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Robotics Project Checkpoint 2

Since the last checkpoint, our team has been working on adding the necessary features to the MuJoCu simulator. These include features to model the drone flight dynamics, camera vision, and Aruco tags that will be used to allow the drone to recognize parts of the obstacles.

At the same time on the hardware side, we have purchased a cheap drone and have been attempting to get it flying with commands from our computer. Unfortunately controlling the drone from our computer with code rather than from the designated phone app has proven harder than initially thought. We have spent much time trying to implement various workarounds to this problem. We tried manipulating the phone with a computer but iphone security would not allow it. We tried using various phone emulators on our computers but the drone would not accept commands from it. We tried using Windows Subsystem for Android (WSA) but it ended up breaking the computer we were using and that took a long time to fix. Most recently we have been trying to use wireshark to intercept network traffic between the drone and phone controller to attempt to mimic the packages being sent when the controller sends commands. We have been sifting through the packets of binary trying to figure out what each packet corresponds to but it has been a very time consuming process. We have decided to order our own Tello drone to use since our research has led us to believe it will be much easier to control with code. This drone should be arriving Friday and will hopefully be easier to work with in case we cannot get the current drone working.

Our new plan going forward is to continue working mainly on the simulation and MPC algorithm until the drone arrives. Then work out any bugs in the hardware over the weekend and early next week. Finally the last couple days will be for making our website and video before our presentation on Thursday.