

AirRobot AR-100 Lost Link Procedures

Kevin S. Pratt

Dr. Robin R. Murphy

Computer Science and Engineering
Texas A&M University
College Station, TX 77843
`{kpratt,murphy}@cse.tamu.edu`

April 19, 2009

The AirRobot AR-100 has two different lost link modes that will be used based on the mission characteristics and the decision of the Flight Director during the pre-flight safety briefing and rehearsal. In the first mode, *Position Hold*, the vehicle will use GPS and its optical positioning system to maintain its current position until communications can be reestablished or the battery is exhausted. When the battery is depleted, the vehicle will perform an autonomous descent and landing at its current location. In either of the two modes if the vehicle loses link without a valid GPS signal (or loses GPS while in a lost link behavior) it will hold it's current position for 20 seconds and then perform an autonomous descent and landing. If the AR-100 suffers a lost link while in the second mode, *Auto Home*, it will climb to the highest altitude it achieved during the flight (to avoid any potential obstacles in the flight path), return to its home location and perform an autonomous descent and landing. During either procedure if the link to the ground station is reestablished the pilot can issue a pitch or roll command to the vehicle and cancel the maneuver. During an Auto Home if the link is reestablished but the pilot wishes the vehicle to continue the maneuver the pilot can control the altitude of the vehicle without canceling the Auto Home.