Project Documentation: AI-Powered LinkedIn Post Generator via Telegram

# 1. Introduction

This project is an AI-powered LinkedIn post automation workflow built using n8n. It allows users to generate professional LinkedIn posts directly from Telegram by typing text or sending voice messages. The workflow integrates AI models (OpenAI GPT & Whisper), Redis for temporary storage, LinkedIn API for publishing, and Telegram Bot API for user interaction.

# 2. Features

• Generate LinkedIn posts (text or text + AI-generated image) from Telegram.

• Accepts both text and voice inputs (speech-to-text using OpenAI Whisper).

• Provides post preview and approval workflow via Telegram inline buttons.

• Option to cancel post before publishing.

• Redis used for temporary storage of post drafts and images.

• AI-generated images for posts when requested.

• Automated clean-up of stored data after publishing or cancellation.

# 3. System Architecture

The architecture consists of several integrated components working together in the n8n workflow:  
1. \*\*Telegram Bot\*\* – Acts as the user interface for input and approval.  
2. \*\*Redis\*\* – Stores post drafts and binary data temporarily.  
3. \*\*OpenAI GPT\*\* – Generates professional LinkedIn content from user input.  
4. \*\*OpenAI Whisper\*\* – Transcribes voice messages into text.  
5. \*\*OpenAI DALL·E / Image Generator\*\* – Generates professional images for posts if requested.  
6. \*\*LinkedIn API\*\* – Publishes approved posts to the user’s LinkedIn account.  
7. \*\*n8n Orchestration\*\* – Connects all components, handles decision-making (approval, cancel, image generation), and manages execution flow.

# 4. Workflow Steps

1. User sends text or voice message via Telegram bot.

2. If voice, the audio is downloaded and transcribed using OpenAI Whisper.

3. The input text is analyzed to check if the user requested an image.

4. AI generates LinkedIn post content (150–300 words with hashtags, emojis, and engagement strategies).

5. If requested, an AI-generated image is created.

6. The draft (text + optional image) is sent back to the user on Telegram with inline buttons for approval/cancel.

7. If approved, the post is published on LinkedIn (with or without image).

8. Success/failure notification is sent to the user via Telegram.

9. Redis cleans up stored data after completion.

# 5. Components

• \*\*Telegram Trigger\*\* – Captures incoming messages and callback queries.

• \*\*If Nodes\*\* – Used to check for approval, cancellation, or image requests.

• \*\*Redis Nodes\*\* – Store and retrieve temporary data (drafts, images).

• \*\*Code Nodes (Python/JS)\*\* – Handle parsing, formatting, and combining data.

• \*\*OpenAI Nodes\*\* – Generate content, transcribe audio, and create images.

• \*\*LinkedIn Nodes\*\* – Publish content directly to LinkedIn.

• \*\*Telegram Nodes\*\* – Provide feedback, previews, and approval workflows to the user.

# 6. Architecture Diagram

Below is the high-level architecture of the system:

Telegram Bot ↔ n8n Workflow ↔ Redis ↔ OpenAI (GPT, Whisper, Image Gen) ↔ LinkedIn API  
  
[User Input (Text/Voice)] → [Processing & AI Generation] → [Preview & Approval] → [LinkedIn Publishing]

# 7. Installation & Setup

1. Install and set up n8n (self-hosted or cloud).

2. Create a Telegram bot using BotFather and obtain the bot token.

3. Configure Redis instance for temporary data storage.

4. Set up OpenAI API key for GPT, Whisper, and Image generation.

5. Authenticate LinkedIn API with OAuth2 for publishing.

6. Import the provided n8n workflow JSON into your n8n instance.

7. Start interacting with the bot on Telegram.

# 8. Usage

• Send a topic via text or voice to the Telegram bot.

• Wait for the bot to process and generate a draft LinkedIn post.

• Review the preview and choose '✅ Publish' or '❌ Cancel'.

• If approved, the post is published to LinkedIn.

• Receive confirmation via Telegram.

# 9. Future Enhancements

• Multi-language support for content generation and transcription.

• Support for scheduling LinkedIn posts.

• Analytics integration to measure engagement of posts.

• Support for additional social media platforms (Twitter, Instagram, etc.).