3D Manipulation With Finger Tracking

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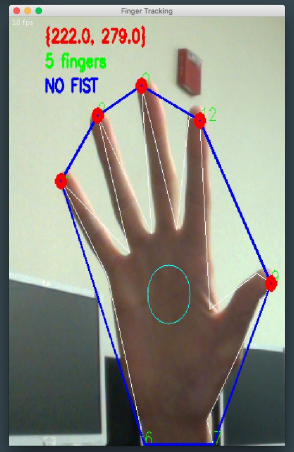
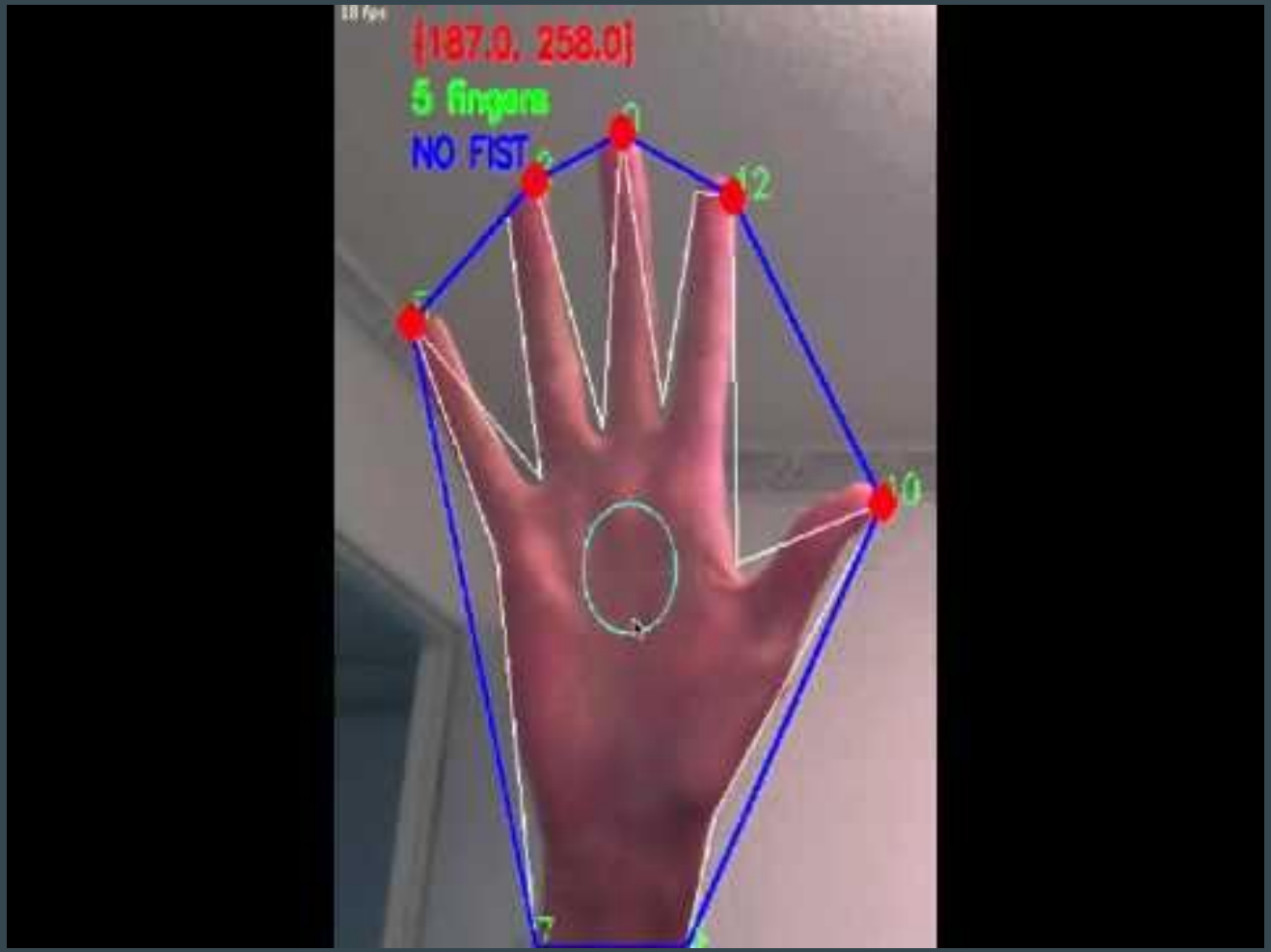
Finger Tracking With OpenCV

- Detecting of fingertips, center of gravity, and fist/no fist.
- Auto HSV threshold and calibration
- Uses open source OpenCV Library

Steps

1. Capture image from webcam
2. Change color space to HSV
3. Threshold image
4. Find contours
5. Find COG
6. Simplify contour
7. Find Convex Hull
8. Filter out convex hull points
9. Annotate image
10. Display image




[187.0, 258.0]
5 fingers
NO FIST
12
10

GitHub: https://github.com/AndrewKe/FingerTracker

Purpose of Rendering Program

Establish a LAN connection to another device

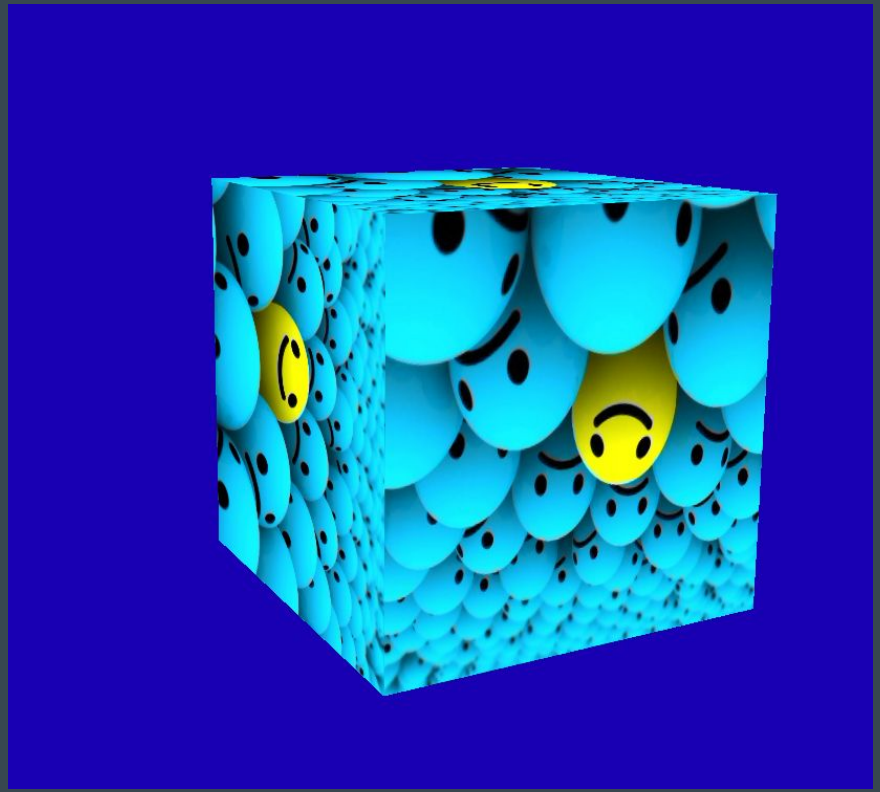
Read Data and interpolate GL program

Real Time Render the data as a 3D cube

OpenGL Rendering

How does this work?

1. Initialize libraries
2. Send your data to the GPU
3. Register data under a low level Array
4. Provide instructions to the GPU
    a. GLSL
        i. Vertex Shading
        ii. Fragment Shading
5. Define object parameters
    a. Perspective
6. Depth testing
7. Render



Live Demo!