drone_swarm_requirements

Source: database_dump.json, 2025-12-05, 21:48

swarm_req_id	requirement	priority	effect	rationale	author	verification_status	verifier	validation_status	vv_method	comment
SW-01	When a mission is started, the swarm shall assign tasks to agents according to the mission plan,considering any available differences in agent capability.	Mandatory	Task assignment	When operating with a heterogeneous swarm, task assignment shall account for both the mission plan and the specific capabilities of each agent, ensuring that differences in agent capabilities are explicitly considered.	C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-02	If an agent experiences a degradation in its functionality, the swarm shall reassign that agent's tasks to other functional agents, depending on the available resources of the functional agents.	Mandatory	Task re-assignment		C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-03	If an agent experiences a degradation in its functionality, the agent shall take on less critical task(s), provided the agent is capable of performing these task(s).	Mandatory	Task re-assignment	As the stakeholder has requested maximum efficiency, this requirement ensures that tasks are assigned optimally according to both the mission plan and agent capabilities.	C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-04	The swarm shall employ a consensus mechanism that ensures correct collective behaviour, even if at least one agent provides incorrect data.	Mandatory	Consensus		C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-05	The swarm shall reach a collective decision for each task that requires coordination.	Mandatory	Consensus		C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-06	The swarm shall coordinate all agents to distribute the search area such that each agent searches a different portion the search area.	Mandatory	Search mechanism		C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SW-07	When local conditions of an agent require immediate action,the swarm shall allow the agent to make independent decisions	Mandatory	Consensus	Since the swarm has no leader, agents should be able to make independent decision when necessary.	C.N	Accepted	E.Z	Verified	VVP-02	VVP-01
SR-02	When the staff is in the landing area, the swarm hover at a distance of atleast 40 m away from the landing area.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-03	When the swarm finds the subject, agents shall avoid flying above the subject.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-04	When the subject is confirmed to be found, the swarm shall fly atleast 50m away from the subject.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-06	Agents shall have a 25m buffer zone around them.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-07	If agents' buffer zones overlap then the agents whose buffer zones are oerlapping shall move away from each other.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-08	If position data of an agent in the swarm is delayed, then that culprit agent shall increase its buffer zone by atleast 20m.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-09	If position data of an agent in the swarm is uncertain, then that culprit agent shall increase its buffer zone by atleast 20m.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-10	If flight capacity of an agent in the swarm is decreased, then that culprit agent shall increase its buffer zone by atleast 20m.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-11	If communication of an agent in the swarm is delayed, then that culprit agent shall increase its buffer zone by atleast 20m.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-12	Agents shall fly a minimum of 15m above ground.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-13	Agent shall avoid obstacles.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-14	When the mission is in progress, Agent shall use sensors to detect stationary obstacles. Rationale:for situational awareness	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-15	When the mission is in progress, Agent shall use sensors for situational awareness to detect air obstacles.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-16	Swarm shall operate in areas with a population < 5 people per km^2.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-17	If agents communication is lost, agent shall return to base.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	

drone_swarm_requirements

Source: database_dump.json, 2025-12-05, 21:48

swarm_req_id	requirement	priority	effect	rationale	author	verification_status	verifier	validation_status	vv_method	comment
SR-18	If agents power unit is degraded, agent shall return to base if possible.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-19	If agent battery power is below 50%, agent shall return to base.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-20	If agent flight is unstable, agent shall return to base.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-21	While an agent is in searching state, the agent shall fly at an altitude between 15-20 m above ground.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-23	The operational volume shall have add 50m to all sides as a bufferzone	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-24	If an agent enters the operational areas buffer zone, the agent shall return to the operational area	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-25	If an agent leaves the operational areas buffer zone, the agent shall land	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-05	When the mission is in progress, swarm agents shall send out location updates periodically to other agents in the same swarm.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-01	When the staff is atleast 20m away from the swarm, the swarm shall proced with startup sequence.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-22	While an agent is in transition state, agent shall stay between 25-40m above ground.	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	
SR-26	Agents shall fly a maxsimum of 50m above ground	Mandatory	Safety		E.M	Accepted	E.Z	Verified	VVP-05	