Example Acceptance Tests from Dronology

UAV 1129: Return to launch during river rescue uses flight path confined within river banks

Preconditions:
UAV is flying within the geofence

Steps:
Dronology controller selects the UAV on the UI and presses the RTL button.
The UAV ascends or descends to a unique altitude.
The UAV flies to the longitude and latitude of its home coordinates at the assigned altitude.
The UAV descends vertical until it lands.

Postconditions:
The UAV returns to its home coordinates without collisions with other UAVs in flight.

UAV-1121: Flights that are tested in the simulator without collision are safe with Physical Drones

Preconditions:
Flight route is created
Physical UAV is armed and ready to fly
Simulator is armed and ready to fly

Steps:
1. The route is assigned to the physical UAV.
2. The Physical UAV flies the route.
3. Flight coordinates and waypoints are logged every 2 seconds with time stamps.
4. The Physical UAV completes the route.
5. Steps 1-4 are repeated for the simulated UAV.
6. Logs are compared to check that physical and simulated drones flight paths were within 1 meter of each other at all time stamps.

Postcondition:
Coordinates at any relative timestamp were within 1 meter.

UAV 1071: Two physical UAVs avoid head on collision

Preconditions:
Dronology is running.
GCS is running and registered with Dronology.
Predefined routes exist that would cause the two UAVs into a head-on collision.

Steps:
1. Two UAVs are powered up and activated. It registers successfully with Dronology and show up with the correct coordinates on the UI.

2. The Dronology operator assigns a route to each drone such that the UAVs fly directly towards each other on a collision course.

Preconditions:
When UAVs get within STOPDEAD distance they both stop and hover.
No collision occurs and drones are never closer than 5 meters.

Log Entry:
Run ID: 001
Dronology Branch: CA_integration
GCS Branch: integration
Date: 18/07/2018
Time: 12:03
Status: PASSED
Tester: Michael Murphy
Approved By: Jane Cleland-Huang
Description: Success

This is an example of one entry in our test log. Data is collected automatically via a mobile app.

UAV 1050: Connect, Takeoff, Land

Preconditions:
One UAV is powered up, armed, and set on the ground inside their respective geofences.
Dronology has been started and running.

Steps:
1. The GCS is started up on the field computer.
2. The telemetry dongle for the UAV is plugged into the field computer.
3. The GCS detects the UAV and displays its netid and USB port.
4. GCS establishes a connection with the UAV.
5. The UAV appears in the Dronology display as an icon on the map and as an active UAV in the left hand side of the screen.
6. The dronology operator issues a takeoff command to 20 meters to the UAV using the realtime flight screen.
7. The UAV arms and takes off to 20 meters and then hovers in place.
8. The Dronology UI shows the current status of the UAV i.e., taking off, battery status, altitude.
9. The dronology operator uses the realtime flight screen to issue a land in place command.
10. The UAV lands in place.
10. The status of the UAV in the UI reflects that the UAV is now on the ground.

Postconditions:
The UAV remains connected to Dronology. Its status is shown as on-ground, at the correct coordinates.