CHARUSAT
CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

CERTIFICATE

This is to certify that the report entitled **"AI VIDEO CREATION USING TREND ANALYSIS"**is a Bonafide work carried out by **Megha Joshi (D23DCS166)** under the guidance and supervision of **Dr. Nilesh Dubey** for the subject **Project-III (CSE305)** of 6th Semester of Bachelor of Technology in **DEPSTAR** at Faculty of Technology & Engineering – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate himself, has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner.

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DECLARATION BY THE CANDIDATES

We hereby declare that the project report entitled "**AI VIDEO CREATION USING TREND ANALYSIS**" submitted by us to Devang Patel Institute Of Advance Technology and Research, Changa in partial fulfilment of the requirements for the award of the degree of **B. Tech Computer Science & Engineering**, from the Department of Computer Science & Engineering, DEPSTAR, FTE is a record of Bonafide CSE305 Project-III carried out by us under the guidance of **Dr**. **Nilesh Dubey and Prof. Ankita Amaravat**. We further declare that the work carried out and documented in this project report has not been submitted anywhere else either in part or in full and it is the original work, for the award of any other degree or diploma in this institute or any other institute or university.

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ABSTRACT

The project "AI Video Creation using Trend Analysis" introduces an innovative end-to-end automated pipeline designed to revolutionize content creation, especially for news content creators and social media influencers. The proposed system eliminates the traditional manual processes of scraping web data, scriptwriting, and video shooting by providing a single integrated platform to automate the entire video creation pipeline.
This project leverages multiple advanced technologies and APIs, including NewsAPI for trend fetching, DuckDuckGo for contextual news collection, VADER for sentiment analysis, Groq API integrated with the LLaMA model for script generation, and Wav2Lip for video creation through image-based lip-syncing.

The complete pipeline begins with the detection of trending topics from NewsAPI. Upon selecting a desired trend, relevant news articles are fetched automatically. These articles undergo sentiment analysis using the VADER model to generate an emotionally resonant perspective. The processed data, including news context and sentiment, is passed to the Groq API, using the LLaMA model, to generate a natural 3-minute conversational script suitable for video narration. The generated script is further converted into an audio file using text-to-speech models. Subsequently, the user uploads a static image along with the generated audio, and Wav2Lip is employed to create a lip-synced video, generating realistic facial movements in synchronization with the audio.

This AI-driven approach transforms the conventional video content creation workflow into a fully automated process, enabling faster, accurate, and scalable video generation from trending content, thus helping creators stay ahead in the dynamic digital content landscape.

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CHAPTER 1: INTRODUCTION

1.1 Project Overview

- The rise of social media and digital content consumption has significantly increased the demand for fast, accurate, and engaging video content. The traditional video content creation process is tedious and time-consuming, involving content research, scriptwriting, audio recording, video shooting, and editing.
- This project presents *"AI Video Creation using Trend Analysis"*, an integrated automated platform that helps users generate videos based on trending topics without any manual effort. It provides a complete solution — from trend detection to final video generation — thereby transforming the video creation landscape.

1.2 Objectives

- Automate the detection of trending topics using NewsAPI..
- Fetch related news content using DuckDuckGo.
- Perform sentiment analysis on the news data using VADER.
- Generate video scripts using Groq API and LLaMA models.
- Convert scripts into audio using Text-to-Speech tools.
- Create lip-synced videos from an image and audio using Wav2Lip.

1.3 Scope

- Automating the entire video content creation pipeline.
- Providing an interface for users to select trending topics.
- Manage project files and export them easily.
- Use customizable templates.
- Run lightweight models for offline or faster inference.

1.4 Summary of Key Outcomes and Interpretations

Category	Technology
Trend Detection	NewsAPI, DuckDuckGo
Sentiment Analysis	VADER
Script Generation	Groq API + LLaMA Model
Audio Generation	Text-to-Speech (Edge TTS)
Video Generation	Wav2Lip
Backend	Python, Flask
Frontend	Streamlit / Flask UI
Deployment	Local and Cloud-based

CHAPTER 2: OVERVIEW OF EXISTING SOLUTION/TECHNOLOGY/METHODOLOGY

2.1 Existing Low-Code/No-Code Platforms

There are several platforms that aim to simplify web development through drag-and-drop interfaces and pre-built components. Examples include Wix, Webflow, and Bubble.io. While they offer ease of use, they often:

- Lack flexibility in code customization.
- Do not support direct natural language input.
- Are limited in handling complex or responsive layouts without manual tweaks.

These platforms are visual but not intelligent—they require users to adjust UI manually, and they do not generate or understand underlying HTML/CSS from user intent.

2.2 Code Generation Using AI

With the rise of Large Language Models (LLMs) like OpenAI's Codex, Google's Gemini, and Meta's LLaMA, AI code generation has become more accessible. These models can generate code from natural language prompts. However:

- Most are integrated into IDEs like GitHub Copilot, which still require coding knowledge.
- They lack structure enforcement for responsive design or template layout continuity.
- They are not integrated into an end-to-end platform with live preview or file management.

2.3 Limitations in Current Methodologies

Current solutions either:

- Focus too much on UI drag-and-drop (no intelligence),
- Or rely on AI in isolated environments (not part of a platform).

There’s a gap between AI-generated code and real-time web development tools. Users either have to manually edit code, struggle with integration, or use tools that don’t fully understand prompt context.

CHAPTER 3: LIMITATIONS OF EXISTING SYSTEM

Despite the availability of several low-code and no-code platforms, most existing systems suffer from key limitations that hinder the efficiency and flexibility of modern web development. Traditional platforms like Wix, Webflow, and Bubble provide visual editors with drag-and-drop functionality, but they lack the intelligence to interpret user intent from natural language. These tools often limit users to predefined components, restricting customization and creative freedom. Furthermore, while they simplify front-end design, they don't offer fine control over the generated code or responsive behaviors, making it difficult for developers to scale or extend projects beyond basic layouts.

On the other hand, AI-powered code generation tools such as GitHub Copilot or OpenAI's Codex are typically integrated into development environments and still require programming knowledge. These tools are prompt-based but are not part of a complete web-building ecosystem—they do not support live previews, template integration, or project-level file management. Moreover, they often generate code in isolation without maintaining the structural or design consistency of an ongoing web project. There is also no direct support for real-time editing, collaboration, or deploying web projects directly from these AI assistants.

Overall, the current systems either focus on ease of use with limited intelligence or provide intelligent assistance without accessibility for non-technical users. This results in a fragmented workflow where users must switch between tools to design, code, preview, and export. Project Bolt aims to overcome these limitations by unifying the development experience through AI-driven natural language coding, real-time editing, and full project lifecycle support in one platform.