


**SMARTFEED: A LOW-CODE TOOL FOR AUTOMATED CONTENT GENERATION ON LINKEDIN USING ARTIFICIAL INTELLIGENCE**

**SMARTFEED: UMA FERRAMENTA LOW-CODE PARA GERAÇÃO AUTOMATIZADA DE CONTEÚDO NO LINKEDIN USANDO INTELIGÊNCIA ARTIFICIAL**

**SMARTFEED: UNA HERRAMIENTA LOW-CODE PARA LA GENERACIÓN AUTOMATIZADA DE CONTENIDO EN LINKEDIN UTILIZANDO INTELIGENCIA ARTIFICIAL**

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**ABSTRACT**

This article presents the development of the smartFEED system, a web application built with low-code tools to automate strategic content creation on LinkedIn, especially aimed at micro and small businesses (SMBs) and content creators. The goal is to democratize access to high-quality digital communication, promoting greater efficiency, visibility, and professional authority. The article outlines the main requirements and functionalities of the system, designed to meet different user profiles with varying needs for digital positioning. The data modeling adopts relational structures and use-case-oriented flows, covering operations such as registration, topic input, tone selection, and automatic generation of text, hashtags, and visual scripts. Technologies such as FlutterFlow, Figma, and the OpenAI GPT API were integrated to ensure stability, customization, and accessibility. Content generation is based on artificial intelligence and structured into reusable blocks, allowing users to maintain a

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consistent presence on the platform without needing advanced technical knowledge. Digitizing the content creation process reduces errors, standardizes communication, and speeds up strategic personal marketing decisions. The system also promotes user autonomy and contributes to digital inclusion in a professional context. As a future improvement, integration with engagement metric systems and other social networks is planned. The article highlights the strategic role of technology in building digital reputation and strengthening professional presence in algorithm-driven environments.

**Keywords:** Artificial Intelligence. Content Automation. LinkedIn. Low Code. PLN.

## RESUMO

Este artigo apresenta o desenvolvimento do sistema smartFEED, uma aplicação web construída com ferramentas low-code para automatizar a criação de conteúdo estratégico no LinkedIn, especialmente voltada para micro e pequenas empresas (PMEs) e criadores de conteúdo. O objetivo é democratizar o acesso à comunicação digital de alta qualidade, promovendo maior eficiência, visibilidade e autoridade profissional. O artigo descreve os principais requisitos e funcionalidades do sistema, projetado para atender a diferentes perfis de usuários com diferentes necessidades de posicionamento digital. A modelagem de dados adota estruturas relacionais e fluxos orientados a casos de uso, abrangendo operações como cadastro, entrada de tópicos, seleção de tom e geração automática de texto, hashtags e scripts visuais. Tecnologias como FlutterFlow, Figma e a API OpenAI GPT foram integradas para garantir estabilidade, personalização e acessibilidade. A geração de conteúdo é baseada em inteligência artificial e estruturada em blocos reutilizáveis, permitindo que os usuários mantenham uma presença consistente na plataforma sem a necessidade de conhecimento técnico avançado. A digitalização do processo de criação de conteúdo reduz erros, padroniza a comunicação e agiliza as decisões estratégicas de marketing pessoal. O sistema também promove a autonomia do usuário e contribui para a inclusão digital em contextos profissionais. Como aprimoramento futuro, está prevista a integração com sistemas de métricas de engajamento e outras redes sociais. O artigo destaca o papel estratégico da tecnologia na construção da reputação digital e no fortalecimento da presença profissional em ambientes orientados por algoritmos.

**Palavras-chave:** Inteligência Artificial. Automação de Conteúdo. LinkedIn. Low Code. PLN.

## RESUMEN

Este artículo presenta el desarrollo del sistema smartFEED, una aplicación web desarrollada con herramientas low-code para automatizar la creación de contenido estratégico en LinkedIn, especialmente dirigida a micro y pequeñas empresas (PYMES) y creadores de contenido. El objetivo es democratizar el acceso a la comunicación digital de alta calidad, promoviendo una mayor eficiencia, visibilidad y autoridad profesional. El artículo describe los principales requisitos y funcionalidades del sistema, diseñado para satisfacer diferentes perfiles de usuario con diversas necesidades de posicionamiento digital. El modelado de datos adopta estructuras relacionales y flujos orientados a casos de uso, abarcando operaciones como el registro, la introducción de temas, la selección de tono y la generación automática de texto, hashtags y guiones visuales. Se integraron tecnologías como FlutterFlow, Figma y la API GPT de OpenAI para garantizar la estabilidad, la personalización y la accesibilidad. La generación de contenido se basa en inteligencia artificial y se estructura en bloques reutilizables, lo que permite a los usuarios mantener una presencia consistente en la plataforma sin necesidad de conocimientos técnicos avanzados. La digitalización del

proceso de creación de contenido reduce errores, estandariza la comunicación y agiliza las decisiones estratégicas de marketing personal. El sistema también promueve la autonomía del usuario y contribuye a la inclusión digital en el ámbito profesional. Como mejora futura, se prevé la integración con sistemas de medición de la interacción y otras redes sociales. El artículo destaca el papel estratégico de la tecnología en la construcción de la reputación digital y el fortalecimiento de la presencia profesional en entornos impulsados por algoritmos.

**Palabras clave:** Inteligencia Artificial. Automatización de Contenido. LinkedIn. Low Code. PLN.

## 1 INTRODUCTION

Digital visibility has become essential for building professional reputation in contemporary society. In the context of micro and small enterprises (MSEs), such visibility is often limited by a lack of technical resources, time, or digital marketing knowledge. Platforms like LinkedIn play a strategic role in this scenario but require both frequency and quality of publications to ensure relevance in the algorithms. The absence of an active presence results in the loss of business opportunities, qualified connections, and market recognition (LINKEDIN BUSINESS, 2023; SEBRAE, 2022).

More than just a curriculum repository, LinkedIn has established itself as a showcase of professional authority. According to a study by the platform itself, over 80% of B2B decision-makers consult a LinkedIn profile before starting negotiations or hiring services (LinkedIn Business, 2023). However, only a small fraction of small businesses and independent professionals manage to maintain a strategic, consistent, and network-appropriate content production. This gap is not due to a lack of interest but rather to operational overload, limited training in digital communication, and the absence of accessible tools for producing high-quality content.

In this context, producing strategic content has become a requirement for achieving engagement and being perceived as a reference in a given field. However, studies indicate that information overload and unfamiliarity with digital communication strategies hinder full adoption by freelancers, independent contractors, and niche entrepreneurs (ALALWAN et al., 2017; MARRS, 2021).

The smartFEED application emerges as an innovative proposal applied to strategic digital communication, leveraging generative artificial intelligence technologies and low-code platforms to enable the automated production of LinkedIn-optimized posts. The proposal aims to address the unmet demand from professionals and companies that understand the value of a structured digital presence but lack the technical or financial means to invest in professionalized content marketing.

Founded on the premise that digital authority can and should be democratized without depending exclusively on agencies, copywriters, or specialists, the system's intuitive interface allows the user to manually provide a topic, select the communication tone (professional or informal), and receive as output a coherent text, strategic hashtags, and a visual script for AI-generated images. This modular structure not only accelerates the creative process but also

ensures stylistic consistency without requiring technical expertise in advertising writing or copywriting.

The advancement of natural language models, such as GPT-3 and GPT-4 (BROWN et al., 2020; OPENAI, 2025), enables systems like smartFEED to deliver texts with semantic clarity, narrative cohesion, and adaptation to the target audience. The use of platforms like FlutterFlow in the development of the project further reinforces the logic of technological accessibility, enabling rapid prototyping cycles and solution evolution at low development cost.

With the intensification of algorithmic logic in social media, content production has become decisive for maintaining a digital presence. According to PARISER (2011), excessive personalization of the content delivered to users creates informational bubbles, requiring consistency and strategy to achieve visibility. In professional networks like LinkedIn, this translates into the need for frequent, relevant posts aligned with the user's desired positioning.

Content production is therefore one of the fundamental pillars of digital presence and the construction of professional reputation in the online environment. In the so-called attention economy, where multiple voices compete simultaneously for visibility, content becomes the main vector of authority, engagement, and algorithmic relevance (DAVENPORT; BECK, 2001). This is even more evident on networks like LinkedIn, where well-positioned textual production works as an expanded business card, capable of reinforcing skills, values, experiences, and professional positioning.

As algorithmic logic in social media becomes established, the frequency and coherence of published content have become determining criteria for achieving organic visibility. PARISER (2011), coined the term “filter bubbles” to describe the phenomenon by which algorithms excessively personalize the content shown to each user, based on previous behavior and interaction patterns. This means that content not meeting the platform's expected parameters - in terms of engagement, frequency, or Keywords - tends to be rendered invisible, even when it has informational quality.

In professional networks like LinkedIn, this logic is amplified by the centrality of digital reputation. The platform operates through an algorithm that favors original, regular posts generating significant interactions in the first few minutes after posting (LINKEDIN ENGINEERING, 2023). Therefore, maintaining a strategic cadence of publications is not only

a good personal marketing practice - it is a prerequisite for being seen, remembered, and considered relevant by peers and the market.

Beyond regularity, alignment between content and professional positioning is another critical factor. An architect, for example, who shares technical texts on sustainability in construction builds authority in that field. A civil engineer who publishes field insights or productivity analyses demonstrates technical expertise and commitment to continuous improvement. In both cases, content functions as an extension of professional identity, contributing to the construction of a strong and distinctive personal brand (MARRS, 2021).

However, producing strategic content requires time, language skills, and mastery of the unique dynamics of each network. Studies such as ALALWAN et al. (2017) show that the perception of information overload and the difficulty in generating consistent content are common barriers for professionals and small businesses. This gap between the need and the ability for digital communication is particularly critical for audiences such as freelancers, niche entrepreneurs, and highly qualified technicians without marketing or writing support.

It is in this scenario that content production support tools - such as the smartFEED system - become particularly relevant. By automating text creation based on user-provided inputs, the system reduces technical barriers, increases publication consistency, and directly contributes to building digital authority. More than producing text, smartFEED structures a strategic narrative so that the user is not only seen but recognized for what they intend to communicate.

The evolution of natural language models has been marked by advances that not only increase computational capacity but also improve the quality of reasoning and adaptability of responses. With the release of GPT-5, OpenAI introduced features representing a qualitative leap over previous versions such as GPT-3 and GPT-4 (OPENAI, 2025). Among these advances, the with thinking mode stands out, allowing the model to perform longer and more structured reasoning chains before presenting an answer, thus optimizing performance in complex tasks.

Comparative evidence, such as that from SWE-bench Verified (software engineering) and Aider Polyglot (multilingual code editing), shows that GPT-5 achieves higher accuracy levels, reaching 74.9% and 88%, respectively, when expanded reasoning is used. This represents significant gains over previous models like GPT-4o, which achieved 30.8% and 25.8% in the same tests. These results demonstrate not only improved technical performance but also the ability to adapt to different contexts and languages - a central aspect for

applications like smartFEED, which require versatility to handle diverse communication styles and objectives.

In the context of the race toward Artificial General Intelligence (AGI), GPT-5 comes closer to more flexible cognitive behavior, being able to alternate between quick responses and in-depth analyses adaptively. Although this capability does not yet constitute full AGI - since the model still lacks autonomous continuous learning and self-improvement outside supervised training - it signals progress toward systems that more closely approach human-like versatility and reasoning. For solutions like smartFEED, this means the ability to deliver more precise, contextually relevant, and audience-tailored content, enhancing communication impact and the construction of digital authority.

In short, the update to GPT-5 expands the potential of generative AI-based platforms like smartFEED, not only through technical enhancement but also by bringing systems closer to more advanced adaptive intelligence. By integrating these features, the application reinforces its mission to democratize the production of strategic content, reducing barriers and expanding qualified communication capabilities for audiences that have traditionally faced limitations in this field.

This article, therefore, presents the theoretical foundation and initial results of the smartFEED application, proposing a reflection on the role of emerging technologies in reducing communication inequalities and expanding access to the construction of digital authority. The aim is to contribute both to the academic debate on language automation and to the development of practical, inclusive, and sustainable solutions in the field of strategic communication.

## **2 THEORETICAL FRAMEWORK**

### **2.1 CONTENT PRODUCTION AND DIGITAL REPUTATION**

In today's attention economy, digital visibility has become a determining factor for professional recognition. In this context, content published on social media serves as a mediator of authority, influence, and engagement. As highlighted by DAVENPORT and BECK (2001), attention is the new scarce resource, and strategic content functions as a showcase of professional identity, especially on reputation-oriented platforms such as LinkedIn.

Consistent, coherent, and contextualized content publication not only increases user reach but also enhances their credibility in the eyes of the public and the market. Marrs (2021) emphasizes that by aligning communication with individual values and competencies,

professionals build a distinct personal brand, strengthening their positioning in specialized digital communities.

However, maintaining such consistency and alignment requires time, writing skills, and knowledge of the platform's dynamics - factors that often present barriers for self-employed professionals, small businesses, and technicians without communication support. According to ALALWAN et al. (2017), information overload combined with the difficulty of producing original content regularly hinders the full adoption of digital strategies by these audiences.

Therefore, tools that support automated content production become viable and inclusive alternatives by reducing these operational barriers. When well-designed, such solutions not only increase posting frequency but also contribute to building a sustainable digital reputation guided by clear professional objectives.

## 2.2 ALGORITHMS, PERSONALIZATION, AND FILTER BUBBLES

The algorithmic logic of professional social networks introduces new visibility criteria: frequency, relevance, and immediate engagement. According to PARISER (2011), personalized algorithms can create "filter bubbles," limiting user exposure to content that reinforces their previous browsing patterns. This means that technically relevant content, if not properly aligned with the platform's expectations, tends to be hidden from main feeds.

On LinkedIn, this logic is intensified: the algorithm favors original publications that generate quick interactions and are aligned with the user's professional profile (LINKEDIN ENGINEERING, 2023). Thus, more than just posting frequently, it is necessary to understand the platform's implicit engagement rules and produce content compatible with its premises—which requires not only technical skills but also communicative sensitivity.

Solutions that integrate artificial intelligence and language automation can help mitigate the effects of these filter bubbles by offering guidance on tone, semantics, and narrative structure aligned with algorithmic expectations. This approach does not eliminate human curation but rather serves as a mediator of algorithmic language.

## 2.3 ARTIFICIAL INTELLIGENCE IN DIGITAL COMMUNICATION

The use of artificial intelligence (AI) in communication has radically transformed the way messages are created, personalized, and distributed. With the advancement of natural language processing (NLP) models—especially those based on deep learning—it has



become possible to automate textual production with levels of fluency and coherence comparable to human writing (BROWN et al., 2020; OPENAI, 2025).

Models such as OpenAI's GPT-3 and GPT-4 are paradigmatic examples of this evolution. With billions of parameters trained on vast datasets, these systems are capable of generating diverse content - from personalized emails to opinion articles - while respecting various contexts, tones, and styles (RADFORD et al., 2019; SARSA et al., 2022).

In the field of digital communication, this has direct implications for productivity, accessibility, and inclusion. As demonstrated by FLORIDI and CHIRIATTI (2020), AI-based tools not only accelerate content production but also enable professionals with limited experience in strategic writing to access high-quality communication outputs.

Even so, there are important ethical challenges, such as the risk of bias reproduction, the generation of plausible misinformation, and the absence of automatic fact-checking. According to (WEIDINGER et al., 2022), responsible AI usage requires filtering mechanisms, human oversight, and transparency in content generation criteria. Tools like smartFEED, by integrating AI with tone and context filters, position themselves as mediators of strategic communication, combining automation with curation tailored to professional audiences.

## 2.4 LOW-CODE PLATFORMS AND THE DEMOCRATIZATION OF DEVELOPMENT

The central goal of the low-code development paradigm is to reduce the technical complexity involved in building digital solutions, allowing individuals with little or no programming experience to develop functional applications through graphical interfaces, preconfigured components, and visual logic (KOLOVOS et al., 2021).

Platforms such as FlutterFlow, Bubble, OutSystems, Webflow, and Mendix exemplify this movement by offering features like API integration, database management, user authentication, and cloud deployment—without the need to write extensive code. According to GARTNER (2021), up to 70% of enterprise applications will be developed on low-code platforms by 2025, driven by the global shortage of developers and the demand for rapid and adaptable solutions.

This approach promotes technological inclusion by enabling new professional profiles - such as designers, business analysts, and entrepreneurs - to participate in the creation of digital solutions. In innovation environments such as hackathons, incubators, and educational labs, low-code usage strengthens skills in logic, interface design, and agile idea validation (CULLUM, 2022).

In the case of smartFEED, the choice of FlutterFlow as the development platform allowed the construction of a scalable application with rapid prototyping and an intuitive interface, aligned with principles of usability and technological accessibility. The adoption of low-code also contributes to the project's sustainability by reducing operational costs and facilitating incremental maintenance of the tool.

## 2.5 AUTOMATED CONTENT GENERATION: STATE OF THE ART

Automated textual content generation has become one of the main applications of artificial intelligence in the fields of communication, digital marketing, and professional productivity. With the advancement of deep learning-based natural language models - especially the GPT (Generative Pre-trained Transformer) family developed by OpenAI—content creation paradigms have been disrupted, allowing algorithms to generate texts with increasing fluency, thematic coherence, and contextual appropriateness (BROWN et al., 2020).

The international market quickly adopted this technology, and several startups emerged with business models centered on automated writing. Notable players include tools such as Jasper, Copy.ai, Rytr, Writesonic, and NeuralText, which offer various features for creating emails, social media posts, blog articles, product descriptions, and marketing scripts. These solutions typically operate in a SaaS (Software as a Service) model, with scalable paid plans and support for multiple languages.

However, despite their disruptive potential, these tools present important limitations. First, their commercial focus is largely directed toward the North American and European markets, with little emphasis on linguistic and cultural localization. While automatic translation into Brazilian Portuguese is available, it does not guarantee the semantic, tonal, and stylistic adaptation needed for effective engagement on specific platforms like LinkedIn. Furthermore, most tools adopt a generic usage model, with limited segmentation by industry, professional profile, or target audience, which compromises the strategic effectiveness of the generated content.

From a technological standpoint, another recurring challenge relates to curation and ethical control in text generation. Since generative models operate based on statistical patterns derived from large volumes of data, there is no absolute guarantee that the generated content will be free from bias, factual inaccuracies, or inappropriate language, which demands constant validation by the end user (WEIDINGER et al., 2022). Moreover,

few tools offer direct integration with social platforms or personalized learning mechanisms based on posting history.

In the Brazilian context, this gap is even more evident. There is a lack of solutions natively developed in Portuguese, with an understanding of local communication dynamics, the characteristics of national productive sectors, and the specificities of target audiences. Self-employed professionals, technical content creators, and small business owners seeking to strengthen their digital authority still face difficulties accessing affordable, intuitive tools adapted to their level of digital literacy.

The smartFEED emerges as a direct response to this operational and symbolic void, offering an application designed from the ground up for the LinkedIn ecosystem, in Portuguese, and focused on users who need support in producing recurring content without access to marketing teams or specialized writers. By combining the power of generative language models with a low-code interface and simplified usability logic, the tool not only delivers productivity gains but also promotes communicative empowerment.

Setting itself apart from international solutions, smartFEED allows users to directly enter the desired topic, choose from different tones of voice (professional or informal), and receive as output not only the post text but also strategic hashtags and visual suggestions for image creation. Its modular generation structure allows for customization by field of work, keeping the content aligned with professional goals and LinkedIn's communication style, which is notably more formal and authority-driven than generalist social networks.

Based on current trends, it is projected that content automation will soon incorporate mechanisms for continuous learning, performance tracking, and behavioral adaptation, allowing systems to become increasingly precise, personalized, and context-aware. By aligning with this technological horizon, smartFEED positions itself as a promising and ethical solution in the field of AI applied to digital communication.

### **3 METODOLOGY**

The methodology adopted in this study is applied in nature, with a deductive and exploratory approach, aimed at solving a concrete problem faced by micro and small enterprises (MSEs) and content creators in maintaining a consistent and strategic digital presence on LinkedIn. The development of the smartFEED system was guided by established practices in software engineering, particularly the ISO/IEC/IEEE 29148:2018

standard, which supported the specification of functional and non-functional requirements throughout the lifecycle.

The research followed a qualitative and bibliographic method, with a systematic review of academic databases such as Scopus, IEEE Xplore, Google Scholar, and the ACM Digital Library, in order to identify trends, challenges, and opportunities in the application of generative artificial intelligence (AI), low-code platforms, and automated content production in professional digital communication. This stage aimed to establish the state of the art and identify market gaps that would justify the proposed tool.

Requirements engineering was based on typical usage scenarios and supported by Design Thinking techniques to define personas, user journeys, and the essential functionalities of the Minimum Viable Product (MVP). The specification of functional and non-functional requirements emphasized accessibility, performance, and personalization, complemented by business rules that ensured the adaptation of generated text to different professional domains and communication styles.

The prototyping process was conducted with Figma, focusing on user experience (UX/UI), and validated using heuristic usability principles (NIELSEN, 1994). Functional implementation was developed in FlutterFlow, a low-code platform that provides native integration with external APIs and configurable automation logic. Interaction with OpenAI's language model was implemented via RESTful Webhooks, configured according to user input (topic and communication tone).

System validation was carried out through simulated scenarios, in which different input profiles were tested to evaluate the system's behavior and the quality of the generated content. Three main criteria were analyzed:

1. Average response time, to ensure fluidity of interaction;
2. Textual clarity, evaluating cohesion, coherence, and lexical adequacy;
3. Adherence to tone and professional context, verifying alignment with user-defined objectives.

It is important to note that this validation did not include real users, since the scope of this research was limited to a technical proof of concept. This choice reflects the exploratory nature of the work, which sought to assess feasibility rather than adoption. Nevertheless, future research may incorporate pilot studies with real users to expand empirical evidence, particularly regarding usability and long-term engagement.

The system modeling was guided by best practices in software engineering (SOMMERVILLE, 2011) and structured with Unified Modeling Language (UML), covering Use Case Diagrams (to map user interactions), Class Diagrams (to represent entities and relationships), and Data Flow Diagrams (DFD) to describe the flow of information. Business rules were defined to guide adaptation of content to different tones and contexts, while respecting ethical and legal requirements such as compliance with Brazil's General Data Protection Law (LGPD).

This integrated methodology enabled the creation of a coherent academicMVP, focused on demonstrating technical feasibility and ensuring consistency between theoretical foundation, prototyping, and implementation. In addition to validating the concept, it also contributes to the academic debate on the ethical, accessible, and strategic use of artificial intelligence in digital communication - particularly within professional networks such as LinkedIn.

### 3.1 REQUIREMENTS SPECIFICATION AND BUSINESS RULES

Below are the functional requirements, non-functional requirements, and business rules of the smartFEED system. To ensure the technical consistency of the system, its functional and non-functional requirements were defined, as well as the main business rules, based on the parameters established by the ISO/IEC/IEEE 29148:2018 standard. These elements were structured to guide the development, usability, and scalability of the application, as summarized in the 1, 2 e 3 tables bellow.

**Table 1**

Functional Requirements of the smartFEED System

<i>Identifier</i>	<i>Functional Requirement Description</i>
<i>RF01</i>	<i>Allow user registration and authentication.</i>
<i>RF02</i>	<i>Collect basic user information (desired tone).</i>
<i>RF03</i>	<i>Generate post suggestions based on provided topics.</i>

<i>RF04</i>	<i>Allow editing and customization of generated content.</i>
<i>RF05</i>	<i>Save the history of generated posts and allow reuse/adaptation.</i>

Source: Prepared by the author (2025).

**Table 2**

*Non-Functional Requirements of the smartFEED System*

Identifier	Non-Functional Requirement Description
RNF01	The application must have an intuitive and responsive interface.
RNF02	The average content generation time must not exceed 5 seconds.
RNF03	User data must be stored in compliance with LGPD (Brazilian General Data Protection Law).
RNF04	The system must operate 24/7 with a minimum availability of 99%.
RNF05	The generated textual language must adhere to LinkedIn's tone and ethical standards.

Source: Prepared by the author (2025).

**Table 3**

*Business Rules of the smartFEED System*

Identifier	Business Rule Description
RN01	The generated content must respect the tone and field of expertise informed by the user..
RN02	Each user may generate a limited number of free contents per day.
RN04	The system must generate texts without sensitive information or inappropriate fictitious data.

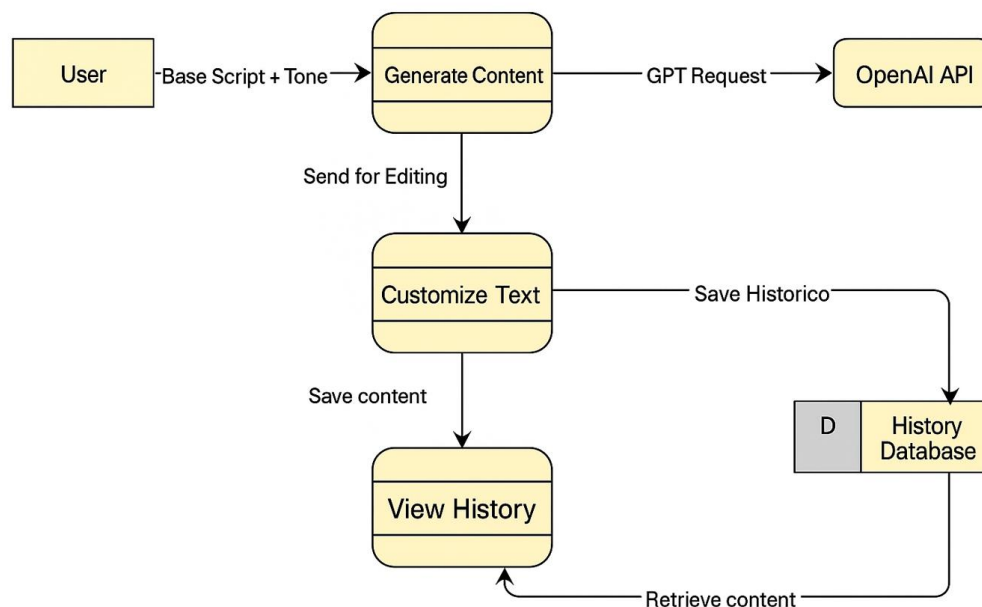
RN05	Hashtags must be coherent with the topic and the publication's profile.
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Source: Prepared by the author (2025).

As Figures 5, 6, and 7 illustrate, respectively, the **Level 1 Data Flow Diagram (DFD)**, the **Use Case Diagrams** and the **Class Diagram**.

**Figure 5**

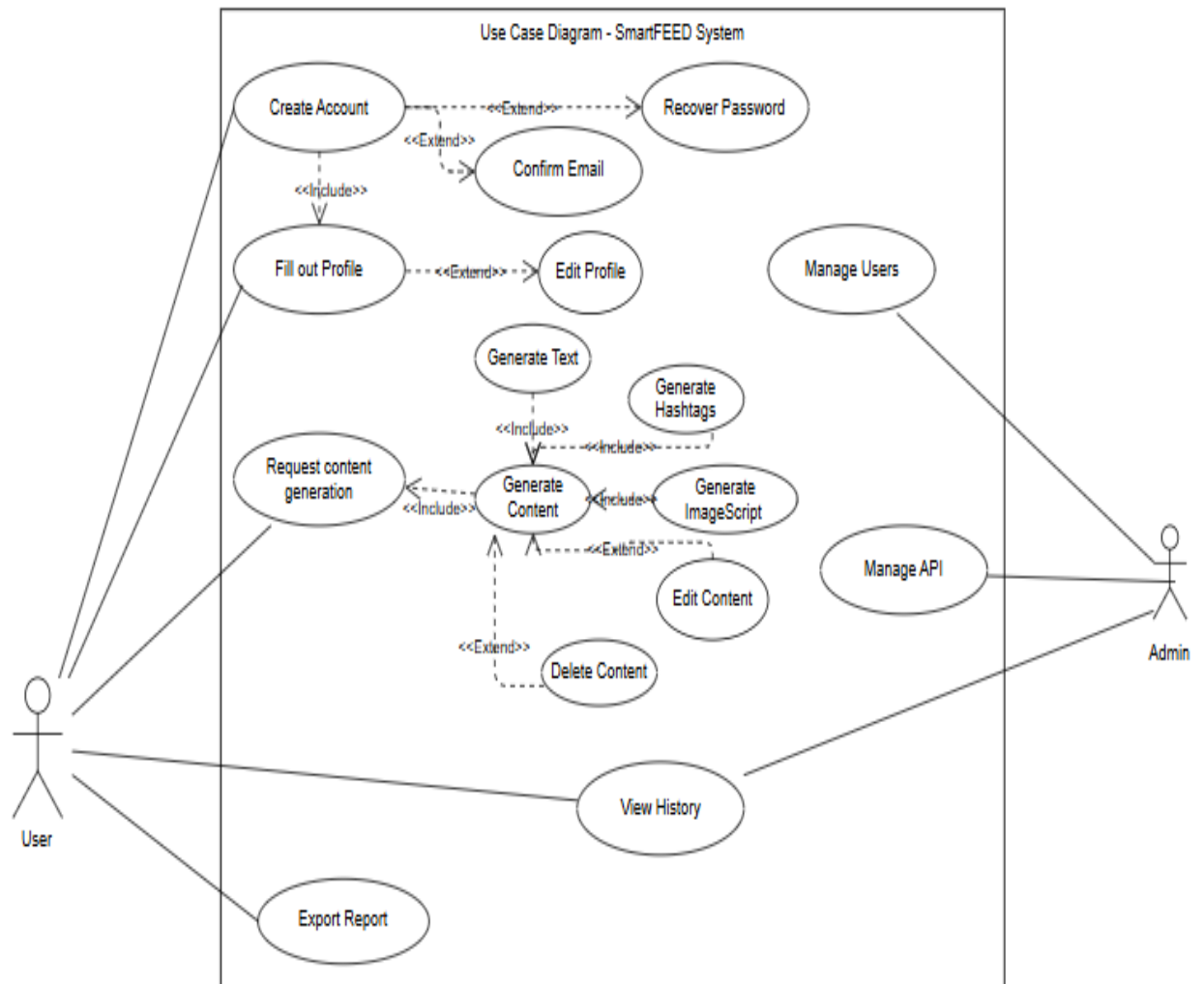
*Level 1 Data Flow Diagram (DFD)*



Source: Prepared by the author (2025).

**Figure 6**

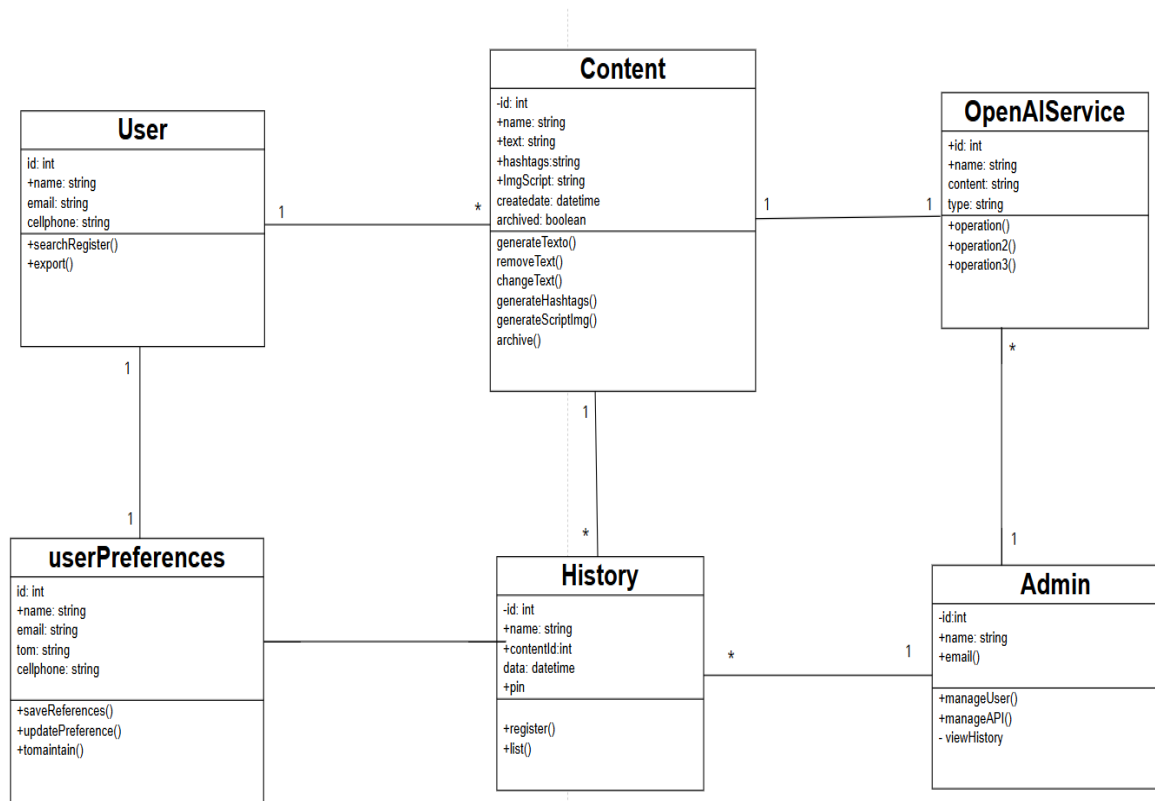
*Use Case Diagrams of the System*



Source: Prepared by the author (2025).



**Figure 7**  
*Class Diagrams*

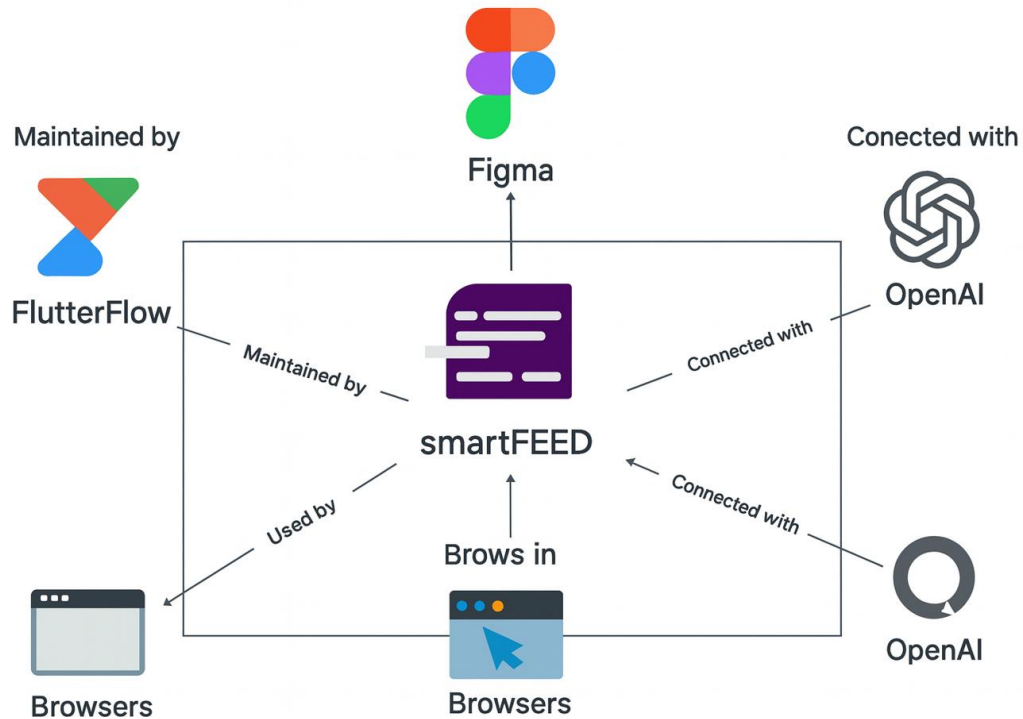


Source: Prepared by the author (2025).

To contextualize a **Minimum Viable Product (MVP)** that aligns with the proposed study and was developed using the aforementioned technologies and methodologies, figure 8 below illustrates the representation of the development environment and the tools used, along with their relationship to the system.

**Figure 8**

*Development Environment and Integrations*



Source: Prepared by the author (2025).

Figures 9, 10, and 11 respectively illustrate the logo, the application interface and the user's main screen.

**Figure 9**

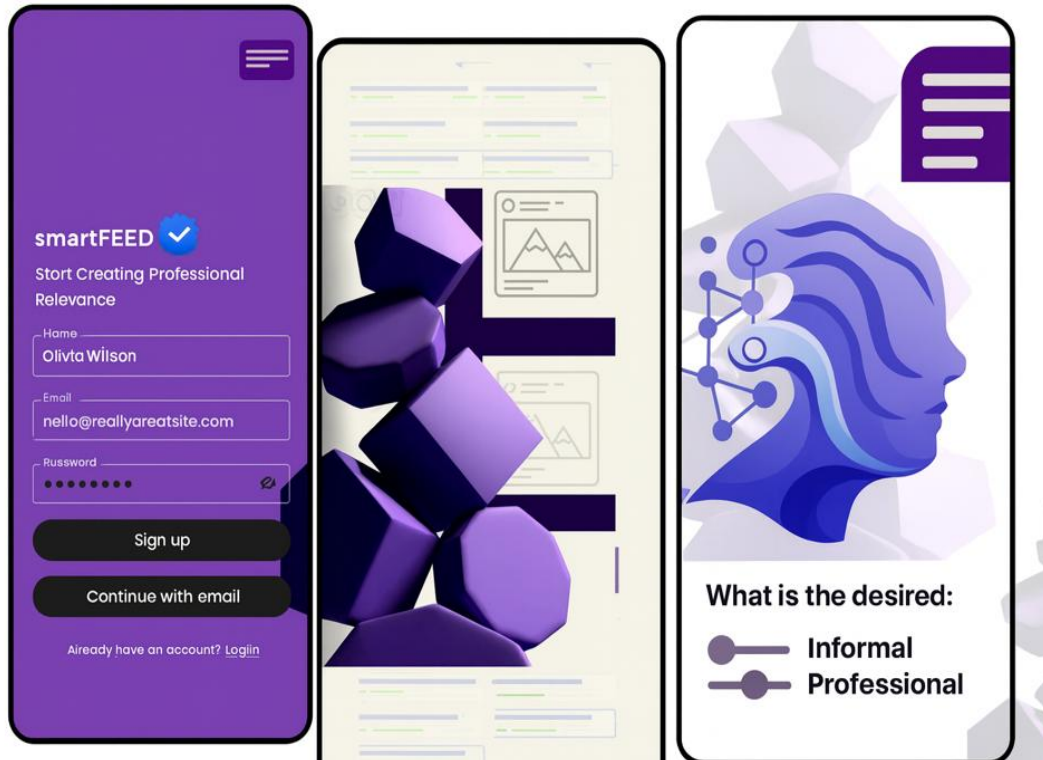
*Application logo*



Source: Prepared by the author (2025).

**Figure 10**

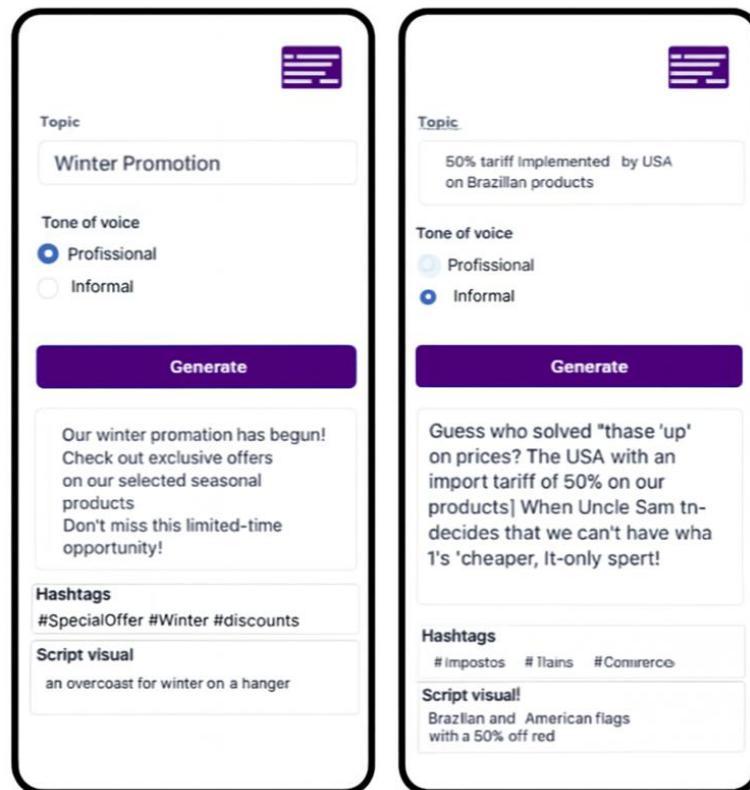
*Login interface with smartFEED application presentation*



Source: Prepared by the author (2025).

**Figure 11**

*Content generation screen*



Source: Prepared by the author (2025).

## 4 RESULTS AND DISCUSSION

The smartFEED system was implemented as a responsive web application, featuring an intuitive interface built on the FlutterFlow platform and integrated with the OpenAI API. Its purpose is to assist micro and small enterprises (MSEs), freelancers, and technical professionals in producing strategic content, without requiring proficiency in digital marketing or advertising writing.

The functional logic of the application is centered on simplicity: the user provides the topic of the publication, selects the desired tone (professional or informal), and the system automatically returns the three essential blocks for the post:

- the main publication text,
- hashtags consistent with the topic and tone, and
- a script for an image generated via AI.

From a strategic standpoint, smartFEED addresses a sensitive issue for MSEs and content creators: the difficulty of maintaining consistency and a communication strategy

under productivity pressure and a lack of digital marketing expertise. Automating the text creation process, along with the possibility of personalization based on tone and topic, represents a direct productivity gain and a potential positive impact on users' digital reputation.

The main limitations observed relate to the dependency on the OpenAI API, the absence of large-scale testing with real users, and the lack of dynamic feedback on the performance of posts on LinkedIn. However, these limitations are compatible with the project's initial phase (MVP) and open up space for future improvements, such as the implementation of performance dashboards and the incorporation of incremental learning models based on user history.

In summary, the results obtained confirm the technical and strategic viability of smartFEED as a support tool for professional digital communication. The application not only reduces the time needed to produce relevant content but also acts as a facilitator for visibility, authority building, and personal brand positioning - especially for audiences with limited marketing knowledge or resources to hire specialized services.

The smartFEED system was designed with a simplified architecture, made feasible through the FlutterFlow platform, which enables the development of applications with minimal coding (low code). The application's logic is based on visual flows and the manipulation of internal variables within the environment, without requiring traditional RESTful backend structuring.

Integration with the OpenAI API is done through HTTP Webhooks using the POST method to send a payload in JSON format. This payload contains the parameters entered by the user (base topic, desired tone) and triggers OpenAI's GPT model, which responds with a JSON object containing the textual content, strategic hashtags, and a description for the AI-generated image.

The smartFEED system does not implement public REST routes or versionable resources with unique identifiers. Instead, it operates as a consumer of an external API, using events triggered in the FlutterFlow interface to construct the request and automatically handle the response. This model ensures simplicity and speed in delivery, particularly suitable for academic-scope projects or MVPs.

All business logic - including usage restrictions, selection of communication tone (professional or informal), and formatting of generated content - is encapsulated within the application environment itself. This centralization eliminates the dependency on a complex

external infrastructure, optimizes maintenance, and facilitates incremental scalability of the system.

Communication is synchronous: the request is sent, and the system waits for the AI model's response to display the data to the end user. There is no persistent storage in an autonomous database, although FlutterFlow offers support for this feature in future versions of the project.

## 5 CONCLUSION

This study presented the development of smartFEED, an application aimed at the automated generation of strategic content for LinkedIn. The tool proved to be technically viable, functional, and suitable to the needs of audiences that traditionally face barriers in accessing structured digital communication, such as micro and small enterprises (MSEs), freelancers, and technical content creators.

By integrating generative artificial intelligence with low-code development platforms, the system enables the creation of customized content quickly and at low cost, even in contexts with limited resources. This technological combination proved to be an efficient solution to broaden access to strategic communication, especially in the local language and on high-value professional platforms such as LinkedIn.

The research also revealed a significant gap in the market for affordable solutions that are culturally adapted to the Brazilian reality, reinforcing the fact that maintaining a consistent digital presence is no longer merely a trend - it has become a decisive competitive advantage. By reducing the time, technical effort, and creative barriers involved in producing relevant content, smartFEED contributes directly to building professional authority and expanding opportunities for business and qualified networking.

Among the project's limitations are the absence of large-scale user testing, the dependence on third-party APIs (such as OpenAI's), and the lack of a performance monitoring module for the generated posts. Nevertheless, the simulated tests indicated satisfactory results in terms of textual quality, clarity, thematic coherence, and content personalization.

In summary, smartFEED represents a relevant contribution to both the academic field and the market, by combining technological innovation, usability, and social impact. Its proposal reinforces the potential of digital solutions as tools for strategic inclusion - especially in a scenario increasingly shaped by algorithms and the attention economy.

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