GTRS-based Algorithm for UAV Navigation in Indoor Environments Employing Range Measurements and Odometry

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Types of Drones

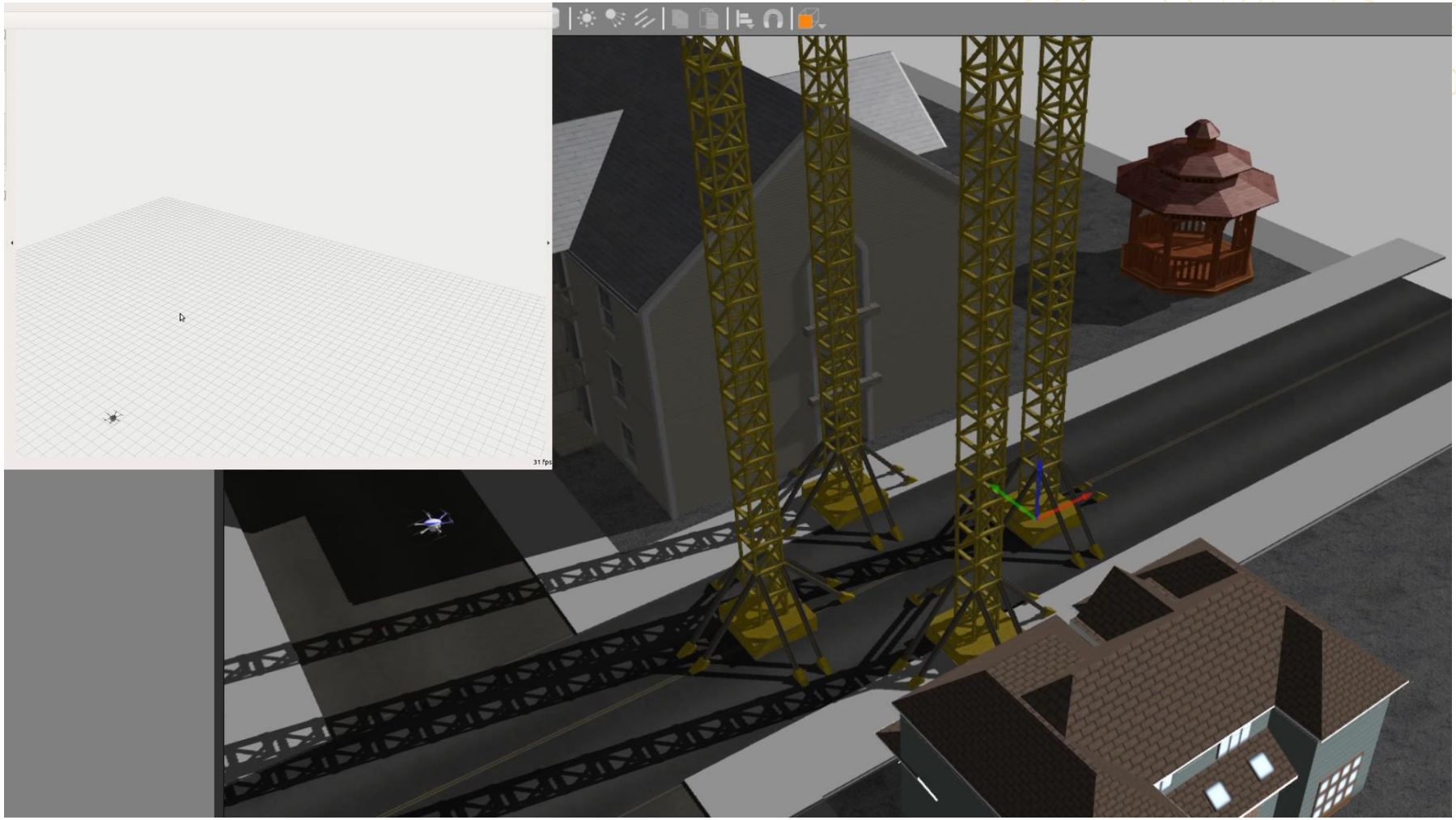
Fixed Wing

Multirotor

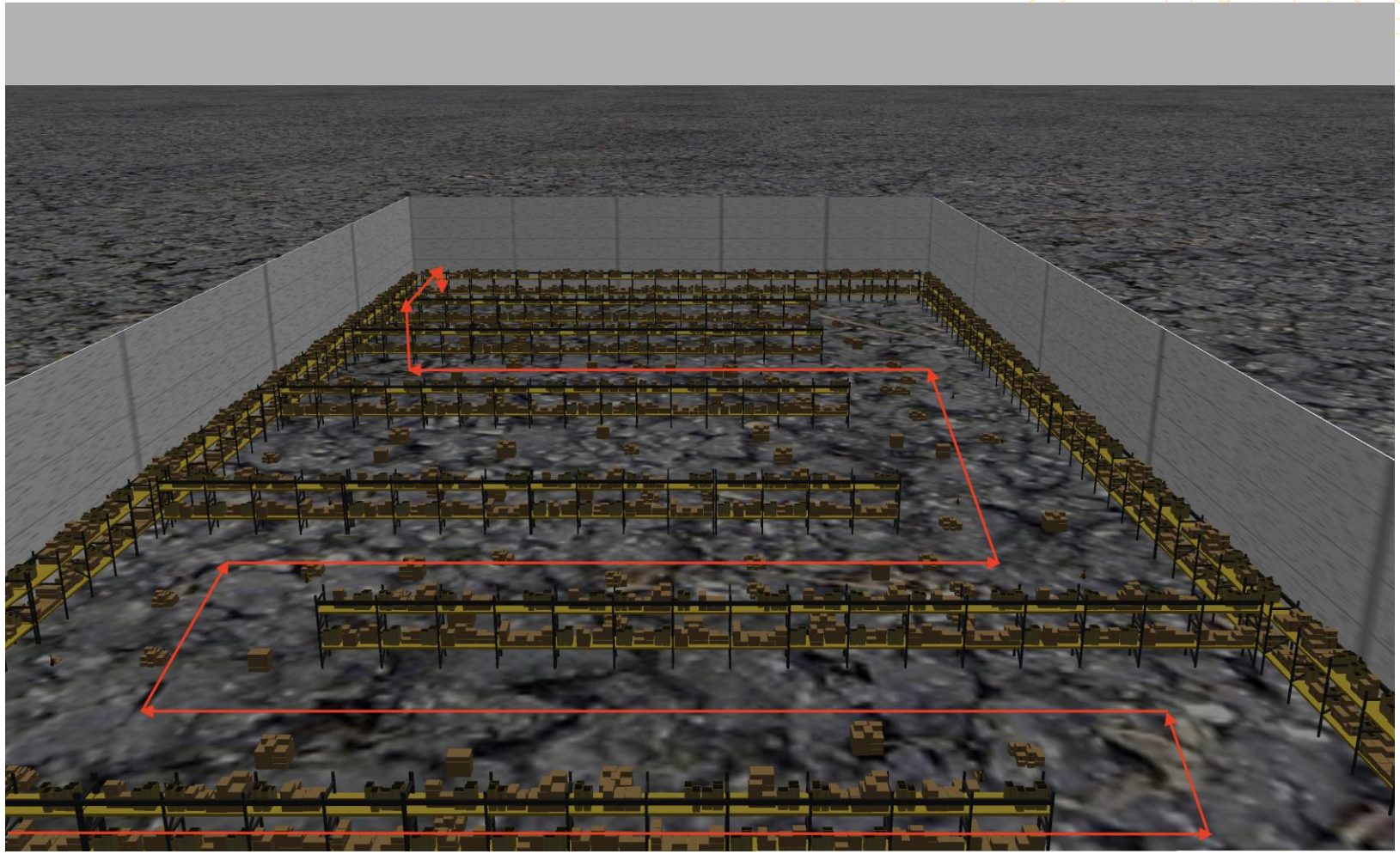
Single Rotor Helicopter

Fixed Wing Hybrid

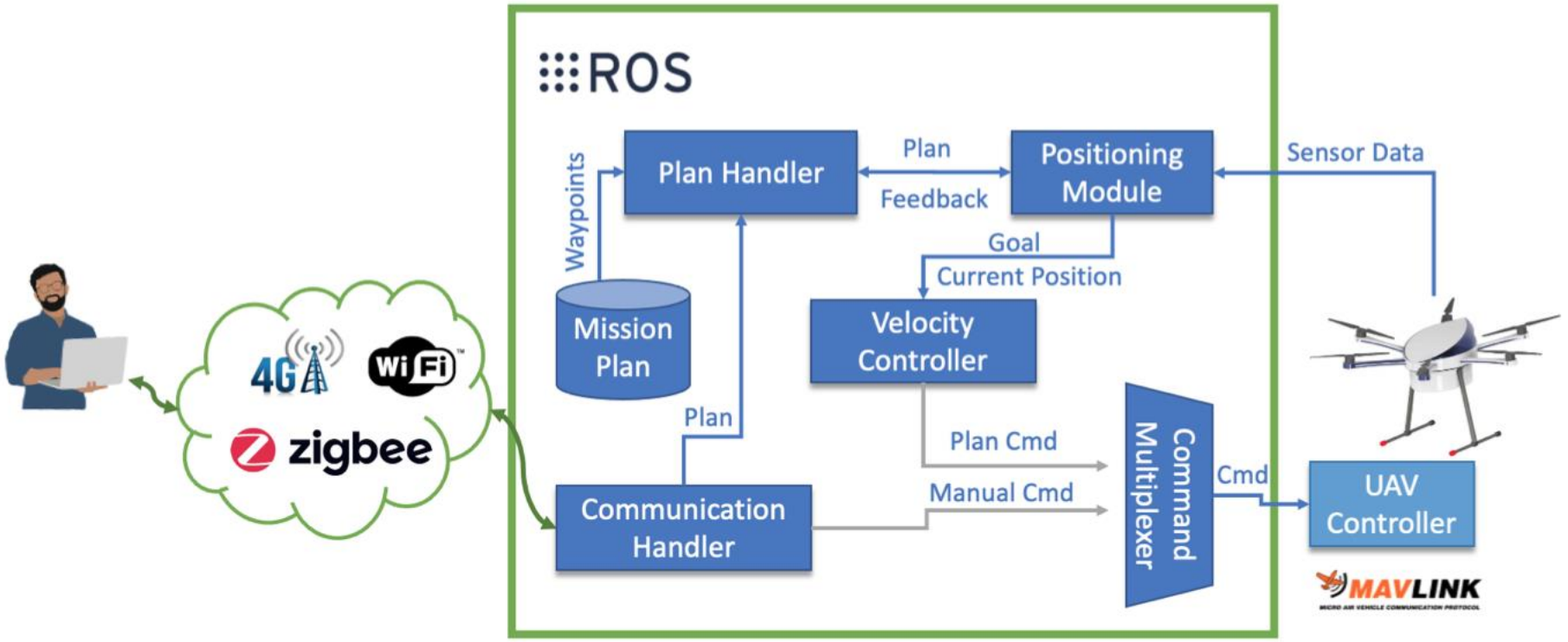
Simulator - Gazebo



Gazebo simulator with the mission’s waypoints to be executed.

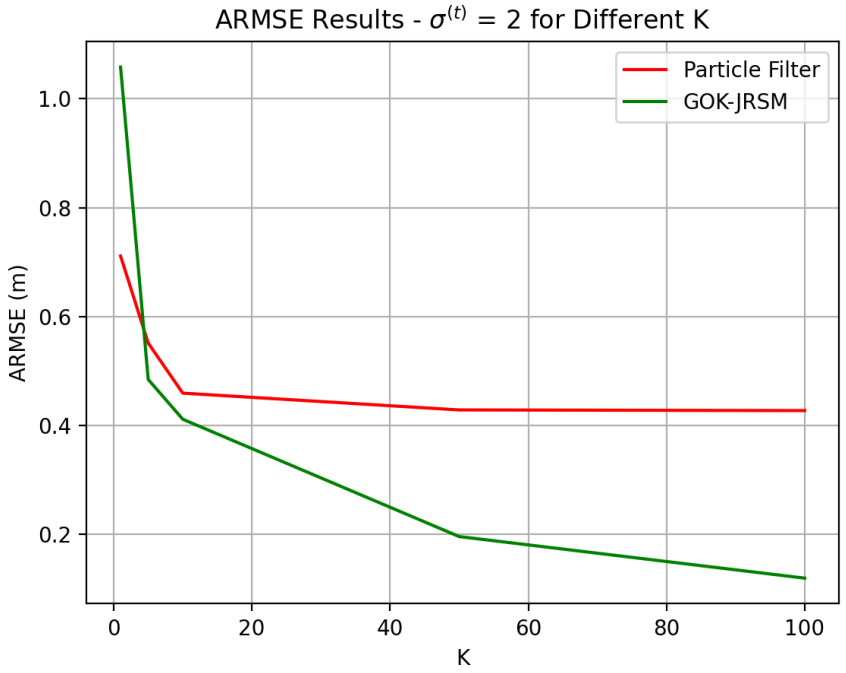


Architecture of the framework for indoor positioning with drones



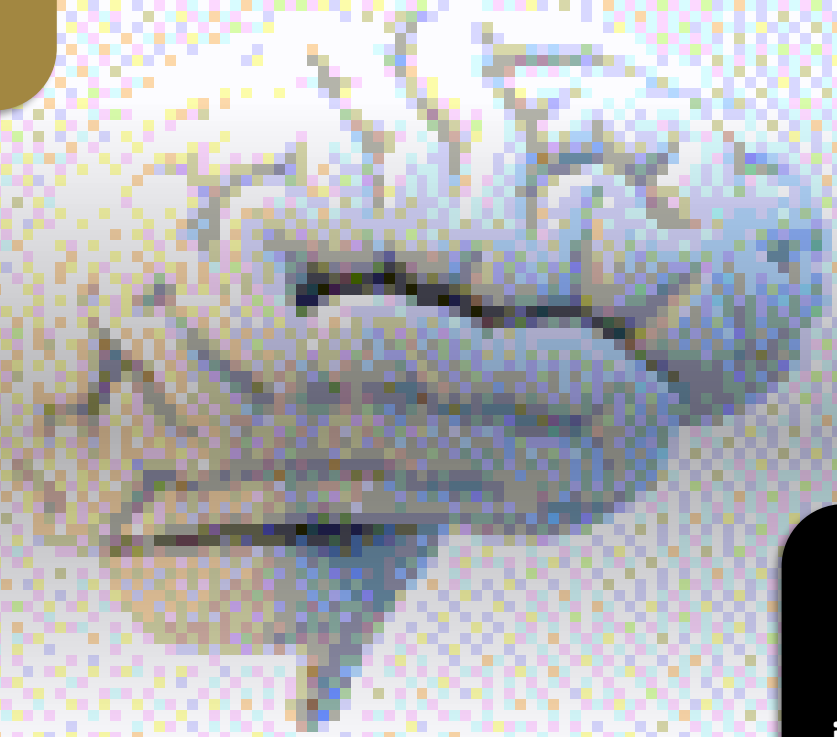
Some Results...

Parameters		ARMSE (m)	
		HP Sensors	LP Sensors in [57]
$\sigma_i^{(t)} = 1$	$N = 4$	0.1793	1.6078
	$N = 5$	0.1166	2.5047
	$N = 6$	0.1033	2.0907
	$N = 7$	0.0972	2.2580
	$N = 8$	0.0809	1.3133
$N = 4$	$\sigma_i^{(t)} = 1$	0.1506	1.6078
	$\sigma_i^{(t)} = 2$	0.3831	1.7418
	$\sigma_i^{(t)} = 3$	0.8635	2.1228
$N = 4, \sigma_i^{(t)} = 2$	$K = 1$	1.0581	2.2312
	$K = 5$	0.4842	2.0043
	$K = 10$	0.4111	1.9580
	$K = 50$	0.1955	1.7225
	$K = 100$	0.1191	1.5518



Parameters		ARMSE (m)	
		Particle Filters in [36]	**Proposed Work**
$\sigma_i^{(t)} = 1$	$N = 4$	0.453	0.179
	$N = 5$	0.569	0.117
	$N = 6$	0.486	0.103
	$N = 7$	0.438	0.097
	$N = 8$	0.380	0.081
$N = 4$	$\sigma_i^{(t)} = 1$	0.453	0.151
	$\sigma_i^{(t)} = 2$	0.459	0.383
	$\sigma_i^{(t)} = 3$	0.513	0.864
$N = 4, \sigma_i^{(t)} = 2$	$K = 1$	0.711	1.058
	$K = 5$	0.551	0.484
	$K = 10$	0.459	0.411
	$K = 50$	0.428	0.196
	$K = 100$	0.427	0.119
Time consumption with $\sigma_i^{(t)} = 2$ $N = 6$ and $K = 100$		204.46ms	21.33ms

Thank you



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