

Nomenclature

α_φ	Pheromone evaporation factor
$\mathcal{B}_R(p)$	Bounding box with center p with side length $2R$
ω^a	Agent alignment weight
ω^c	Agent cohesion weight
ω^s	Agent separation weight
ω^t	Target weight
Ω_D	Frontier distance weight
Ω_S	Frontier size weight
ϕ_Δ	Max pheromone value difference for merging children nodes
ρ	Map resolution
θ_{turn}	Turn threshold
ζ	Cell information discount factor
f_e	Sensor error factor
k	Factor from the frontier selection probability formula
l	Factor from the frontier selection probability formula
l_{free}	Log-odds increase of occupancy confidence when a cell is observed as free.
l_{max}	Log-odds upper clamping value for occupancy confidence.
l_{min}	Log-odds lower clamping value for occupancy confidence.
$l_{occupied}$	Log-odds decrease of occupancy confidence when a cell is observed as occupied.
m	Factor from the frontier selection probability formula
n	Factor from the frontier selection probability formula
N_A	Number of agents in the swarm
N_f	Maximum number of frontier regions considered in frontier selection
N_s	Maximum number of route sections
N_{cc}	Number of covered cells by an agent
N_{cc}	Number of covered cells

$O_i(j)$	Occupancy of cell j according to agent A_i
P_o	Occupied probability threshold
R_a	Agent alignment radius
R_c	Agent cohesion radius
R_d	Frontier reach radius
R_f	Frontier search radius
R_o	Object avoidance radius
R_s	Agent separation radius
R_x	Frontier separation radius
R_{comm}	Communication range
R_{random}	Random walk radius
R_{sensor}	Distance sensor threshold
S_i	State of agent A_i
T_φ	Pheromone evaporation time
T_f	Minimum time between frontier checks
T_{map}	Map exchange interval
T_{spawn}	Average inter-arrival time for dynamic obstacles (Poisson)
T_{sync}	Time synchronization interval