

# AE 483 Project Update 1

The goal of this project is to design and implement a physical controller which will simultaneously move two CrazyFlie quadcopters throughout their flight. The controller will be a handheld camera device, such as a Wii remote. The group will utilize two light sources to allow the remote sensing capabilities. Ultimately, the sensing of this remote will contribute to our ability to control the flight patterns and location of our drones. This goal is motivated by the desire to inspire via innovative aerobatics, similar to the drone show that was displayed at an event during the 75th anniversary of the Aerospace Engineering department at the University of Illinois. Along a similar vein, just as Harry Potter wands in the Wizarding World theme park are used to control objects, a similar philosophy could be used to “cast spells” on drones—the sky is the limit. Developing intuitive controls beyond those provided by a simple directional pad or buttons can unlock new ways of interacting with these aircraft. Our project will focus primarily on the first order implementation of these controls as a proof of concept. Time permitting, the group would find it interesting to show the drone complete a user specified task, such as solving a 3D maze or obstacle course. A sufficient controller will ensure that the drone remains within stable enough margins while completing these tasks. Our milestones will be to first implement a similar “move\_smooth” function with coordinate inputs on a 2D plane (Nov 1). Then we will implement an infrared position system (IPS) to return a set of coordinate ranges set by the remote. Also include the GUI of the path determined (Nov 8). Finally we will integrate IPS with the move\_smooth variant and test the controller (Nov 15).