

Components Explanation:

There are 2 core components other than the ones provided in the exam. These components are The top Plate and the bottom plate. These components would ideally stick together using magnets but due to time constraints these components utilize glue to stick together. The accelerometer found inside is used to support motion controls . When the controller is shaken, the duck will begin to fly. The duck can then be controlled using the joystick and the button can be used to make the duck quack on screen. The LED component would be used to tell the duck player that they have been shot.

Assembly Explanation:

Assembly for the controller is relatively simple as you just simply need to fit the pieces together. The button and joystick rest on top of the cylinders found in the bottom plate and poke out through the top plate. Due to time constraints I was unable to account for the Hole that the LED would poke through. The back of the controller also features a hole for the arduino to poke through.

Electronics Explanation:

The electronics feature a similar design layout to the controller. They are designed to imitate the controller as closely as possible. Due to time Constraints I was unable to code the controller fully but I am able to represent how the controller would be fully wired given functional code. Below is a diagram of the controller. The Potentiometer would follow an if statement that states for the analog inputs A1 and A2 if the value is less than 500 then print going up and going left. Else if greater than 500 then print right and down. This would visualise the up and down movement. The vibration motor takes the place of the accelerometer and the Led is wired to react to things that might happen in the scene like being shot by the hunter.

