Initial Apprentice Autonomous Position Flight Test

DATE: Possibly First Flight Test

OBJECTIVE(S)

- A successful autonomous navigation of the Apprentice aircraft
- Verify that the Pixhawk will be able to move positions effectively during flight without human intervention

SUCCESS CRITERIA

- A successful mission implies the apprentice autonomously executes the following mission successfully:
  - Aircraft can accurately locate different waypoints set in QGroundControl
  - Upon reaching final waypoint, aircraft can return to planned home waypoint
- Craft completes mission within the estimated time of completion given in QGroundControl

SUPPLIES

- ❏ UAS
- ❏ Taranis (fully charged)
- ❏ Battery (fully charged, plus spare)
- ❏ Computer to run QGroundControl (fully charged, one spare)
- ❏ Cell phone with cellular data (fully charged, one spare)
- ❏ Receiver antenna for computer
- ❏ Tape
- ❏ zip-ties

LOCATION:	TEST SYSTEM:	TEST CONDITIONS:
Field or Airstrip	Apprentice/ Fall 2020 UAS	Mild weather conditions and no more than 10 mph wind

PROCEDURES

1. Complete Preflight Checklist
   - ❏ UAS is ready to fly
   - ❏ Team is briefed on safety concerns
   - ❏ Team is briefed on roles and objectives
   - ❏ Final Weather check
2. Complete Test-specific flight checklist
   - ❏ Create and upload mission plan to pixhawk (must be created on site)
3. Complete Electronics team pre-flight checklist
4. Complete Arming Procedure
5. Manually take off
6. Fly to first waypoint GPS location
   - ❏ Verify location via map view on QGroundControl
7. Flip the INSERT SWITCH HERE into INSERT SWITCH POSITION to switch the pixhawk into mission mode
8. Have the aircraft locate different waypoints
9. Verify the UAS completes its mission (See Mission plan and verification)

10. Once UAS has reached planned home, switch INSERT SWITCH HERE into INSERT SWITCH POSITION to switch the Pixhawk back into manual flight mode
11. Manually Land UAS
12. Disarm Pixhawk through QGroundControl
13. Flip ESC disarm switch on the Left side of the plane near the cockpit
14. Disconnect Battery
15. Visually inspect for any electronics damage
16. After the last flight disconnect in the following order:
    - ❑ Disconnect the battery
    - ❑ Turn off Taranis
    - ❑ Disconnect from QGroundControl
    - ❑ Measure battery voltage
    - ❑ Assess aircraft for damage

TEST DATA

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DEBRIEF

- Total Flight Time: _____

- Battery level pre-test: _____ | - Battery level post-test: _____ | - Power Consumption: _____

- Objectives met:
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- Test items that went well:
    -
    -
    -

- Test Items that did not go well/need to be improved:
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