International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 14, Issue 11, CONFLUENCE - 2026

AI Powered Personalized Content Creation Assistant using Generative AI.

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1.ABSTRACT - The rapid growth of social media and digital platforms has increased the demand for creative, engaging and personalize content. Many beginners in Content Creators struggle to build suitable content, choose right format, crafting creative captions, blog writing, plan their social media presence. Existing tools often provide content without considering the user interest, requirements and goals. Therefore, there we have a need of AI based assistant that can understand user requirements, provide suitable content suggestions and guidance for different areas such as singing, dancing, fashion, and other creative Content Creator Assistant will be mainly focused on personalized guidance, by understanding the user experienced level, interests and goals, based on these inputs, the application will provide clear guidance and recommendations to help users improve their progress in chosen area of interest. In this, Application will use Natural Language field. So, this AI Processing (NLP) to understand user needs and create content according to them such as giving them creative ideas. In this application there is the usage of Google Gemini model to provide creative suggestions based on user experiences. Python for backend and HTML, CSS, and JavaScript for frontend. We use JSON because it is helpful in handling and exchanging the data and organize the data.

KEYWORD: Machine Learning (ML), Natural Language Processing (NLP), Google Gemini, Generative AI, Content Creation.

2.INTRODUCTION:

In recent times, social media and digital platforms like Instagram, YouTube and blogs have enabled anyone to become a content creator in areas like singing, dancing and fashion. Content creation is now a way to build an audience, create a personal brand and even make a living. So, the demand for creative, engaging and personalised content continues to grow. But a lot of beginners still have trouble getting started and staying with it. They struggle to decide what content suits their interests, to choose the right format (reels, posts, blogs, videos), to write attractive captions, and to plan a regular presence. Without proper guidance, they often lose motivation, post inconsistently, and fail to grow. Solving this problem saves beginners time and effort and helps them improve faster in their chosen area. Many tools already exist for content creation. Some generate captions or blog text, some help with design, and others schedule posts, and Generative AI now lets them produce human-like text and ideas within seconds. However, most of these tools give

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generic output without considering the user's interests, experience level, or goals. They focus on producing content rather than guiding users step by step, they rarely cover different creative fields in one place, and they give little help in planning an overall social media presence. There is therefore a clear need for an assistant that understands the user first and then guides them. This project proposes an AI-Powered Personalized Content Creation Assistant built with Generative AI. The system collects the user's experience level, interests and goals, uses Natural Language Processing (NLP) to understand those needs, and uses the Google Gemini model to generate content ideas, captions, blog suggestions and guidance on how to improve. The backend is written in Python, the frontend is written in HTML, CSS and JavaScript and JSON is used to exchange and organize data between the two. The key contribution is one simple-to-use assistant, ranging from generic content generation to personalized goal-based guidance, helping novices start with confidence and improve progressively.

3.LITERATURE REVIEW / RELATED WORK:

No	Reference	What It Studies	Relevance to our project
1	T. R. M, Vinoth Kumar V, Lim S-J (2023) Ascot: Improved Collaborative Filtering (CFL) recommendation methodology using user confidence, time context with impact factors for performance enhancement. Plops ONE 18 (3): e0282904. https://doi.org/10.1371/journal.pone.0282904 Google Scholar	The personalized suggestion system has developed	Yes, this method has been used in our project
2	15. Awasthi, I., Gupta, k., Bhogal, p. s., Anand, s. s., & Soni, p. k. (2021, January). natural language processing (nap) based text summarization-a survey. in *2021 6th international conference on inventive computation technologies (edict)* (pp. 1310-1317). idea.	It studies about the text what a user requirement.	Yes, this method is more relevant for summarizing the text using NLP.
3	16. Tas, o., & Kiyani, f. (2007). a survey automatic text summarization. *press academia Procedia*, *5*(1), 205-213.	The study focusses on summarizing full length text into simple one.	Yes, this is one of the features I used in project.
4	17. Zhang, y. (2022). application of intelligent grammar error correction system following deep learning algorithm in English teaching. *international journal of grid and utility computing*, *13*(2-3), 128-137.	It will check the grammar collections using DL	Yes, it is lightly relevant to project.

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5	Senaida, Jefferson seamy etc. ai. ” Ai and content creation research: a snapshot of what we know and what we don’t know.” ai the creative economy. productivity press,2025,36-62	AI impact on the creative process at various phases	Yes. Content creation is a creative process
6	Gujar Vivek “new age marketing: ai personalization strategies in digital world. “International advanced research journal in science, engineering and tech 11.3(2024):288-296	AI driven personalized content customer satisfaction	Yes. Users’ requirements will be satisfied
7	Shahbaz Nezhad, Hamidreza, Rebecca Dolan, and Mona Rashid Irad. "The role of social media content format and platform in users’ engagement behavior." *Journal of interactive marketing* 53.1 (2021): 47-65.	Here the link between each content type like (rational, emotional)	Yes. In our project content type will be added like (blogs, email, social media post)
8	Gandour, Jackson T. "The perception of tone." *Tone*. Academic Press, 1978. 41-76.	The study of understanding of the human language	Yes.in this project we included the (human language)
9	Luttrell, Regina. *Social media: How to engage, share, and connect*. Bloomsbury publishing plc, 2014.	Connection between social media	Yes. Connection between different platforms is added
10	Fui-Hoon Nah, Fiona, et al. "Generative AI and ChatGPT: Applications, challenges, and AI-human collaboration." *Journal of information technology case and application research* 25.3 (2023): 277-304.	Human centered AI collaboration is key utilizing generative AI	Yes, generative AI is used in our project (default Gemini)
11	Lops, Pasquale, Marco De Gemmis, and Giovanni Semeraro. "Content-based recommender systems: State of the art and trends." *Recommender systems handbook* (2010): 73-105.	content-based recommender consists in matching up the attributes of a user profile	Yes, in AI generative we use the content based
12	Nabilla, Chantika, et al. "Enhancing students’ critical thinking in writing through the implementation of AI-assisted paragraph writing technology." *AIP Conference Proceedings*. Vol. 3393. No. 1. AIP Publishing LLC, 2026.	paragraph AI technology in their classes to help students improve writers	Yes, in our project similar or the users input

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13	Grinberg, Miguel. *Flask web development: developing web applications with python*. " O'Reilly Media, Inc.", 2014.	Python, flask is used	Yes,python,flask is used
14	Božić, Velibor. "AI and predictive analytics." *Journal of Sports Industry & Blockchain Technology* 1.11 (2023): 1-10.	Predictive analysis will be used	Yes, here analytics will be used like how much the content has been used like that
15	Quaranta, Luigi, Fabio Calefato, and Filippo Lanubile. "Kgtorrent: A dataset of python jupyter notebooks from kaggle." *2021 IEEE/ACM 18th International Conference on Mining Software Repositories (MSR)*. IEEE, 2021.	Dataset of python and jupeter notebook will be used	Yes, for dataset we are using kaggle

4. METHODOLOGY:

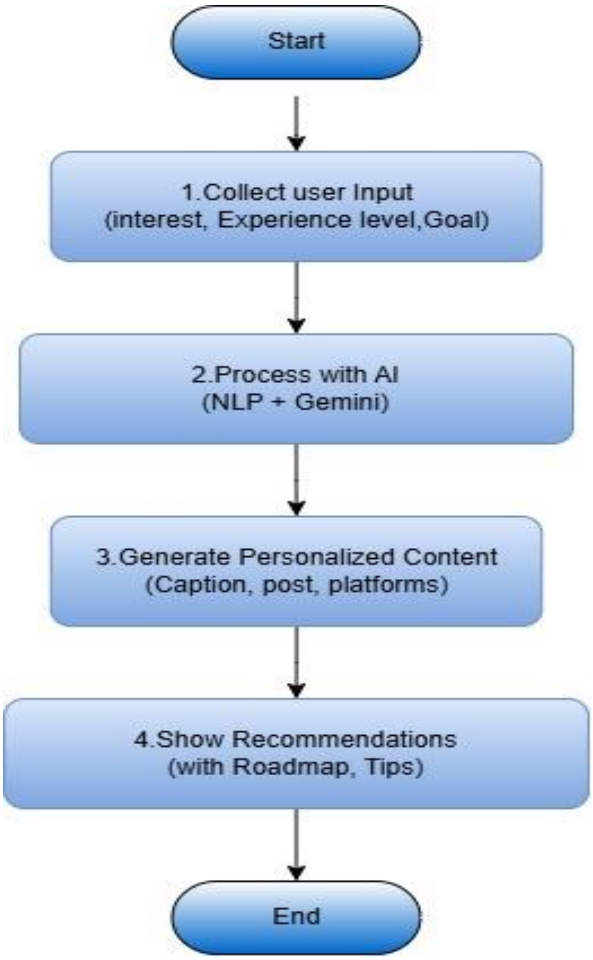


Figure:4.1 **Methodology flow chart**

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4.1 Data Sources

This system does not depend on a predefined data set. The user provides the data, describing their creative field, experience level, interests, and goals to the assistant. This information is turned into prompts, which the Google Gemini uses to generate suggestions customized for each person.

4.2 User Input

The system has four inputs. The first is the creative field like singing, dancing, fashion or other creative field. The second is the level of user interaction from complete beginner and up. The third is the interests of the user in that field. Fourth, what they are trying to do. These inputs let the assistant give advice that fits the user, not the same answer for everyone.

4.3 Tools and Technologies

The backend is written in python and the frontend is written in HTML, CSS, and JavaScript. JSON is used to transfer data between the front-end and the back-end. Google Gemini creates the content, and NLP is used to interpret what the user types. NLP helps the system to read and understand what a user types in.

4.4 Models / Algorithms

The project employs a pre-trained generative AI model, Google Gemini, so no model is trained from scratch. The system generates a prompt based on the user's field, experience level, interests, and goals. Gemini then delivers content ideas and a roadmap, which is a step-by-step path to follow to improve in your chosen area. NLP allows the system to read and understand the user's typing.

4.5 Proposed Research

The system we propose is an AI assistant to help beginner content creators get started and improve and improve. It suggests content that's personalized to the user's interests and level of experience. It also provides a clear roadmap so that beginners know what to learn and what to do next. It supports different creative fields in one place like singing, dancing, fashion.

4.6 Experimental arrangement

The system was developed and tested on personal computer with [Windows/Linux/macOS] with [RAM, e.g. 8 GB]. The backend was coded in Python [version] and the frontend was developed using HTML, CSS, and Javascript. The interface was tested in the [Chrome/Edge] browsers. Testing had to be done online as Google Gemini was called through its API.Sample user profiles were created for testing covering different creative fields (singing, dancing, fashion) and different experience levels (beginner upward). Each profile had interests and a goal.For each profile, the system generated a prompt, sent it to Gemini, and got the content suggestions and roadmap in JSON format that the frontend displayed. For these aspects the outputs were validated. Relevance: Is the content relevant to the chosen field and interests?Personalisation: Is the advice aligned with the user's experience and goals?Roadmap quality Are the steps

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clear, logical and easy to understand for a beginner? Response time: time taken for the system to return results. Behavior of interface: do they accept inputs? Do the outputs show correctly

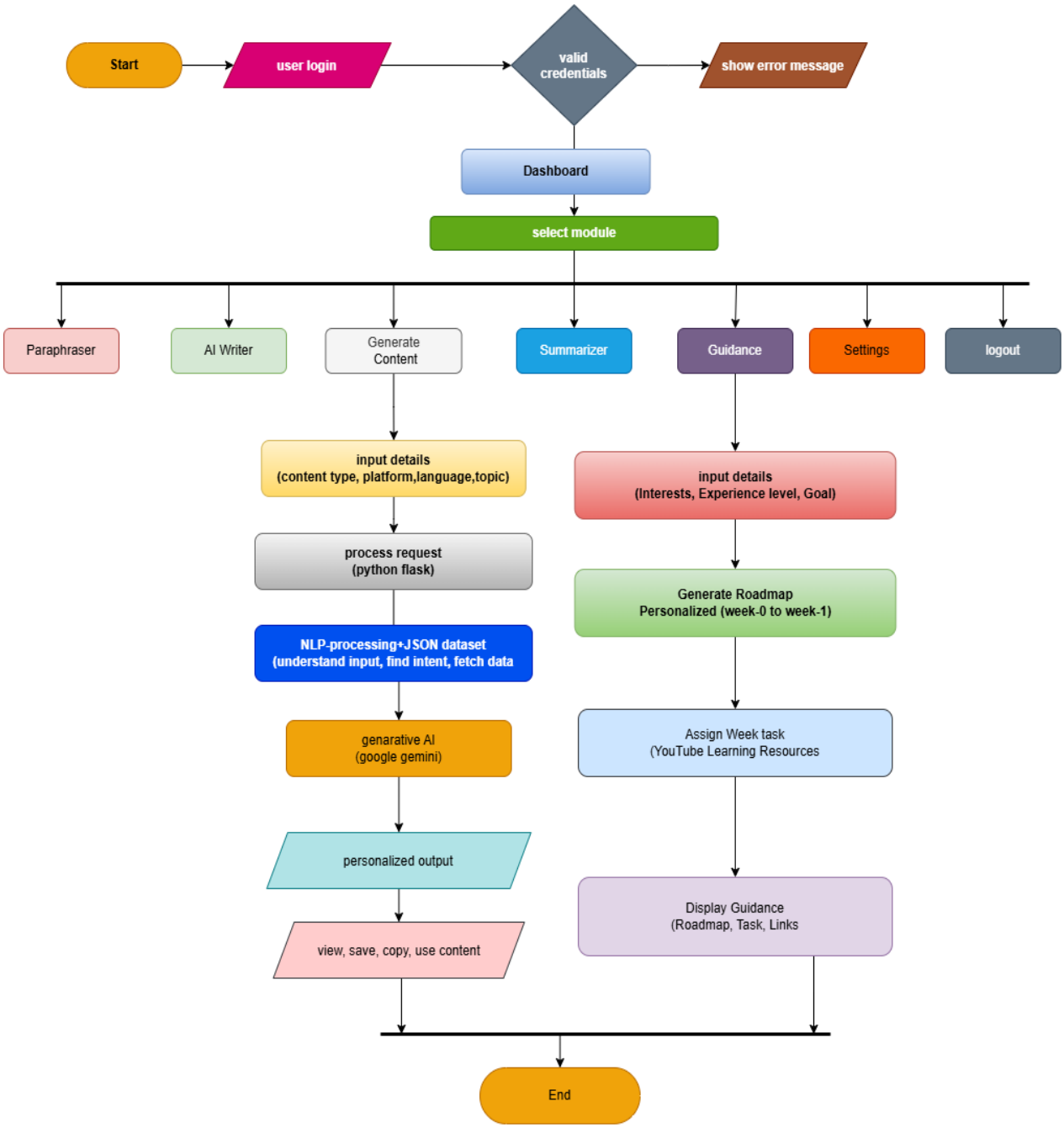


Figure:4.4.1 **Architecture of Proposed System**

5.RESULT:

The AI content creator assistant could take a creator's taste in music, dance and performance and turn it into personalized suggestions. Instead of offering generic ideas, it recommended vlog topics and types of content that fit each creator's own style and interests. The system also suggested appropriate styles of blog writing, and provided practical tips on how

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to produce content in a better way, such as how to structure a video, set the mood and present it to the audience. This helped creators get better at understanding what to create and how to create it.

Generally, the suggestions were found more relevant, original and inspiring than normal trend-based recommendations by creators. The results were strongest for music and dance content where style and mood are easier to identify, and performance content showed good potential and can improve with more data.

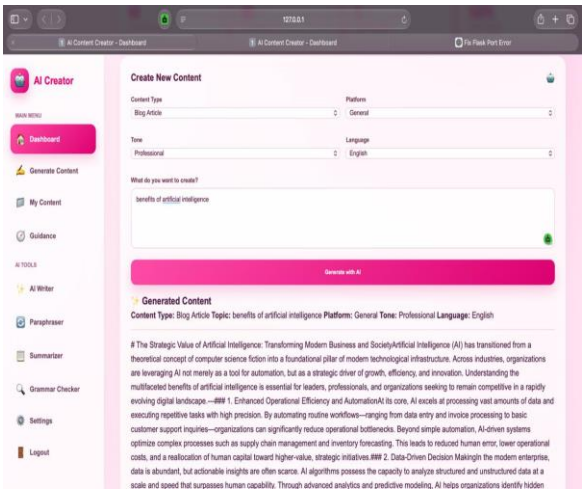


Figure 5.1 AI Content Creator Dashboard

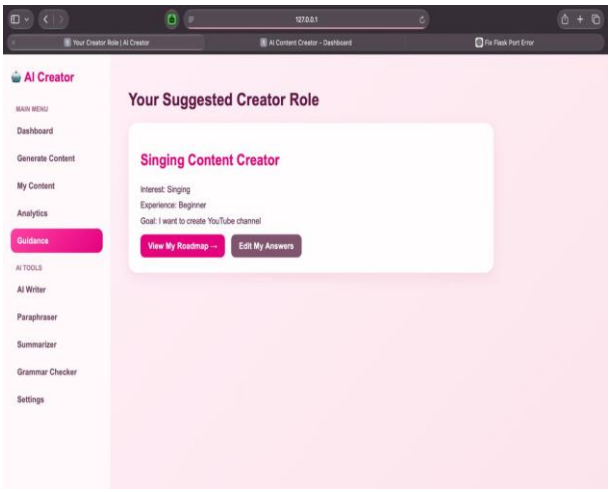


Figure 5.2 Creator Role Suggestion

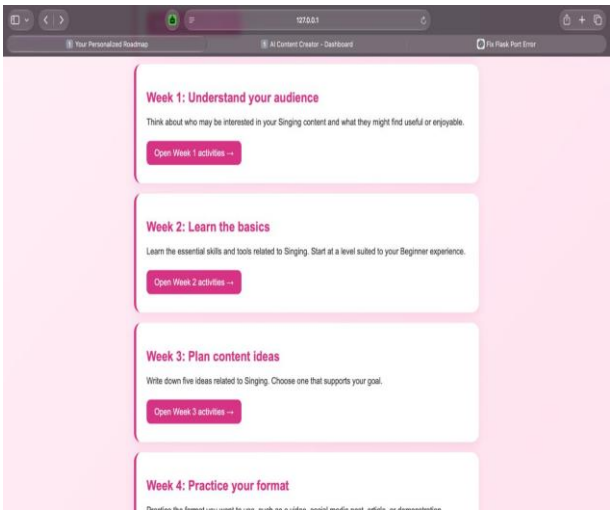


Figure 5.3 10Weeks personal Roadmap

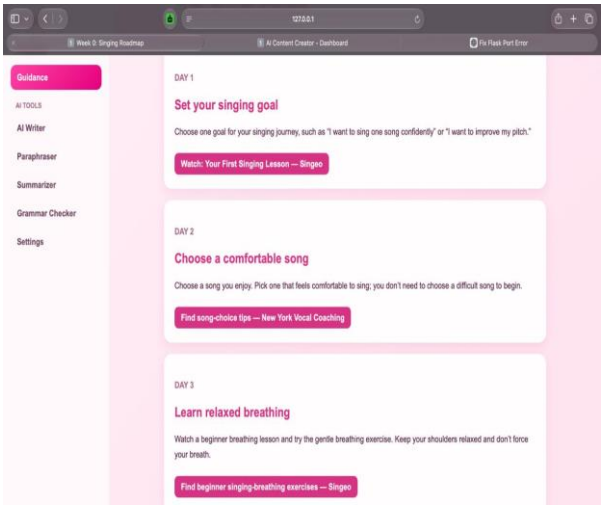


Figure 5.4 7-Day Session Plan

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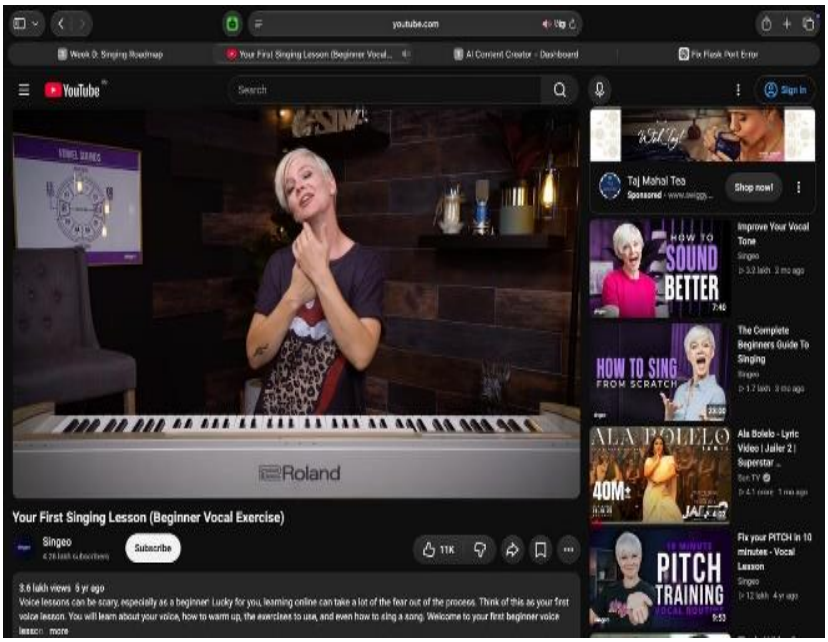


Figure 5.5 YouTube Platform Connection

6.FUTURE ENHANCEMENTS:

For content creation, they choose the tool, the platform, the tone and the language. For guidance, they select their interest and their experience level, and the roadmap works the same way. This keeps the app easy for beginners and makes sure the result matches exactly what the user picked. In the future, we want to make the experience even more natural by adding voice support. This will be very useful for people who find it difficult to read long text, or who want to use the app hands-free while practicing their singing, dancing or styling. Along with this, we also plan to add AI image generation, for people who want deeper support, we plan to build a separate assistant with its own AI model that gives more detailed, step-by-step coaching in their chosen field. With these additions, we hope to make the assistant simple to use, more interactive, and helpful for creators at every level. The AI Content Creator Assistant might introduce a premium subscription model in the future.Users will have access to the app and its features for about three weeks on a trial basis. The fourth week onward, the users can pay a specified fee to subscribe to the premium version to continue availing of the advanced features and personalized AI-based content creation services. This model can help the app to remain viable and develop continuously in the long term.

7.CONCLUSION:

Most beginners don't know what to post, which format to pick, or how to z going without losing interest. We built this project to help with exactly that. In our app, the user doesn't have to type anything. They just click the options z want, like the tool, platform, tone, language, interest and experience level, and the app uses Google Gemini to give them ideas, captions, guidance and a roadmap that suits them. The roadmap also gave beginners a clear idea of what to do next, so they didn't have to guesses the application is designed to be simple and easy to use, allowing users to get started without requiring any technical knowledge. This is just the first version of AI system and there is a lot we can add later the first will be be voice support, so users can talk to the application and give commands by voice instead of selecting the options.

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also, image generation, which would help creators put their visual content for their posts. Connecting the app to social media platforms is another goal it makes easier for sharing conventionally there will be a separate AI. And also adding a voice support system to people can talk to the app like they do with Siri or Alexa. Connecting social media platforms

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