

How to Run This Code

Multimodal Emotion Recognition App

November 9, 2025

Overview

This guide explains step by step how to run the **Multimodal Emotion Recognition Streamlit App** in Google Colab. You will learn how to upload the project ZIP, install dependencies, launch the app with Streamlit, and expose it using `ngrok` for public access.

Assumptions

- You have a ZIP file named `multimodal_emotion_app.zip`.
- The Streamlit entry script is `app_streamlit.py`.
- You have an `ngrok` account and authentication token.

1 Upload the ZIP to Colab

Option A: Use the file upload icon in the left sidebar of Colab to upload your ZIP file.
Option B: Run this code:

```
from google.colab import files  
files.upload() # Choose multimodal_emotion_app.zip
```

2 Unzip the Project

```
!unzip -o /content/multimodal_emotion_app.zip -d /content/
```

Tip: The `-o` flag overwrites existing files.

3 Install Dependencies

Python Dependencies:

```
!python -m pip install --upgrade pip  
!pip -q install -r /content/multimodal_emotion_app/requirements.txt || echo "no requirements.txt file found"  
!pip -q install streamlit streamlit-webrtc av aiortc soundfile pyngrok fer==22.4.0
```

System Packages:

```
!apt -y install ffmpeg libsndfile1
```

4 Launch the Streamlit App

Run Streamlit in the background:

```
!nohup streamlit run /content/multimodal_emotion_app/app_streamlit.py < /dev/null > /content/streamlit.log 2>&1 &
```

Logs will be saved to /content/streamlit.log.

5 Expose the App with Ngrok (includes installation)

```
# Ensure pyngrok is installed  
!pip install -q pyngrok  
  
# Import and configure Ngrok  
from pyngrok import ngrok  
  
# Replace with your actual Ngrok authentication token (keep this secret!)  
ngrok.set_auth_token("YOUR_NGROK_TOKEN")  
  
# Connect to Streamlit's port (8501) with TLS encryption  
tunnel = ngrok.connect(8501, bind_tls=True)  
  
# Display the public URL  
print("Public URL:", tunnel.public_url)
```

Click the printed URL to open your app in a new browser tab.

6 Monitor Logs (Optional)

```
!tail -n 200 /content/streamlit.log
```

7 Stop the App (Optional)

```
!pkill -f streamlit
```

```
from pyngrok import ngrok  
ngrok.kill()
```

8 One-Cell Quick Setup

Paste this into one **Bash** cell:

```
%%bash  
set -e  
unzip -o /content/multimodal_emotion_app.zip -d /content/  
python -m pip install --upgrade pip  
pip -q install -r /content/multimodal_emotion_app/requirements.txt || true  
pip -q install streamlit streamlit-webrtc av aiortc soundfile pyngrok fer==22.4.0  
apt -y install ffmpeg libsndfile1  
nohup streamlit run /content/multimodal_emotion_app/app_streamlit.py \  
--server.address 0.0.0.0 --server.port 8501 > /content/streamlit.log 2>&1 &
```

Then, in a Python cell (with pyngrok installation included):

```
!pip install -q pyngrok  
from pyngrok import ngrok  
  
ngrok.set_auth_token("YOUR_NGROK_TOKEN")  
tunnel = ngrok.connect(8501, bind_tls=True)  
print("Public URL:", tunnel.public_url)
```

9 Troubleshooting

- **Port already in use:** Change to port 8502 and update both Streamlit and Ngrok commands.
- **ModuleNotFoundError:** Install missing packages, e.g. `!pip -q install opencv-python-headless`.
- **Sound errors:** Run `!apt -y install libsndfile1`.
- **Blank app:** Check logs with `!tail -n 200 /content/streamlit.log`.

10 Example Public URL

<https://uncried-serologically-isaura.ngrok-free.dev>

Summary Table

| Task | Command |
|--------------------|---|
| Unzip | <code>!unzip -o /content/multimodal_emotion_app.zip -d /content/</code> |
| Install deps (pip) | <code>!pip -q install streamlit streamlit-webrtc av aiortc soundfile pyngrok fer==22.4.0</code> |
| Install deps (apt) | <code>!apt -y install ffmpeg libsndfile1</code> |
| Run Streamlit | <code>!nohup streamlit run ... > /content/streamlit.log &</code> |
| Create Ngrok URL | <code>!pip install -q pyngrok; from pyngrok import ngrok; ngrok.connect(8501, bind_tls=True)</code> |
| View Logs | <code>!tail -n 200 /content/streamlit.log</code> |