Peregrine UAV

Test Document

This is the Senior Project Design Document for the Peregrine UAV program.
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Test Requirement

The test requirement is to achieve stable and consistent connectivity between the Ground Control Station (GCS) and the Peregrine UAV.

What is the goal?

Our goal is to test the consistency and reliability of short-range connectivity between the Ground Control System and the Peregrine Unmanned Aerial Vehicle.

What is the test plan?

First Required Feature: Be able to connect and control the UAV from the GCS.

1. The initial test is to attempt to connect the GCS to Peregrine UAV while the UAV is powered off. This will ensure that the GCS is actually connecting to the UAV.
2. The second test is to attempt to connect the GCS to the UAV while it is on; then to attempt to move the flight controls of the UAV once connection is assured.
3. Third test is to see if, during power up, if a rapid shutdown (or power cycle) will still allow a connection from the GCS to the UAV.

Second Required Feature: To be able to stream the camera feed from the UAV as well as crucial flight control information from the onboard systems.

1. The first test for the camera feed begins once the connection from the GCS to the UAV is confirmed, determine if it is a still vs. live image from the UAV camera.
2. The second test is to measure the latency of the camera feed; we will have a movement and time how long between the movement and the display movement.
3. Third, we will repeat Test 2 while moving the controls to determine if control movements affect camera latency.
4. While connected to the GCS, we will power-cycle the camera to determine if the feed returns, freezes or does not return (perhaps a still image of the last frame).

Third Required Feature: After any significant change to the source code of the GCS, we will run a simulation from within ArduPilot Mission Planner and measure any latency changes.