Geo-Fence Configurations - Atmospheric Filtration Drone Swarm

Geo-fencing is used to define operational boundaries for drone swarms. These zones control where drones can fly, filter, and land, and they can be modified in real time through the DAO dashboard or pre-programmed into mission logic.

Types of Geo-Fences

- Soft Fence: triggers a return or alert if crossed

- Hard Fence: absolute no-fly zone, enforced by auto-halt

- Adaptive Fence: expands or contracts with local air conditions

- Emergency Perimeter: enforced during disasters, overrides soft logic

Configuration Methods

- DAO dashboard map draw mode

- GeoJSON import with named zones

- Live-mode sketch using tablet + drone GPS trail

- Config file upload via mission init script

Swarm Behavior at Boundaries

- Approach soft fence: drone slows and pings DAO

- Approach hard fence: drone stops and returns

- Adaptive zones: drone shifts filtration density or altitude

- In emergency: local priority overrides standard logic

Safety and Compliance

- Geo-fence logs are stored on-chain for audits

- Can be toggled per drone class (e.g. micro vs. heavy)

- Enforced even when disconnected from network

- Alerts team if unit enters restricted or residential area