MINI-PROJECT REPORT

ON

"DIGITAL MARKETING BOT"

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C E R T I F I C A T E

Department of Artificial Intelligence & Data Science

This is to certify that

1. HRUTURAJ ATOLE(601)
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Have satisfactorily completed this project entitled

"DIGITAL MARKETING BOT"

Towards the partial fulfilment of the

THIRD YEAR BACHELOR OF ENGINEERING
IN
(ARITIFICIAL INTELLIGENCE AND DATA SCIENCE ENGINEERING)

as laid by University of Mumbai.

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Project Report Approval for T. E.

Topic *"DIGITAL MARKETING BOT"* by *Hruturaj Atole, Pranay Khuspe, Ritesh Maurya and Shubham Mote* is approved for the degree of *Third-Year Bachelor of Artificial Intelligence & Data Science* .

Examiners:

1-------------------------------------

2.----------------------------------

Date: 02/05/2024

Place: Mumbai

Declaration

We wish to state that the work embodied in this project titled "DIGITAL MARKETING BOT" forms our own contribution to the work carried out under the guidance of "**Mrs. Krutika Jain**" at the Rajiv Gandhi Institute of Technology.

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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ABSTRACT

Marketing is integral to driving sales growth, employing diverse strategies to effectively showcase products and services. Its core objectives include boosting brand visibility, fostering engagement, and converting leads into customers through targeted promotions. With the rise of digital marketing, businesses leverage powerful tools for precise audience targeting and data-driven insights, revolutionizing marketing approaches. Digital platforms enable personalized experiences through AI analysis of consumer data, tailoring messages to specific audience segments and enhancing conversion rates. Moreover, digital channels offer unparalleled reach and flexibility, connecting with potential customers across various platforms. Marketing also cultivates brand loyalty by delivering value and memorable experiences, fostering long-term relationships that drive repeat business and word-of-mouth referrals, contributing to sustained sales growth.

Keywords – Marketing, Sales growth, Diverse strategies, showcase products, brand visibility, Engagement, Powerful tools, Audience targeting, Data-driven insights.

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Chapter 1

Introduction

1.1 Introduction:

Through examination of various research papers, we've pinpointed a critical gap in the digital marketing landscape: the absence of a unified platform offering comprehensive services. To address this void, we've meticulously integrated email, WhatsApp, Instagram, and Twitter marketing functionalities onto a singular platform. Our solution streamlines marketing efforts by providing a centralized hub for executing diverse campaigns seamlessly.

To augment our platform's effectiveness, we harness the power of Gemini API for content generation and data analysis. This integration empowers users with valuable insights, facilitating informed decision-making and optimizing marketing strategies for enhanced results. By consolidating multiple marketing services and leveraging cutting-edge technology, we aim to revolutionize digital marketing practices, offering unparalleled convenience and efficiency to businesses seeking to maximize their online presence and drive growth.

Chapter 2:

Literature Review

2.1 Organization of report

Ch.1 Introduction: Introduction gives a brief idea about the project, what it includes and how it is executed. It also gives an idea about the motive behind this project. Introduction contains all the technical aspects about the project.

Ch.2 Literature Review: Literature review is a summary of all the research papers we refereed for our project. It contains information of our approach for the project and the research gap left by the researchers in their project. It also contains the information about the university from which we refereed the papers.

Ch.3 Proposed System: Proposed system contains all the algorithms and frameworks to be used in the project. It gives a brief of what algorithm we is using and the basics of that algorithm.

Ch.4 Results: Result contains the actual implementation of our project. It gives an idea about how the web page would look after implementation.

Ch.5 Conclusion: Conclusion contains the end results and what we conclude from our project and what we conclude from our Project.

2.2 Survey existing system

Following meticulous research, we've uncovered a significant void in the digital marketing realm: the absence of a unified platform. To rectify this, we've seamlessly integrated email, WhatsApp, Instagram, and Twitter marketing functionalities into a single, cohesive platform. Our solution serves as a centralized hub, simplifying campaign management and streamlining marketing efforts for businesses.

Augmenting our platform's efficacy is the incorporation of the Gemini API, which facilitates content generation and data analysis. This integration empowers users with

invaluable insights, enabling informed decision-making and optimization of marketing strategies for superior outcomes. By amalgamating multiple marketing services and harnessing cutting-edge technology, we're poised to revolutionize digital marketing practices.

Our aim is to offer unparalleled convenience and efficiency to businesses seeking to maximize their online presence and drive growth. Through this innovative approach, we're reshaping the digital marketing landscape

2.3 Limitation existing system or Research gap

On analysing various similar websites, it is found that those websites don't provide automating the mail, Instagram and WhatsApp marketing bot, Integration of chatgpt all in a single website.

2.4 Problem Statement and Objectives

Build a Website that provides multiple digital marketing services for effective and efficient marketing of a company's product.

2.5 Objectives
1. To expand brand visibility and audience engagement across multiple digital platforms seamlessly.

2. Personalize email and WhatsApp content using Gemini API for better engagement and ROI.

3. Analyse data to optimize campaigns and drive conversions.

4. Tailor experiences to enhance customer satisfaction and maintain brand consistency across channels.

2.6 SCOPE

The project's focus lies in automating email processes to expedite and simplify bulk email marketing. This system aims to alleviate the laborious task of manually responding to numerous emails. Email Automation Tools, software solutions that automate email sending and receiving, play a pivotal role. They facilitate tasks like automated emails, email sequences,

and campaign management. Well-known examples include Mailchimp, Sendinblue, and HubSpot.

Natural Language Processing (NLP) Systems, AI systems proficient in understanding and processing natural language text, offer further benefits. They analyse incoming emails, categorizing them based on topic or sentiment. Prominent examples utilized in email bots are IBM Watson and Google Cloud Natural Language.

The scope for AI in content generation is vast, ranging from natural language generation for articles, social media posts, to image and video synthesis. AI-powered bots can be deployed on platforms like WhatsApp and Instagram to engage users, answer queries, and even provide personalized recommendations. Additionally, AI algorithms can analyze user data from these platforms to derive insights, such as user preferences, trends, and behavior patterns, which can be invaluable for marketing strategies and content creation.

CHAPTER 3

Proposed System

3.1 Algorithm Used:

Naïve Bayes Algorithm: Naïve Bayes is a probabilistic classifier used in text classification and spam filtering. It operates on Bayes' theorem with an assumption of feature independence, offering simplicity yet effectiveness in various machine learning tasks.

Statistical Algorithms for Analysis: Statistical algorithms encompass techniques like linear regression, logistic regression, ANOVA, and clustering. They facilitate data-driven decision making and pattern recognition.

Count Vectorizer Algorithm: Count Vectorizer converts text documents into numerical feature vectors, crucial for tasks like text classification and information retrieval.
Regular Expression (NLP Regex): Regular Expression (Regex) is a powerful tool in natural language processing for precise pattern matching and text manipulation, enabling tasks like information extraction and entity recognition.

3.2 Details of hardware and software

3.2.1 Hardware requirements
- Internet Connected Device
- 4 GB RAM
- 16 GB Storage
- Intel® 4004

3.2.2 Software Components:

- Python & Libraries

- SMTP server

- VS code

- Github

- Ajax

- Django

- React

- Vite

- HTML, CSS and JS

- Mavic Cloud (Hosting platform)

- Nginx

- Mpanel

- ISPmanager

- Gemini AI API

- DB Sqlite

- Selenium

3.3 Design Details

3.3.1 System Architecture

Email bot :

SMTP operates at the application layer and facilitates email transmission by establishing a TCP connection between the client and the SMTP server. The server, which remains in an always-on listening mode, initiates a connection through port 25 upon receiving a TCP

connection request from a client. Once the connection is established, the client sends the email.

In the SMTP model, users interact with user agents (UAs) like Microsoft Outlook or Netscape, while the Mail Transfer Agent (MTA) handles the transmission of emails over TCP. Users are not directly involved with MTAs, as their setup is the responsibility of system administrators. MTAs maintain a small queue of emails for scheduled delivery attempts in case the recipient is unavailable, and they deliver emails to the respective mailboxes, which users can later access through their user agents.

Communication between sender and receiver involves the sender's user agent preparing the message and sending it to the MTA, which then transfers the email across the network to the recipient's MTA. To send emails, a system needs a client MTA, while a server MTA is required for receiving emails.

Emails are sent through a series of request and response messages between the client and server. Each email message comprises a header and a body, with a null line terminating the header. The body consists of ASCII characters and contains the actual information intended for the recipient.

On the receiving end, the server-side user agent checks the mailboxes at set intervals. Upon receiving new emails, it notifies the user, who can then view a list of emails with brief descriptions. Selecting an email allows the user to read its contents on the terminal.Django serves as a framework for integrating the frontend and backend components of a website.

Spam Detector :

The architecture for a basic spam classifier relies on predefined rules and parameters to identify spam emails. As incoming emails are received by the server, the classifier applies these rules, such as checking for specific keywords or suspicious sender addresses. Based on the degree of match to these rules, each email is assigned a spam score. A threshold is then applied to this score to determine whether the email should be classified as spam or legitimate. For emails surpassing the threshold, actions are taken, such as moving them to a spam folder or flagging them. Legitimate emails are delivered to the user's inbox. Throughout this process,

the system logs classification results and actions taken, facilitating monitoring and refinement of the spam detection system.

WhatsApp bot :

A basic system architecture for a WhatsApp bot using Pywhatkit consists of several key components. Firstly, Pywhatkit serves as the primary interface for interacting with the WhatsApp Web platform, enabling the bot to send and receive messages seamlessly. Upon receiving a message from a user, the bot processes the message content to determine the appropriate response. This could involve simple message parsing or basic keyword recognition techniques. Once the response is generated, Pywhatkit is utilized again to send the response back to the user's WhatsApp account as a reply. The system includes basic error handling mechanisms to manage issues like network connectivity problems or message sending failures. While optional, basic logging functionality may be incorporated to track user interactions and system activities for monitoring and debugging purposes. This streamlined architecture enables the development of a straightforward WhatsApp bot capable of receiving messages from users and providing simple responses using Pywhatkit.

Gemini AI :

The Gemini API for content generation, users interact with the platform through a user interface, submitting prompts or keywords for content creation. These inputs are then formatted and sent to the Gemini API via HTTP requests. Leveraging advanced natural language processing (NLP) techniques and machine learning algorithms, the Gemini API processes the user inputs and generates text content accordingly. The generated content is returned as a response, which is then formatted and presented back to the user interface for display. Throughout this process, basic error handling mechanisms are in place to manage potential issues like network errors or API failures, ensuring a seamless user experience. This straightforward architecture allows for rapid implementation of content generation capabilities, empowering users to create high-quality text content tailored to their specific requirements using the Gemini API.

Data analytics :

A digital marketing website equipped with email and WhatsApp marketing tools relies on a comprehensive database infrastructure to support its functionalities. This database stores diverse sets of data crucial for effective marketing campaigns. It includes user data encompassing contact information, preferences, and account settings, essential for personalized communication and campaign targeting. Campaign data, detailing content, scheduling, recipient lists, and engagement metrics, facilitates campaign management and analysis. Additionally, the database houses pre-designed email and WhatsApp templates, enabling users to create compelling content efficiently. Analytics data, encompassing performance metrics like open rates and conversion rates, empowers users to evaluate campaign effectiveness and refine strategies. Contact lists segment subscribers for targeted messaging, while integration data facilitates seamless connections with third-party tools. Moreover, user interactions with the website are captured to enhance user experience and optimize conversion paths. Through robust database management, the digital marketing website provides users with powerful tools to orchestrate, execute, and analyze the impact of their marketing efforts across email and WhatsApp platforms.
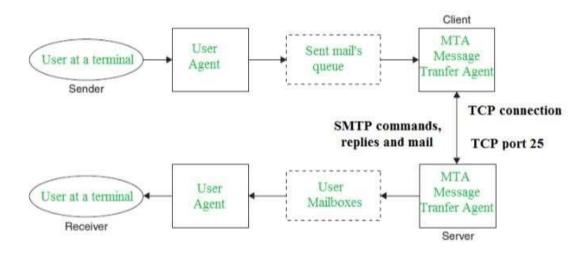

Figure 3.3.1 Email bot flow

Fig 3.3.1 is the System flow of our Email Marketing Bot , It describes the process from input of the emails till successfully sending the messages.
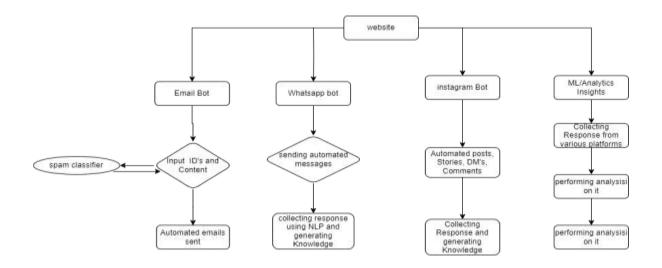
Figure 3.3.2 proposed system

Fig 3.3.2 is the Proposed System of Our Complete Website of Digital Marketing bot, it describes how every Module is connected and how the Processing will occour.
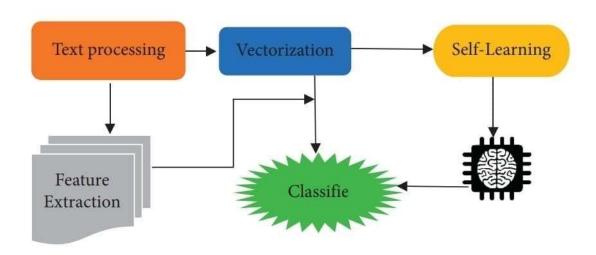

Figure.3.3.3 Spam detection architecture

The Figure 3.3.3 Describes the Architecture of the Spam Classifier Software which is used in the Email Bot Module of Digital Marketing Bot.

3.4 Methodology

Our project is a comprehensive undertaking that integrates automation bots for Email, WhatsApp, and Instagram platforms. Each bot is designed to optimize specific functionalities and enhance overall efficiency in digital marketing endeavours.

The Email bot is powered by SMTP for seamless email delivery and includes a sophisticated spam classifier to ensure that only relevant and legitimate emails reach recipients' inboxes. This feature helps maintain a high level of deliverability and improves the overall effectiveness of email marketing campaigns.

On the other hand, the WhatsApp bot utilizes NLP's Regex capabilities to process incoming messages efficiently. By leveraging natural language processing techniques, the bot can understand and respond to user queries and commands effectively, providing a seamless user experience on the WhatsApp platform.

Similarly, the Instagram bot leverages the power of Selenium for various automation tasks. This allows for automated interactions, such as liking posts, following users, and posting content, thus streamlining engagement efforts on the Instagram platform.

In addition to these automation bots, we leverage ChatGPT for content generation across all platforms. ChatGPT's natural language processing capabilities enable us to generate engaging and relevant content for emails, WhatsApp messages, and Instagram posts, enhancing the overall quality of our marketing communications.

Furthermore, our project incorporates analytics tools to evaluate the effectiveness of our marketing efforts. These analytics provide valuable insights into key performance metrics, such as engagement rates, conversion rates, and audience demographics. By analyzing this data, we can make informed decisions to optimize our marketing strategies, focusing our efforts on the most impactful platforms and making necessary improvements to drive better results.

Overall, our project aims to streamline digital marketing processes and improve efficiency across Email, WhatsApp, and Instagram platforms through the integration of automation bots, content generation tools, and analytics capabilities.

CHAPTER 4

4.1 Results

We have successfully created frontend and also created automation software of Email bot and integration part of website and connecting frontend to backend of our website and Program created using the API of chatgpt helped us to create content for the marketing of the requested product. we also created email bot which sends marketing emails to more than 50 accounts at a time. we have created a mass WhatsApp message sender bot which will greatly help us to spread our product within the targeted users.
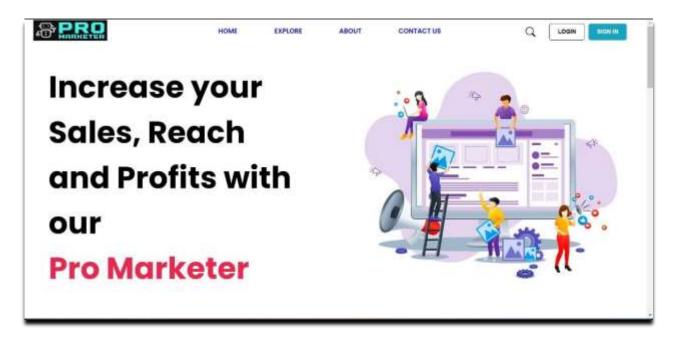
Figure. 4.1 website home screen

Figure 4.1 show the home page of the website, it tells about the moto of the website, and there is also a button named learn more which the user can click to go to the page that tells more about our project.
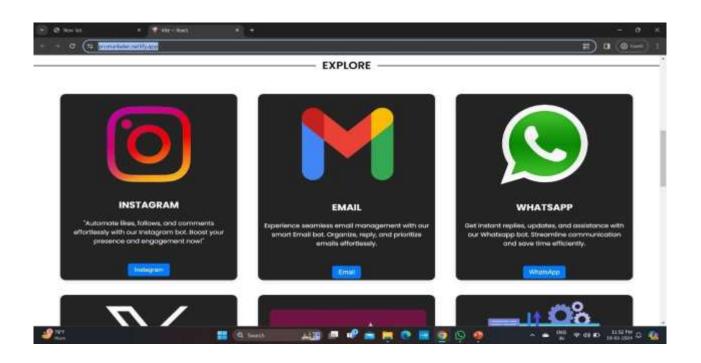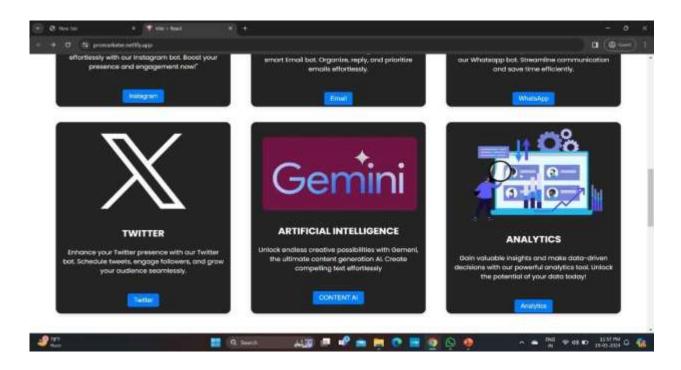
Figure. 4.2 website services

Figure. 4.3 website services

Above figure fig 4.2 and fig 4.3 show the screen that tells about the services provided by the website, by clicking on those images the person can use the corresponding services, at the moment WhatsApp bot, email bot, chatgpt and community services are working but twitter bot and Instagram bot will be added ion next semester.
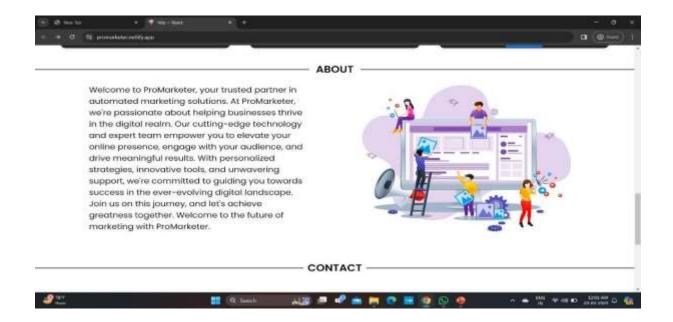

Figure. 4.4 about

Fig 4.4 show the about page of the website that tells about the website and the developers who have developed it. This section tells about why the website was created and it also has a learn more button which can be used to go to the page that tells more about the project.
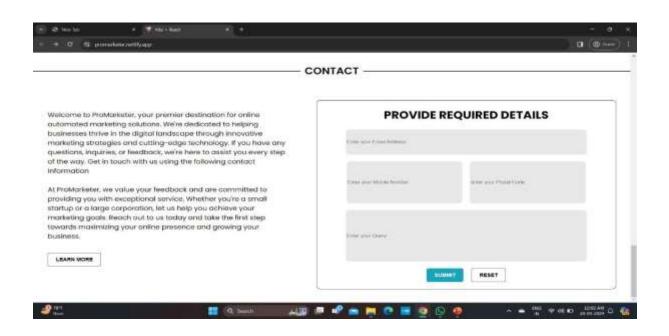
Figure. 4.5 Contact

Fig 4.5 The contact page serves as a crucial interface for users to connect with us. It provides various means of communication, including email, phone, and a contact form. Visitors can reach out for inquiries, feedback, or support, fostering engagement and facilitating effective communication between users and our team
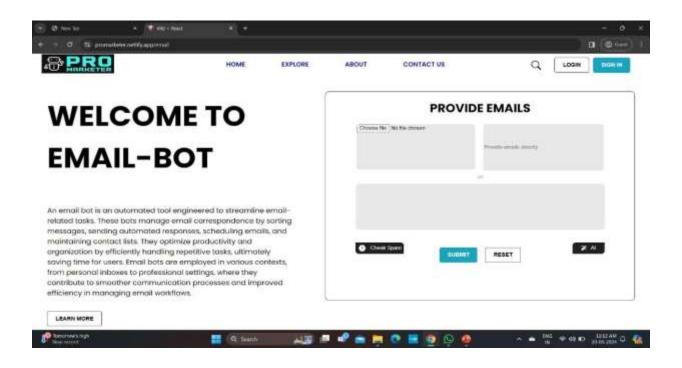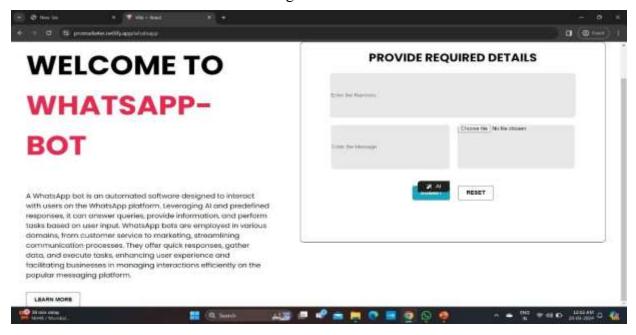
Figure. 4.6.1

Figure. 4.6.2

Fig 4.6.1 and Fig 4.6.2 shows the interface for Email marketing bot and WhatsApp marketing bot respectively . In the Email marketing bot they add emails and the content which the user want to send and then press submit to run the bot and in WhatsApp marketing bot the user enters the number and the content which they want to send and then press submit to run the bot.
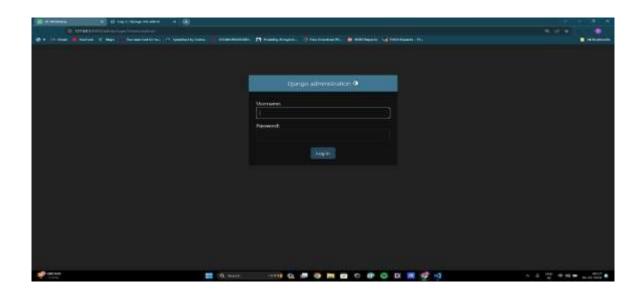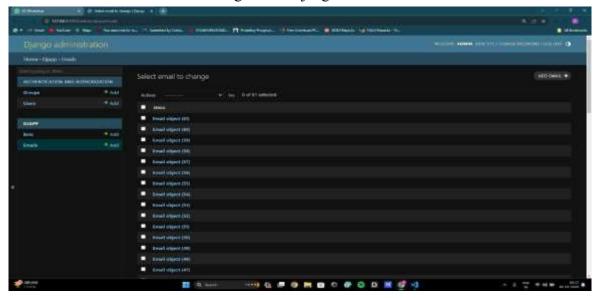
Figure 4.7.Django Administration

Figure 4.7.2 Email database

Fig 4.7.1 and Fig 4.7.2 shows the Django administration where the database is saved . The data is been send by the user and is the data which has been sent by in Whattsapp bot and Email bot.

Chapter 5:

Conclusion:

The digital marketing bot project is developed with replication software, Selenium, SMTP software, and mail providers like GoDaddy and Email Gun, alongside the Django framework. Its primary aim is to provide customers with a convenient and efficient marketing solution comparable to professional services, with a key focus on time-saving. In addition to the existing functionalities, the project integrates WhatsApp marketing services, AI for content generation, and data analysis for valuable insights, enhancing its capabilities for comprehensive marketing automation across multiple platforms. Leveraging WhatsApp marketing services expands the bot's reach and engagement, while AI-driven content generation ensures personalized and compelling marketing materials. Furthermore, data analysis offers actionable insights for optimizing marketing strategies. In summary, this proposed system functions as an efficient, user-friendly, and multifunctional marketing bot, empowering businesses to streamline their marketing efforts and achieve superior results in less time.

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