Mechanisms for drop and recovery of transponders using UAVs (unmanned aerial vehicles)

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Project description:
Design and investigate methods for sensor pickup and deployment by multicopters (quad/hex). The following items should be considered:

1. Overall system description with detailed module interaction schemes and protocols.
2. Study and discuss different solution schemes for this kind of mission. Include both simple and complex mechanisms. Discuss necessary assumptions for the design of the sensor node for each proposed solution.
3. Design and create one of the proposed mechanical mechanisms for sensor deployment and pickup to be mounted on a hexacopter.
4. Study how the multicopter should approach the target for pickup/deployment and create control-laws capable for this maneuver.
5. Study and implement camera-based methods for node tracking needed for pickup.
6. The results should be verified by simulations. Major system components should be tested in experiments, including module communication. Preparations and discussions for a complete system test and/or HIL test should be conducted.
7. Conclude findings in a report. Include Matlab/C-code as digital appendices together with a user-guide.

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