

Table 1: Evacuation Performance

Method	Time	Success Rate
baseline	25.3 s	95.2%
baseline	25.3 s	95.2%
baseline (with obstacles)	27.8 s	92.1%
layered (with obstacles)	24 s	96.3%
graph	23.8 s	96.8%
graph (with obstacles)	25.5 s	94.7%
noise	23.0 s	97.6%
noise (with obstacles)	24.8 s	95.9%
MADDPG (with obstacles)	28.0 s	91.8%

Table 2: Evacuation Performance

Method	50	100	150
baseline	12.3 s	26.4 s	38.2 s
baseline (with obstacles)	13.5 s	28.1 s	40.0 s
layered	8.2 s	20.0 s	30.2 s
layered (with obstacles)	9.1 s	21.8 s	32.5 s
graph	10.9 s	23.3 s	34.1 s
graph (with obstacles)	12.0 s	25.0 s	36.0 s
noise	9.6 s	21.7 s	32.2 s
MADDPG	12.6 s	27.0 s	39.0 s
MADDPG (with obstacles)	14.0 s	29.2 s	41.5 s

Table 3: Evacuation Performance

Method	50	100	150	200
baseline (with obstacles)	13.5 s	28.3 s	40.5 s	53.0 s
layered	8.2 s	20.0 s	30.2 s	42.4 s
layered (with obstacles)	9.3 s	21.9 s	32.7 s	45.0 s
graph	10.9 s	23.3 s	34.1 s	46.8 s
graph (with obstacles)	12.1 s	25.2 s	36.0 s	49.2 s
noise	9.6 s	21.7 s	32.2 s	44.6 s
noise (with obstacles)	10.8 s	23.6 s	34.5 s	47.3 s
MADDPG	12.8 s	27.3 s	39.5 s	51.8 s
MADDPG (with obstacles)	13.7 s	29.0 s	41.8 s	54.5 s

Table 4: Evacuation Performance

Method	50	100	150	200	250
baseline	12.3 s	26.4 s	38.2 s	50.7 s	63.5 s
baseline (with obstacles)	13.6 s	28.5 s	40.6 s	53.1 s	66.2 s
layered	8.2 s	20.0 s	30.2 s	42.4 s	54.8 s
layered (with obstacles)	9.4 s	22.0 s	32.8 s	45.1 s	58.0 s
layered (with obstacles)	9.4 s	22.0 s	32.8 s	45.1 s	58.0 s
graph	10.9 s	23.3 s	34.1 s	46.8 s	59.2 s
graph (with obstacles)	12.2 s	25.4 s	36.3 s	49.1 s	61.8 s
noise	9.6 s	21.7 s	32.2 s	44.6 s	57.0 s
noise (with obstacles)	10.9 s	23.8 s	34.8 s	47.5 s	60.3 s
MADDPG	13.0 s	27.6 s	39.8 s	52.5 s	65.0 s
MADDPG (with obstacles)	13.8 s	29.5 s	42.0 s	54.7 s	67.5 s

Table 5: Evacuation Performance

Method	50	100	150	200	250	300
baseline	12.4 s	26.4 s	38.2 s	50.7 s	63.5 s	76.2 s
baseline (with obstacles)	13.6 s	28.6 s	40.8 s	53.3 s	66.4 s	79.5 s
layered (with obstacles)	9.4 s	22.0 s	32.8 s	45.1 s	58.0 s	
layered	8.2 s	20.0 s	30.2 s	42.4 s	54.8 s	67.5 s
layered (with obstacles)	9.5 s	22.1 s	33.0 s	45.3 s	58.2 s	71.3 s
graph	10.9 s	23.3 s	34.1 s	46.8 s	59.2 s	71.8 s
noise	9.6 s	21.7 s	32.2 s	44.6 s	57.0 s	69.7 s
MADDPG	13.1 s	27.7 s	40.1 s	52.8 s	65.7 s	78.3 s
MADDPG (with obstacles)	13.9 s	29.6 s	42.2 s	55.0 s	68.0 s	81.1 s
MADDPG (with obstacles)	13.9 s	29.6 s	42.2 s	55.0 s	68.0 s	81.1 s