

# AI Reel Generator - Project Overview

An intelligent Flask web application that transforms your content into professional Instagram reels with AI-generated voiceovers. Upload media files, describe your reel, and let the AI handle the rest.

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## Key Features

- **Automated Processing** – Upload files → AI voiceover → Professional video generation (no manual work required)
  - **Non-Blocking Operations** – Continue browsing while reels render in the background
  - **Instant Gallery Updates** – Auto-refreshing gallery shows your new reels as soon as they're ready
  - **Batch Upload Support** – Upload multiple images/videos for a single reel
  - **Professional Voiceovers** – ElevenLabs AI generates natural-sounding narration
  - **Instagram Optimized** – All outputs are formatted as 1080x1920 (9:16) vertical videos perfect for Reels
  - **Responsive Design** – Works seamlessly on desktop and mobile devices
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## Tech Stack

Component	Technology
Backend	Flask (Python)
Audio Generation	ElevenLabs API
Video Processing	FFmpeg
Frontend	HTML5, CSS3, JavaScript
Storage	Local filesystem

## Prerequisites

Before you begin, ensure you have:

- **Python 3.8+** installed
- **FFmpeg** installed and added to system PATH
  - Windows: Download from [ffmpeg.org](https://ffmpeg.org)
  - Mac: `brew install ffmpeg`
  - Linux: `sudo apt install ffmpeg`

- **ElevenLabs API Key** (sign up free at [elevenlabs.io](https://elevenlabs.io))
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## 🚀 Quick Start

### 1. Clone & Setup

```
bash

git clone https://github.com/AbdullahMansuri-Codes/AI-Reel-Generator---Fully-Working-Version
cd AI-Reel-Generator---Fully-Working-Version
pip install -r requirements.txt
```

### 2. Configure API Key

- Open `test_to_audio.py`
- Replace `ELEVENLABS_API_KEY` with your actual key
- Alternatively, set it as an environment variable: `ELEVENLABS_API_KEY=your-key-here`

### 3. Run the Application

```
bash

python main.py
```

### 4. Access the Web App

- Open browser and go to <http://localhost:5000>
  - Navigate to "Create Reel" tab
  - Start creating!
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## 📁 Project Structure

```
project/
├── main.py          # Flask server & routing
├── generate_process.py  # Core video generation logic
├── test_to_audio.py    # ElevenLabs API integration
└── requirements.txt    # Python dependencies

|
└── templates/
    ├── base.html      # Base template layout
    ├── index.html      # Home page
    └── create.html      # Upload & creation interface
```

```
|   └── gallery.html      # Generated reels display  
|  
|   └── static/  
|       └── css/  
|           ├── style.css    # Global styles  
|           └── create.css    # Upload page styles  
|  
|   └── reels/          # Generated video files (auto-created)  
  
└── User_Uploads/      # Temporary user uploads (auto-created)
```

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## 💡 How It Works

### User Workflow:

1. Upload image/video files
2. Enter descriptive text for voiceover
3. Click "Create Reel"
4. Processing overlay appears (non-blocking)
5. Page redirects to gallery
6. Gallery auto-refreshes every 5 seconds
7. Reel appears when ready

### Backend Process:

1. **Upload Phase** – Files saved to `User_Uploads/{unique_id}/`
  2. **Audio Generation** – ElevenLabs converts description text to speech → `audio.mp3`
  3. **Video Creation** – FFmpeg combines media files + audio → 1080x1920 video
  4. **Output** – Final reel saved to `static/reels/{unique_id}.mp4`
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## ✓ Features Implemented

- Asynchronous background processing with threading
- Robust file upload and validation
- Cross-platform path compatibility (Windows/Mac/Linux)
- Auto-creating required directories
- Processing overlay & progress feedback

- Auto-refreshing gallery interface
  - Support for multiple file formats (PNG, JPG, MP4, MOV, AVI)
  - Error handling and logging
  - Download buttons for generated reels
  - Mobile-responsive design
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## Troubleshooting

Issue	Solution
FFmpeg not found	Verify FFmpeg is installed and in PATH by running <code>ffmpeg -version</code>
API key invalid	Double-check your ElevenLabs API key and usage quota
Video not generating	Check console logs, verify file permissions, wait 30-60 seconds
File upload fails	Ensure files are under 500MB and use allowed formats
Gallery not updating	Clear browser cache or manually refresh the page

## Configuration

To use environment variables for your API key:

```
python
import os
ELEVENLABS_API_KEY = os.getenv('ELEVENLABS_API_KEY', 'default-key')
```

Set environment variable before running:

```
bash
export ELEVENLABS_API_KEY=your-actual-key-here
python main.py
```

## Important Notes

- This is a demo project—test thoroughly before production use
- Generated videos are stored locally in `static/reels/`
- Monitor your ElevenLabs API usage to avoid unexpected charges
- Ensure proper folder permissions for file operations

- Large video files may take longer to process
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## Contributing

Found a bug or have an idea? Feel free to open an issue or submit a pull request!

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