

Drone Agent
A drone that patrols over a warehouse looking for threats.
State description
is_flying: Is the drone flying or parked
is_controlled_by_security: Has security personell taking charge of the drone?
mission_completed: The simulation has ended
chasing_robber: Is the drone after a robber
target_robber: The drone has a robber as target
Actions
detect_objects: Use computer vision (with Yolo) to detect robbers
inspect_area: Go to an area where suspicious activity was detected
take_off: The drone eleveteas form its landing station
land: The drone goes to its landing station and lands
adjust_height: Constantly change the height based on the target height
patrol: The drone moves around the warehouse looking for threats
chase_robber: Go after a target robber
Methods
check_collision: Check if it is safe to move to the target cell
find_safe_position: If going to collide find a cell where the collision would be avoided
Communication
CA-1/protocol: INFORM_THREAT/SurveillanceProtocol rolename: Surveillant
CA-2/protocol: ACCEPT_CONTROL/ControlProtocol rolename: Responder

Camera Agent
A camera located in a fixed point of the warehouse
State description
detection_radius: The radius to which the camera can detect movement
last_detection_time: The last time movement was detected
detected_agents: What agent was detected
Actions
detect_robbers: Calculate the position of the robbers spotted
detect_movement: Detect if any agent is within detection radius
Methods
alert_drone: Alert the nearest drone about detected robber
Communication
CA-1/protocol: ALERT_THREAT/SurveillanceProtocol rolename: Observer
CA-2/protocol: REQUEST_ASSISTANCE/AssistanceProtocol rolename: Alerter

Security Personnel Agent
A security person that goes around the warehouse looking for threats.
State description
has_drone_control: Is it currently controlling a drone
chasing_robber: Is it chasing a robber
target_robber: The robber which it is chasing if any
alerted_to_robber: Has it been alerted of a robber by a drone or camera
alerted_to_robber: Has it been alerted of a robber by a drone or camera
movement_speed: How fast is it moving at any given time
Actions
respond_to_camera_detection: Start chasing robbers when camera alerts a robber
patrol: Patrol the area randomly while avoiding collisions
assess_threat: Assess if drone's area inspection reveals a threat
_arrest_robber: Traps the robber and notifies the system to take it down
Methods
take_drone_control: Take control of a drone
release_drone_control: Release control of a drone
check_collision: Check if moving to new position would cause collision
Communication
CA-1/protocol: REQUEST_CONTROL/ControlProtocol rolename: Controller
CA-2/protocol: COORDINATE_PURSUIT/PursuitProtocol rolename: Pursuer

Robber Agent
A robber who tries to sneak in the warehouse and not be detected
State description
is_caught: Has it been caught by another agent
is_spotted: Has another agent detected it
Actions
move: Relocate while trying to avoid detection and collisions (if threats are detected it must try to move away from them)
Methods
check_nearby_threats: Check for nearby drones and security personnel
check_collisions: Check if moving to new position would cause collision
Communication
CA-1/protocol: None rolename: Target