The goal of this project is to create an alternative and more intuitive way to control a quadcopter. The Hover Hand Glove allows a user to pilot a quadcopter using the hand instead of a controller. The glove uses sensors placed on the fingers and back of the hand to read hand movements. These gestures are converted by the processor into flight commands for the quadcopter.

Overview

There are four inputs to a quadcopter: yaw, pitch, roll, and throttle. Throttle controls the speed of the propellers. Yaw, pitch, and roll are rotation about the z, y, and x axes, respectively, as shown below.

**Pitch**
- Controlled by tilting the hand forward or backward

**Throttle**
- Controlled by the angle difference between the index and middle fingers

**Roll**
- Controlled by tilting the hand forward or backward

**Yaw**
- Controlled by rotating the hand along the z-axis

Hardware / Key Components

- **MPU-9250**
  - This sensor records the movement of the hand.

- **Nordic nRF52832**
  - This microcontroller interfaces between the sensors and the quadcopter.

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The Hover Hand Glove

System Block Diagram

The Main PCB

The Glove in Action

Signal Flow (Software Overview)