

# Tello MiniProject Checkpoint v. 1.00

## Introduction

The purpose of the checkpoint is to make sure the individual pieces required for your Tello Project final demonstration are working. If the pieces are not working, now is the time to see what needs to be changed/simplified.

## Checkpoint Details

1. Project Goals (1 pt)  
Have your project goals changed since the project proposal? If so briefly outline any changes.
2. Project Setup (2 pt).  
Show photos of setup for project (with a cellphone and images as seen by tracking camera/Tello). In particular pictures should show tag (or marker) appearance as seen by computer. Briefly explain photos such as where is camera located and what is the field of view. What lighting conditions are expected? Sunny/cloudy/time of day? Also note what background features would help/hurt the Tello on-board stabilization, which uses optical features.
3. Visual Tracking software (1 pt)  
Describe visual tracking algorithm being used- is it planar or 3D? (What software, from what repo?)
4. Visual tracking performance (2 pt)  
At distance of operation, record tracking error (cm) and update rate. Check error rate for various lighting conditions. Show a plot of position vs time from the tracking system for the tag (or marker) at minimum and maximum distance. (The tag should be stationary in this test, such as taped to a wall.) Is tracking fast enough to work with Tello 0.1 second update rate? Also move the tag slowly, and plot position vs. time. Is the data consistent, or does it show gaps or jumps?
5. Static run through/mockup of control/proof-of-concept (2 pt)  
For the mockup operation, Tello is streaming state data (and onboard or offboard tracking video) but **propellers are not running**. Do a run through of control operation, holding Tello by hand (or Tello could be taped to the end of a broom stick). Apply any tags to be used on Tello or environment. Plot measured position vs time for Tello, and note where events occur. For example, for Tello approaching a fixed tag, Tello would be moved manually from initial position to target location while streaming state and visual data. This data can be processed off-line if needed to plot position of Tello with respect to target.  
(If there are tracking problems, now is the time to find them before running the control system.)
6. Problems so far (1 pt)  
Briefly list problems encountered so far and how you solved them.
7. Outstanding issues (1 pt)  
What outstanding issues still remain that you need help with?