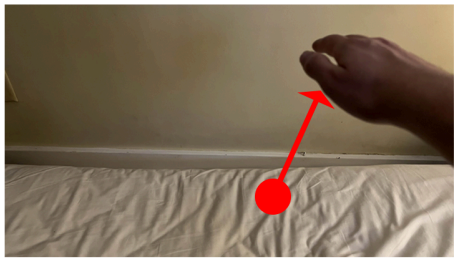
- Our game from earlier this semester has a caterpillar character
- Current jump mechanic: hold right-click, aim with mouse, release to jump
- We wanted a more immersive, physical way to play
- Arduino glove controller with MPU-6050 motion sensor
- Replaces mouse aiming with hand movement
- Makes gameplay feel more natural and engaging
- Button between fingers - Pinch to activate jump mode (replaces right-click hold)
- Start position - Hand is in a neutral/resting position when you pinch
- MPU-6050 sensor tracks hand movement from that starting position
- Accelerometer detects hand position/angle changes
- Gyroscope tracks rotation and direction
- Move your hand - The direction and speed you move creates the jump vector
- Move farther/faster = stronger jump/more velocity
- Different angles = different jump directions
- Release pinch - Caterpillar launches based on your hand movement
- Arduino board processes the sensor data
- Finger-mounted button/switch for pinch detection
- Glove or hand strap mount holds everything
- Connection to game via USB
- "winding up" and throwing the caterpillar
- Natural motion mapping - big movements = big jumps
- More intuitive than clicking and dragging
- Demonstrate: pinch → pull hand back → release motion
- Future possibilities for other gestures

Movement

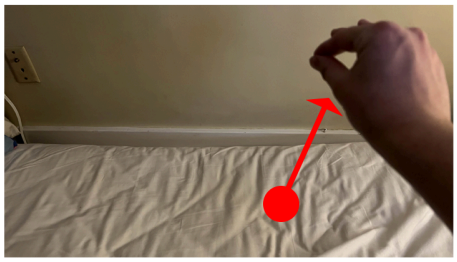
starting position



hand moves to create a vector and velocity

Jumping

pinch, initiating jump



hand moves to create vector and velocity while holding pinch

button is released to release the jump and finish