

Tello MiniProject Final Report v. 1.00

Suggested length 4 pages or less, not including figures/appendix. 10 pt minimum, 1 inch margins.

1. Project concept [2 pts] (1-2 paragraphs)
What is the final project concept? How has it (possibly) evolved from the initial project proposal?
What was actually achieved?
2. Control Methods Used [4 pts] (1 page max)
 - (a) Describe in detail the model and control strategy used. For example if state feedback, what are the state equations and eigenvalues? Or if PD control, what plant model and control constants were used?
 - (b) (1 figure) Provide a controller block diagram labelling reference, sensed, and control signals used for your project.
 - (c) Describe what information from other blocks (Tello camera, laptop camera) was used in the control strategy. What update rate was achieved?
3. Results [10 pts] (1 page max, not including figures)
 - (a) Briefly describe the results. Did it work reliably, or only once for the video?
 - (b) What performance metrics did you propose (repeat from miniProject proposal)?
 - (c) Provide plots of relevant states vs time for the task being performed. Note on plots where key events occur, such as making contact, or avoiding an obstacle.
 - (d) Performance metrics. Report, based on your plots/data, how well you achieved your quantifiable performance metrics.
4. Youtube video [6 pts]
Provide a link to a youtube video showing your Tello performing the control task. Note key times in video which correspond to key events reported in the results section.
5. Discussion [4 pts]
 - (a) Discuss where performance did not meet specifications/goals.
 - (b) Explain, using data plots as necessary, possible reasons for under-performance.
 - (c) Issues encountered (1 paragraph): Briefly explain any major issues encountered.
 - (d) Describe your final thoughts of the project. Do you think that using a more advanced aircraft (i.e. that allows direct access to the controllers) would allow you to achieve better results?
6. Software System Description [2 pts]
 - (a) (1 paragraph) What is the architecture of your controller software? For example, did you use threads for different processes? What rate did your control loop run at?
 - (b) (1 paragraph) Describe which software packages (e.g. repositories) you used as a starting point and by the end of your project.
7. Code Appendix [2 pts]
Include as an appendix used Python code. Highlight (in yellow), any parts that you added or

changed from Lab 5b code, standard code, or templates.