		3.2 ± 1.5	3/5	2.8 ± 2.0	1.2 ± 0.9	66.8 ± 78.6	
	Overall	5.40	4.04	3.2 ± 1.8	3.6/5	3.2 ± 2.5	0.95 ± 0.8	77.2 ± 62.3		3.7 ± 1.7	4.4/5	3.6 ± 2.3	0.95 ± 0.8	72.9 ± 61.0	
Rovers	Prob1	7.2	3.6	3 ± 1.7	4/5	5.0 ± 3.2	0.5 ± 0.0	1277.4 ± 957.7		3.4 ± 1.5	4/5	8.1 ± 6.3	1.1 ± 0.6	408.9 ± 243.2	
	Prob2	10	9	9 ± 1.4	5/5	22.0 ± 5.8	4.1 ± 0.7	328.1 ± 95.0		7.2 ± 2.8	1/5	14.8 ± 8.2	3.1 ± 1.4	220.1 ± 52.9	
	Prob3	10	6.2	6.2 ± 1.9	5/5	18.9 ± 15.8	3 ± 1.3	6927.9 ± 8989.1		4.8 ± 2.2	3/5	23.9 ± 25.9	1.9 ± 1.1	2372.8 ± 2923.4	
	Prob4	9	7.4	7.4 ± 1.3	5/5	11.9 ± 3.3	3.1 ± 0.7	200.6 ± 91.3		6.2 ± 1.6	3/5	8.9 ± 3.1	2.4 ± 1.1	155.1 ± 44.1	
	Prob5	10	9	9 ± 1.7	5/5	25.0 ± 7.1	3.6 ± 1.3	269.6 ± 50.4		9 ± 1.4	5/5	20.7 ± 3.2	3.2 ± 1.0	216.3 ± 34.2	
	Overall	9.24	7.04	6.9 ± 1.6	4.8/5	16.6 ± 7.0	2.9 ± 0.8	1800.7 ± 2036.7		6.1 ± 1.9	3.2/5	15.3 ± 9.3	2.3 ± 1.1	674.7 ± 659.5	
Gripper	Prob1	5	3.2	2.4 ± 1.7	4/5	1.9 ± 2.4	0.7 ± 0.8	111.1 ± 108.5		3 ± 1.9	4/5	3.1 ± 3.1	0.7 ± 0.6	160.8 ± 151.8	
	Prob2	6.4	4.2	4.2 ± 1.8	5/5	11.1 ± 12.2	1.8 ± 0.8	148.0 ± 135.5		3.6 ± 2.3	4/5	4.2 ± 4.1	0.7 ± 0.7	75.4 ± 65.2	
	Prob3	4.8	3	2.4 ± 1.7	4/5	2.0 ± 2.5	0.7 ± 0.8	109.5 ± 113.4		3 ± 1.6	5/5	2.8 ± 2.3	0.9 ± 0.7	139.0 ± 108.9	
	Prob4	6.4	4.8	4.8 ± 1.9	5/5	11.7 ± 12.8	2.1 ± 1.1	153.9 ± 146.5		3.8 ± 2.4	3/5	4.8 ± 4.0	1.5 ± 1.2	84.7 ± 62.2	
	Prob5	5.4	2	2 ± 0.7	5/5	3.8 ± 5.9	0.5 ± 0.4	249.3 ± 389.6		1.6 ± 0.5	4/5	0.8 ± 0.7	0.3 ± 0.3	62.7 ± 25.5	
	Overall	5.60	3.44	3.2 ± 1.6	4.8/5	6.1 ± 7.1	1.2 ± 0.8	154.4 ± 178.7		3.0 ± 1.7	4/5	3.1 ± 2.8	0.8 ± 0.7	104.5 ± 82.7	
Zeno	Prob1	5	3.6	3.6 ± 0.5	5/5	6.6 ± 1.8	1.3 ± 0.3	3524.3 ± 4027.0		1.6 ± 1.3	3/5	1.7 ± 3.1	0.3 ± 0.7	1689.8 ± 1378.2	
	Prob2	6.6	4.6	3.8 ± 2.3	4/5	5.2 ± 5.4	0.1 ± 0.3	205.0 ± 116.2		3.6 ± 2.3	3/5	4.3 ± 5.3	0.1 ± 0.3	236.0 ± 131.5	
	Prob3	5.4	3.6	3.4 ± 3.3	4/5	9.8 ± 10.7	0.5 ± 0.7	3054.6 ± 5831.4		3.2 ± 3.0	3/5	6.5 ± 7.6	0.4 ± 0.8	1127.6 ± 865.1	
	Prob4	7	5.2	5.2 ± 1.1	5/5	12.7 ± 9.5	0.4 ± 0.2	707.5 ± 354.4		2.4 ± 1.1	2/5	5.8 ± 5.6	0.6 ± 0.5	834.7 ± 890.7	
	Prob5	5.8	3.8	1.6 ± 0.9	3/5	1.5 ± 1.8	0.3 ± 0.4	271.1 ± 129.1		1.4 ± 0.9	1/5	1.2 ± 2.2	0.2 ± 0.4	631.1 ± 413.2	
	Overall	5.96	4.16	3.5 ± 1.6	4.2/5	7.1 ± 5.8	0.5 ± 0.4	1552.5 ± 2091.6		2.4 ± 1.7	2.4/5	3.9 ± 4.7	0.3 ± 0.5	903.8 ± 735.7	

Table 1: Comparison of performance metrics for the methods (M1 and M2) using both optimal and satisficing planners across different domains with varying problems. Here O corresponds to the average observation length; F.S - the step at which the observation would have resulted in a failure; FR - the ratio of instances in which the method failed to prevent the human from taking a step that results in failure; Int. Step - the average step number in which the method intervened (along with the std deviation). Finally, time reports the time taken for the approach as a whole.

Domains	Problems	Planner Time	
		Optimal	Satisficing
Elevator	Prob1	74 ± 92.1	177.4 ± 116.6
	Prob2	25.5 ± 24	117 ± 116.5
	Prob3	243.7 ± 128.9	308.8 ± 84.4
	Prob4	325.5 ± 139.4	395.1 ± 173.7
	Prob5	266.8 ± 65.5	287.8 ± 64.4
	Overall	187.1 ± 90	257.2 ± 111.1
Rovers	Prob1	159.4 ± 102.9	189.3 ± 155.7
	Prob2	166.4 ± 179.8	58.7 ± 46.9
	Prob3	324.9 ± 228.2	224.1 ± 153.5
	Prob4	196.4 ± 78.1	125.5 ± 11.9
	Prob5	17.1 ± 9	22 ± 18.9
	Overall	172.9 ± 119.6	123.9 ± 77.4
Gripper	Prob1	236.8 ± 275.9	273.1 ± 332.7
	Prob2	684.2 ± 259.4	802.1 ± 544.7
	Prob3	74.1 ± 109	179.7 ± 222.2
	Prob4	936.7 ± 682.3	776.1 ± 768.4
	Prob5	464 ± 557.5	244.2 ± 197.8
	Overall	479.2 ± 376.8	455 ± 413.2

Table 2: Comparison of the time required by optimal and satisficing planners for minimal interventional information in order to prevent goal failures.