

Flight test result for indoor flight on 5th June 2006

Disclaimer: This is the sensor data provided by Micropilot FCS data-logging and it serves as a preliminary **rough** estimation to the flight characteristic as I can't tell you how accurate the data is unless the unit has been calibrated.

1. Airspeed Plot

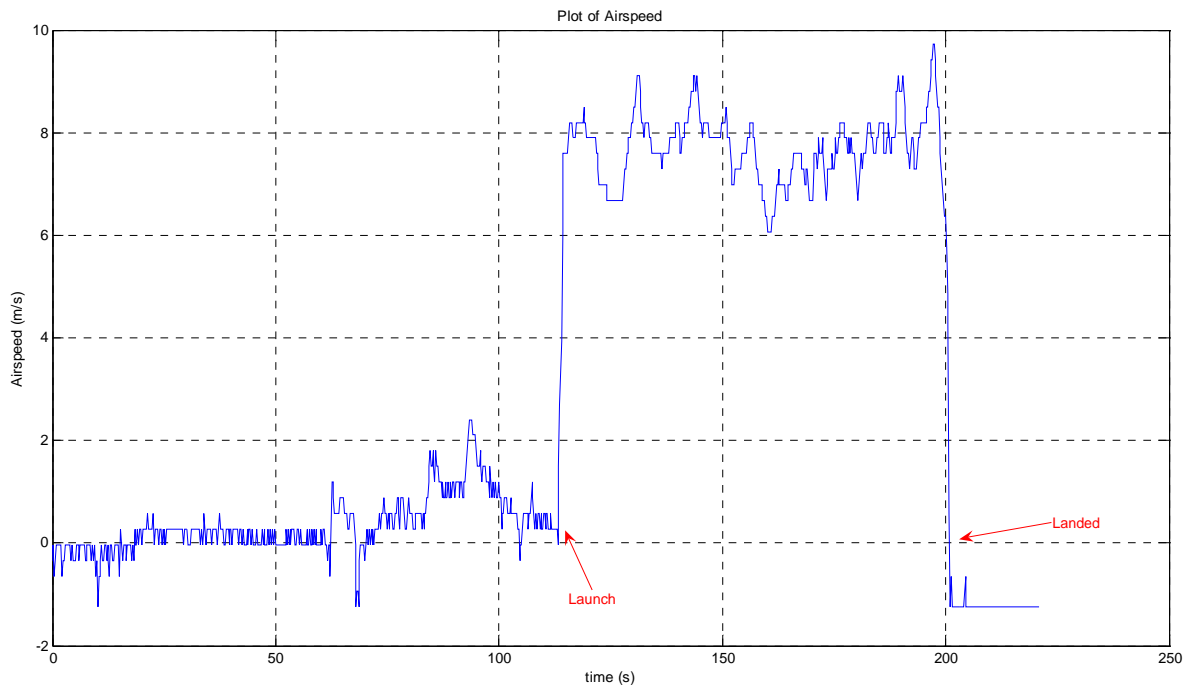


Figure 1. Plot of airspeed

The typical airspeed recorded by the air speed transducer shows that the plane flew with airspeed in the range of 7 to 9 m/s. This should be more or less the actual speed of the plane since there is no wind in the field house.

From the theoretical calculation based on the propeller RPM (about 3900 rpm) at 75% throttle stick and the pitch of the propeller that we used (3.8 inch pitch), it will fly at about 6.5 m/s. So 7m/s should be a good estimate for the flying speed of the yard stik inside the field house.

If we look at the video (movie 6 & 7 from <http://www.aem.umn.edu/research/uav/>) , it takes about 3 second for the plane to fly from the end to mid-point of the field house, which is about 25 meters and 1.5 seconds for the plane to turn around on the

breath of the field house, which is about 15 meters. So a 7m/s flying speed estimate look quite reasonable.

2. Altitude Plot

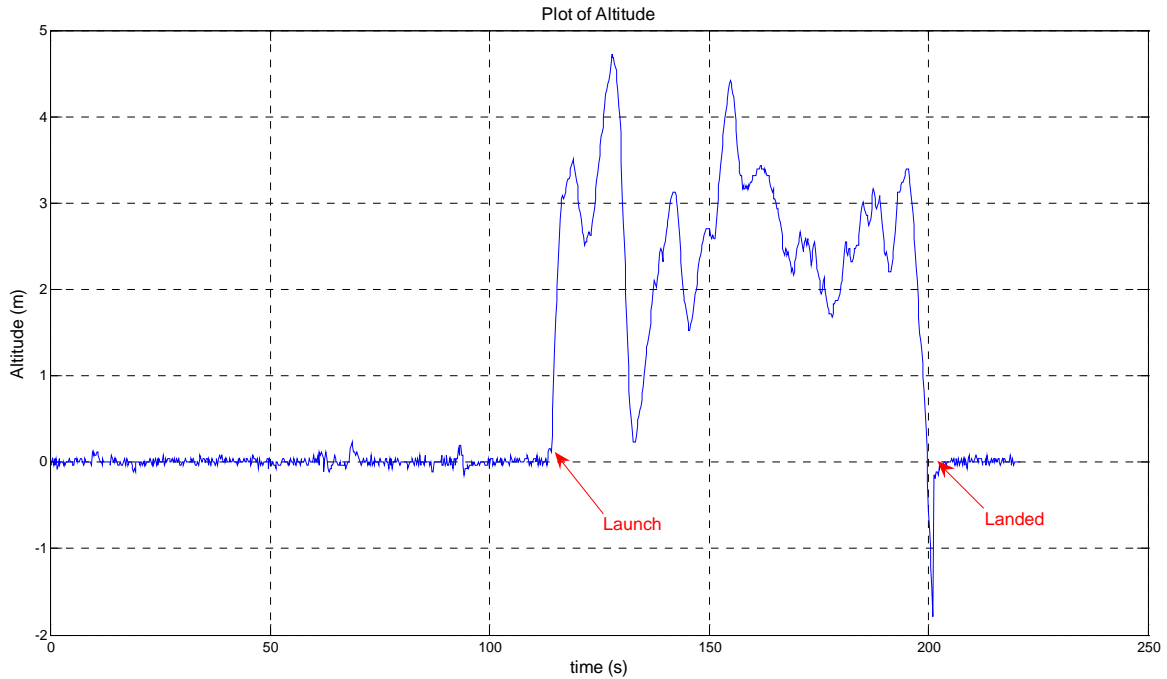


Figure 2. Plot of Altitude

Figure 2 shows the plot of the height of the plane measured by barometer. There is one point that the plane goes very close to the ground and it is captured by the barometer. So we are typically flying about 2 to 3 meters above the ground.