Ex. No.: 8 **Date:**

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Capture Video/Audio from Webcam or Microphone and Display on Multimedia Interface

AIM:

To develop a program that captures:

- **Live video from the webcam**
- **Live audio from the microphone**

and displays/records them using a simple multimedia interface.

Procedure:

1. Use OpenCV for video capture from webcam.
2. Use sounddevice and scipy or pyaudio for audio recording.
3. Display the live webcam feed in a window.
4. Optionally save the recorded video/audio to a file.
5. Integrate into a basic Python GUI using tkinter.

Program:

```
import tkinter as tk
import threading
import cv2
import sounddevice as sound
from scipy.io.wavfile import write
import numpy as np

# --- Function: Record audio for a few seconds ---
def capture_sound():
```

```
    try:
        duration = 5         # seconds
        rate = 44100         # sample rate (Hz)
        print("🎧 Recording... Please speak.")
        data = sound.rec(int(duration * rate), samplerate=rate, channels=2,
dtype='float64')
        sound.wait()
        write("mic_output.wav", rate, np.int16(data * 32767))
        print("✅ Audio saved as mic_output.wav")
    except Exception as err:
        print("Error during recording:", err)

# --- Function: Capture live webcam feed ---
def open_camera():
    try:
        cam = cv2.VideoCapture(0)
        if not cam.isOpened():
            print("❌ Unable to access camera.")
            return
        print("📸 Webcam active. Press 'q' to exit preview.")
        while True:
            ok, frame = cam.read()
            if not ok:
                break
            cv2.imshow("Live Camera Feed", frame)
            if cv2.waitKey(1) & 0xFF == ord("q"):
                break
        cam.release()
        cv2.destroyAllWindows()
    except Exception as err:
        print("Error opening camera:", err)

# --- GUI Setup ---
root = tk.Tk()
root.title("Audio & Video Capture Tool")
root.geometry("300x200")
root.configure(bg="#f4f6f7")
```

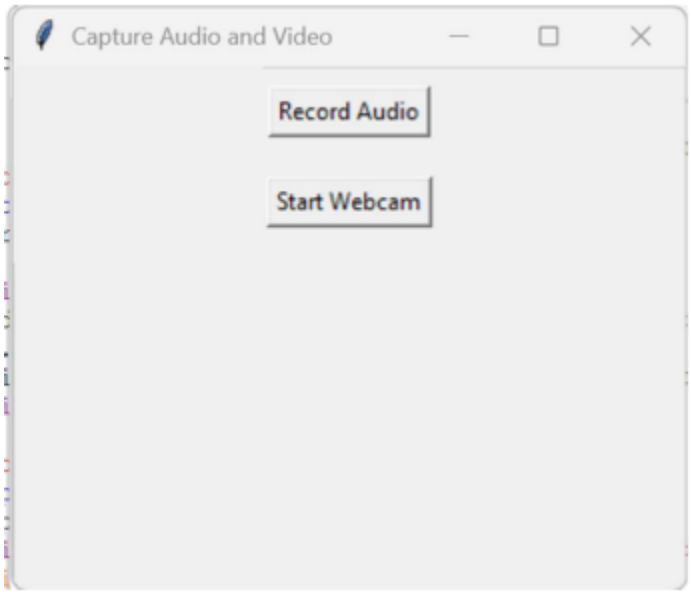
```
# --- Title ---
tk.Label(root, text="🎤 Media Recorder", font=("Segoe UI", 14, "bold"),
bg="#f4f6f7").pack(pady=10)

# --- Buttons ---
btn_frame = tk.Frame(root, bg="#f4f6f7")
btn_frame.pack(pady=20)

record_btn = tk.Button(btn_frame, text="Record Sound", width=15,
command=lambda: threading.Thread(target=capture_sound,
daemon=True).start())
video_btn = tk.Button(btn_frame, text="Open Camera", width=15,
command=lambda: threading.Thread(target=open_camera,
daemon=True).start())

record_btn.grid(row=0, column=0, padx=10, pady=5)
video_btn.grid(row=1, column=0, padx=10, pady=5)

# --- Run App ---
root.mainloop()
```



```
========== RESTART: C:/Users/dell/OneDrive/
====
Recording Audio...
Audio recording saved.
Press 'q' to stop video.
Recording Audio...
Audio recording saved.
```

Result:

Live video and audio were successfully captured using webcam and microphone and displayed/saved through a multimedia interface.