Agentic AI-Powered Platform for Automated MedTech Content Creation

1. Overview

This proposal outlines the creation of an agentic AI-powered platform that automates the generation of high-quality, regulatory-compliant content for MedTech devices. Designed for manufacturers, marketers, trainers, and healthcare providers, the platform will allow users to generate avatar-led short videos and supporting materials by simply providing a prompt or product input.

The entire system will be built using third-party APIs, orchestrated into a seamless pipeline that handles research, script generation, video production, and compliance validation.

2. Objective

The primary goal of the platform is to eliminate the manual burden of creating technical and educational content for MedTech products. The platform will:

- Autonomously gather data about any medical device
- Generate structured, human-friendly explanations
- Create narrated, avatar-led video content
- Validate outputs for regulatory compliance
- Deliver final assets ready for marketing, training, and patient use

3. How the Platform Works

The platform is a multi-agent system, with each stage of the workflow managed by specialized APIs. The system is initiated by a simple prompt or product input.

Step 1: Input Prompt

The user provides minimal input — a product name, description, or use case — through a web interface or API.

Example:

> “Create a 60-second explainer video for the SmartDose Precision Injector.”

Step 2: Research via External APIs

An AI research agent is triggered, which autonomously pulls verified and up-to-date information from:

- Scientific literature databases (e.g., PubMed, EuropePMC)
- Regulatory databases (e.g., FDA 510(k), CE Mark registries)
- Patent databases (e.g., Google Patents)
- Internal documentation APIs, if applicable

This data is summarized using a language model to create a factual and accurate knowledge base about the device.

Step 3: Script Generation and Storyboarding

The script agent (powered by LLM APIs) creates a structured narrative that includes:

- Device overview
- How it works
- Step-by-step usage instructions
- Patient benefits or clinical outcomes
- Safety considerations

The tone and structure can be customized depending on whether the content is for clinical training, sales enablement, or patient education.

Multilingual support is enabled via translation APIs.

Step 4: Video Creation with AI Avatars and Visuals

The generated script is passed into a media generation pipeline that produces a polished video using:

- AI avatar APIs (e.g., Synthesia, HeyGen) for realistic presenters
- Text-to-speech APIs (e.g., ElevenLabs) for lifelike narration
- Video animation APIs (e.g., RunwayML, Pika Labs) for dynamic visuals and device illustrations

The result is a short, professionally presented video — typically 30–90 seconds — ready for distribution.

Step 5: Compliance Validation

Before publishing, a compliance layer is triggered that checks:

- Whether any medical claims align with approved documentation (e.g., FDA/CE data)
- That terminology and device functions are represented accurately
- That any patient-facing content adheres to safety communication guidelines

This is achieved using a combination of regulatory database APIs and custom language model prompt validators.

Step 6: Output Delivery

The final deliverables are packaged and returned to the user via dashboard download or API response, including:

- MP4 video file with avatar and narration
- Script transcript (TXT or PDF)
- Subtitles (SRT or VTT format)
- Optional thumbnail and summary text

4. Technical Architecture (API-First Design)

The platform is built around an API-first architecture, meaning all capabilities are handled by external APIs and orchestrated through custom logic. This allows for rapid development, scalability, and flexibility to switch providers as needed.

Function	Integrated APIs
Research & Summarization	PubMed, FDA 510(k), Google Patents, LLM APIs

Scriptwriting	GPT-4/5, Claude, Gemini, Mistral APIs
Translation	DeepL, Google Translate
Video Avatars	Synthesia, HeyGen, D-ID
Voiceovers	ElevenLabs, Play.ht
Animation	RunwayML, Pika Labs
Compliance	Custom LLM validators + Regulatory data APIs

5. Use Cases

The platform addresses a wide range of content needs in the MedTech ecosystem:

- Product Training – Educate doctors, nurses, and field reps on how to use devices
- Marketing Videos – Professionally branded explainers for digital and in-person demos
- Patient Education – Friendly, multilingual avatars explaining device usage and benefits
- Regulatory Demonstrations – Summarized video documentation for submissions
- Internal Sales Enablement – Fast, standardized content for onboarding sales teams

6. Benefits and Differentiators

- Automation-First – Reduces video production time from weeks to minutes
- Humanized Delivery – AI avatars improve engagement over text or static graphics

- Regulatory-Safe – Built-in verification avoids off-label or non-compliant content
- Scalable – Built entirely from modular, replaceable APIs
- Multi-Language & Persona Customization – Tailored outputs for diverse audiences