

COMP210 - VR Interface Design Document

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The interface I've designed uses the HTC Vive and Vive controllers. The Vive HMD is used to move the camera and the controllers are used to interact with the interface.

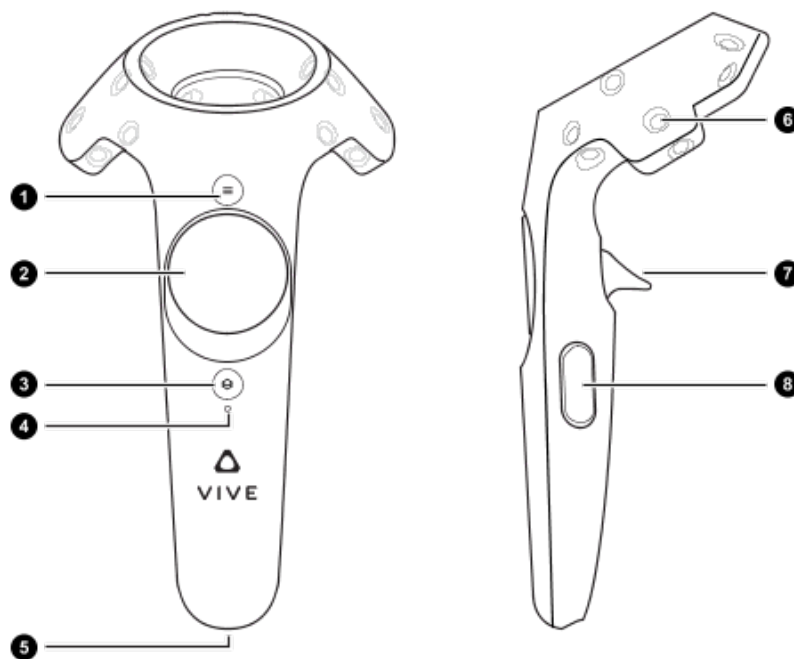


Figure 1:

The player presses the trigger on the right controller to summon the falcon which will

move towards the controller. When the game registers a collision between the controller and the falcon it sends out a "p" through the serial which can be received by an Arduino.

On receiving the serial input the Arduino moves the servos to specified amount using the code below.

1 Arduino Code

```
#include <Servo.h>

Servo clawServos[2];

// creates an array of servos
int pos = 0;

String inputString = "";
boolean stringComplete = false;

void setup() {
    Serial.begin(9600);
    inputString.reserve(200);
    clawServos[0].attach(9);
    clawServos[1].attach(10);
    // attaches the servos on pin 9 and 10 to the servo object
}

void loop() {
    if (stringComplete) {
        Serial.println(inputString);
        inputString = "";
        stringComplete = false;
    }
```

```
}
```

```
void serialEvent() {
```

```
    while(Serial.available()) {
```

```
        char inChar = (char)Serial.read();
```

```
        inputString += inChar;
```

```
        if (inChar == '\n') {
```

```
            stringComplete = true;
```

```
        }
```

```
        if (inChar == 'p'){
```

```
            pinch();
```

```
        }
```

```
    }
```

```
}
```

```
void pinch() {
```

```
    for (pos = 0; pos <= 180; pos += 1) {
```

```
        // goes from 0 degrees to 180 degrees
```

```
        // in steps of 1 degree
```

```
        for (i = 0; i <= sizeof(clawServos); i += 1) {
```

```
            clawServos[i].write(pos);
```

```
            // tell servo to go to position in variable 'pos'
```

```
        }
```

```
        delay(15);
```

```
        // waits 15ms for the servo to reach the position
```

```

    }
    for (pos = 180; pos >= 0; pos -= 1) {
        // goes from 180 degrees to 0 degrees
        for (i = 0; i <= sizeof(clawServos); i += 1) {
            clawServos[i].write(pos);
        }
        delay(15);
    }
}

```

2 Arduino Diagram

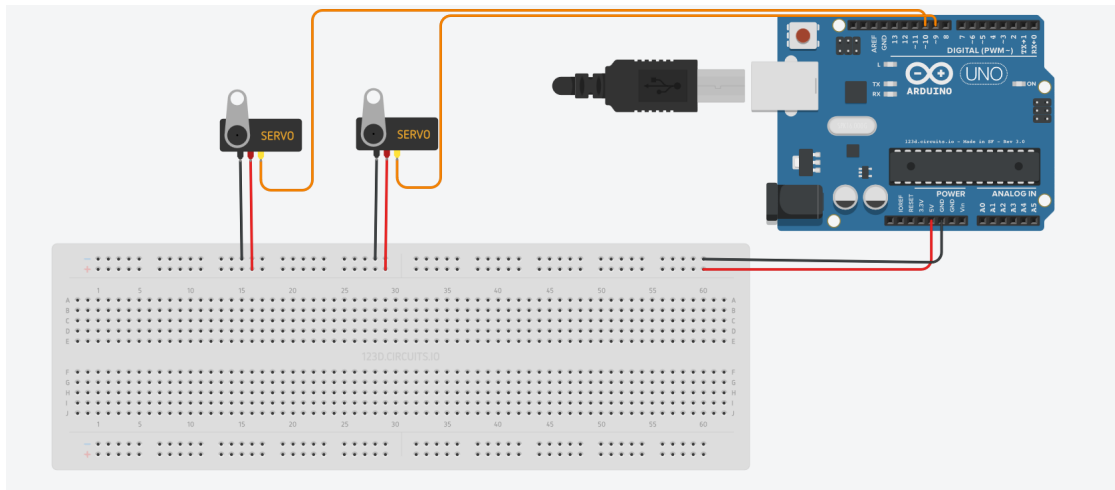


Figure 2: Arduino Uno and two servos

Both servos would move at the same time to simulate falcon claws as the falcon lands on the players arm in game.