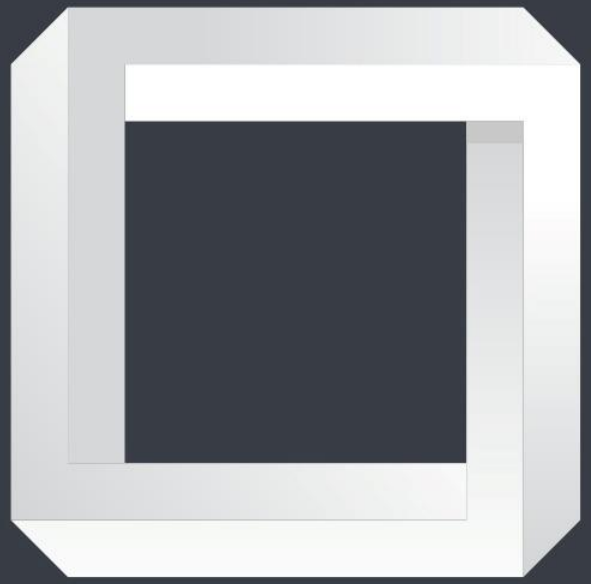

Airista

Team Name

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The Need for Natural, Touch-Free Drawing Interfaces

- ⟶ Traditional digital drawing tools require physical contact—styluses, touchscreens, or tablets.
- ⟶ These tools can be limiting for people in creative, educational, or accessibility-focused settings.
- ⟶ In an era of AR/VR and touchless tech, there's a gap in intuitive, hands-free drawing solutions.

Airista : Touchless Drawing with Just Your Hand

⟶ Our solution makes digital drawing more natural and accessible by removing the need for physical input devices.

⟶ We built **Airista**, a touchless drawing application that lets users draw in mid-air using only their index finger and a webcam.

⟶ It captures finger movements in real-time using computer vision and translates them into digital strokes on the screen — no stylus, touchscreen, or special hardware required.

Tech Stack

Layer	Tools / Libraries Used
Frontend	Python + OpenCV
Vision	MediaPipe
Drawing	OpenCV canvas or PyGame
Interface	Streamlit / OpenCV window / Web interface
Others	NumPy (for coordinates), Math utils

Architecture

Step	Description
Webcam Input	Captures the live video stream from the webcam.
Hand Tracking	Uses MediaPipe to detect hand and finger landmarks in real-time.
Index Finger Detection	Tracks the tip of the index finger from the detected landmarks.
Drawing Logic	Converts finger coordinates into drawable points on the screen canvas.
Render Canvas	Continuously draws lines based on the finger's path as it moves.
UI Features	Adds support for color selection, clearing the canvas.