Test Safety Documentation

The relay and code breaks provide some degree of fail-safe operation; however, the system is still undergoing prototyping, and it’s possible these safety layers will fail. Therefore, several other layers of protection must be in place to ensure safe operation.

1. Always operate the drone behind the curtain in the drone flight room. Make sure everyone present is outside of the room or behind the curtain.
2. Before arming the drone, always connect the metal loops on the baseplate of the drone to a heavy weight using paracord, two carabiners, and figure 8 knots, as shown below. This will ensure that if something goes wrong, the drone will not crash into the ceiling and damage the Vicon system, or cause any other damage or harm.  
   A drawing of a diagram

   Description automatically generated
3. The code is currently designed to automatically enter the safe state upon any error. Additionally, pressing control+c will exit the main control loop and enter the safe state, which removes power from the propellers.
4. In the event that the automatic or manual trips do not work (due to a coding or wiring error, usually), it may happen that the propellers will continue to spin, but the drone will not have enough lift to move off the ground, or it may be flipped upside down and immobile while the propellers still spin. In this case, power must be disconnected manually. This can be very hazardous, as the propellers spin fast enough to break skin, and a broken propeller can become a hazardous projectile. The main danger is to the hands and face. Therefore, before approaching the drone, don the safety gloves and face shield. These should effectively negate any hazard from the propellers.