

AI-POWERED DRAG-AND-DROP WEBSITE BUILDER**Arti Ochani*¹, Raj Kanojiya*², Sanket Patil*³, Shubham Parte*⁴**

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ABSTRACT

This paper presents an AI-powered drag-and-drop website builder aimed at making web development accessible to users without technical expertise. The platform integrates advanced AI technologies, including Gemini/ChatGPT for generating text content and Stable Diffusion 1.5 for creating images, ensuring that websites are both visually appealing and contextually relevant [1][2]. Built on the VvwebJs framework, the tool offers an intuitive interface that allows users to design websites effortlessly by combining AI-generated elements with manual customization. Unlike traditional website builders, which require coding skills or extensive template modifications, this system automates key aspects of web design while still allowing user control. By reducing the complexity of web development, enhancing creative possibilities, and enabling faster project completion, this AI-driven approach demonstrates significant potential in modern web design [3].

Keywords: AI in Education, Website Builder, Digital Literacy, Educational Technology, Gemini API, ChatGPT API, Stable Diffusion 1.5, AI Content Creation

I. INTRODUCTION

This paper introduces an AI-powered drag-and-drop website builder designed to simplify web development for non-technical users. By integrating Gemini/ChatGPT for intelligent text generation and Stable Diffusion 1.5 for automated image creation, the tool enables seamless content automation within a user-friendly VvwebJs framework [1]. The tool combines AI-assisted design with manual customization, allowing users to create professional websites effortlessly. A comparative analysis of existing website builders highlights the advantages of AI integration, demonstrating improved efficiency, ease of use, and reduced dependency on coding expertise [4]. This study underscores the effectiveness of AI-driven web development in enhancing creativity, reducing technical complexity, and streamlining the design process.

Comparative Analysis of AI-Powered Drag-and-Drop Website Builder

To evaluate the effectiveness of our AI-powered drag-and-drop website builder, we conducted a comparative analysis against industry-leading platforms such as Wix, WordPress, and Webflow. This analysis focuses on core functionalities, AI integration, ease of use, and suitability for non-technical users.

1. Feature Comparison**Table 1.** Comparison of industry leading platforms

Feature	AI-Powered Builder	Wix	WordPress	Webflow
Drag-and-Drop Interface	Yes	Yes	Limited	Yes
AI Text Generation	Yes (Gemini/ChatGPT)	Yes (Wix ADI)	No	No
AI Image Generation	Yes (Stable Diffusion)	No	No	No
Code Customization	Yes (Integrated Code Editor)	Limited	Extensive (Requires Plugins)	Yes
Ease of Use	High	High	Medium	Medium
Multilingual Support	No	Yes	Yes	Yes
Export to ZIP	Yes	No	Yes	Yes
Free Tier Available	Yes	Yes	Yes	Limited

II. KEY ADVANTAGES OF OUR AI-POWERED BUILDER

- **Seamless AI Integration:** Unlike competitors, our platform integrates both text and image generation, making content creation more efficient.
- **Enhanced Usability:** The intuitive drag-and-drop system, combined with AI assistance, simplifies web development for non-technical users.
- **Customization Capabilities:** The built-in code editor allows advanced users to modify the site beyond the standard drag-and-drop elements.
- **Project Export Flexibility:** Unlike Wix, which lacks a ZIP export feature, our builder enables users to download complete projects for external hosting.

III. SUMMARY OF COMPARATIVE ANALYSIS AGAINST INDUSTRY-LEADING PLATFORMS

Our AI-powered website builder provides a unique balance between automation and customization, offering a user-friendly solution tailored for digital literacy and project-based learning. The integration of AI-generated text and images significantly streamlines content creation, setting it apart from traditional platforms like Wix and WordPress. Future updates will focus on improving multilingual support, template variety, and advanced customization features to further enhance accessibility and user experience.

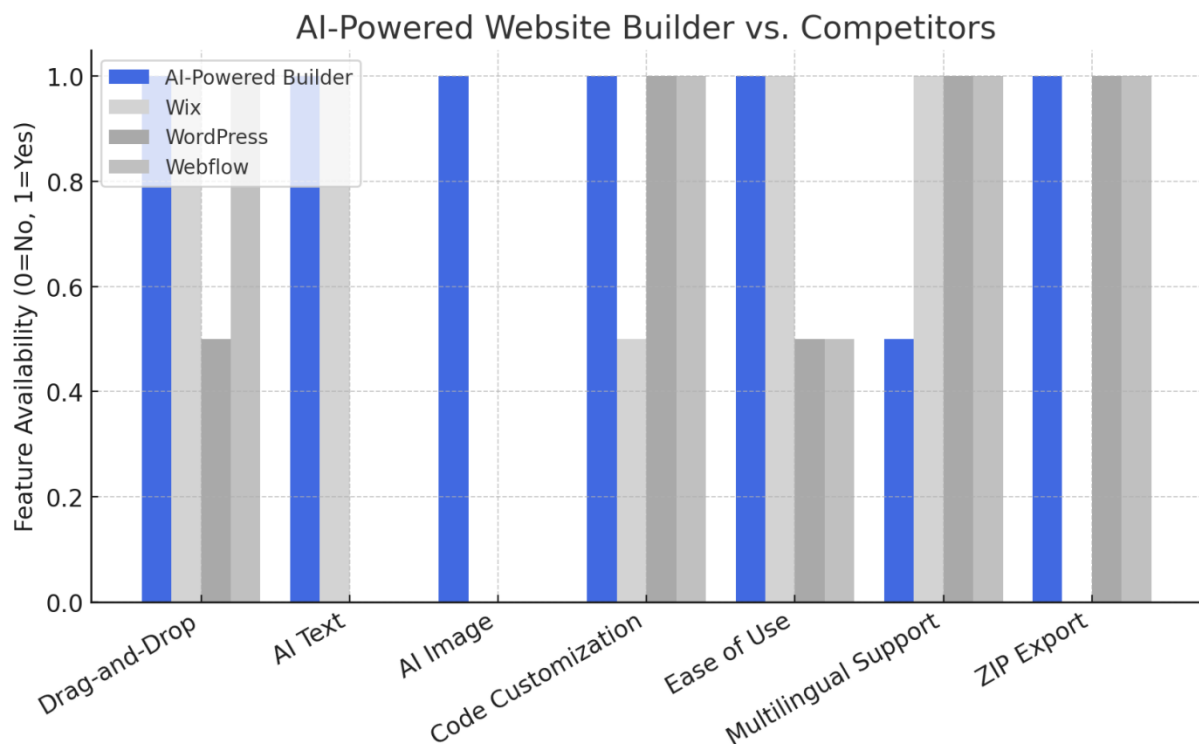


Figure 1: Feature Comparison of AI-Powered Website Builder vs. Competitors.

IV. METHODOLOGY

The system architecture is designed to provide a visually intuitive drag-and-drop interface, enabling users to build websites with minimal technical knowledge. The implementation is based on the VvwebJs framework for front-end design, while a PHP backend manages server-side operations and AI integrations [2].

Core AI Innovations

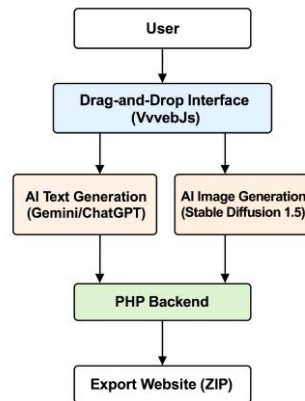
Our approach integrates two AI-driven modules to enhance website creation:

1. AI Text Generation (Gemini/ChatGPT) [1]
 - Automatically generates coherent and contextually relevant website content.
 - Ensures optimized readability and SEO-friendly structure.

2. AI Image Generation (Stable Diffusion 1.5) [2]

- Produces custom visual assets tailored to the website's design.
- Allows users to generate high-quality, AI-created images seamlessly.

System Workflow



Methodology

Figure 2 : Flowchart for Methodology

- **User Interaction:** The user initiates the website-building process.
- **Drag-and-Drop Interface (VvwebJs):** Users visually construct web pages without coding.
- **AI-Powered Content Generation:**
- **Text Module (Gemini/ChatGPT):** Generates website text dynamically [1].
- **Image Module (Stable Diffusion 1.5):** Creates and inserts AI-generated visuals [2].
- **PHP Backend Processing:** AI-generated outputs are integrated into the website structure.
- **Final Export (ZIP Format):** Users can download their website as a complete, deployable package.

This methodology ensures efficiency, accessibility, and creativity in web development, bridging the gap between non-technical users and professional website design.

V. RESULTS AND DISCUSSION

A comparative analysis was conducted to evaluate the AI-powered website builder against industry-leading platforms, focusing on ease of use, AI integration, and customization capabilities. The findings highlight the following key aspects:

- **Ease of Use:** The AI-powered builder offers a more intuitive drag-and-drop interface compared to WordPress, making it highly accessible for non-technical users.
- **AI-Generated Content:** Unlike Wix and Webflow, which have limited AI-assisted design, our builder integrates Gemini/ChatGPT for text generation and Stable Diffusion for image creation, reducing the need for manual content creation.
- **Customization Flexibility:** While Wix has limited code customization, and WordPress relies on third-party plugins, our builder features an integrated code editor, allowing users to modify elements directly.
- **Project Deployment:** Unlike Wix, which lacks a ZIP export feature, our tool enables full project downloads, offering flexibility for external hosting.

These insights suggest that AI integration in website development significantly improves efficiency, accessibility, and creativity. While platforms like WordPress remain strong in extensive plugin support, our AI-powered solution streamlines the process for educators, students, and non-technical users, making it a powerful tool for digital literacy and project-based learning.

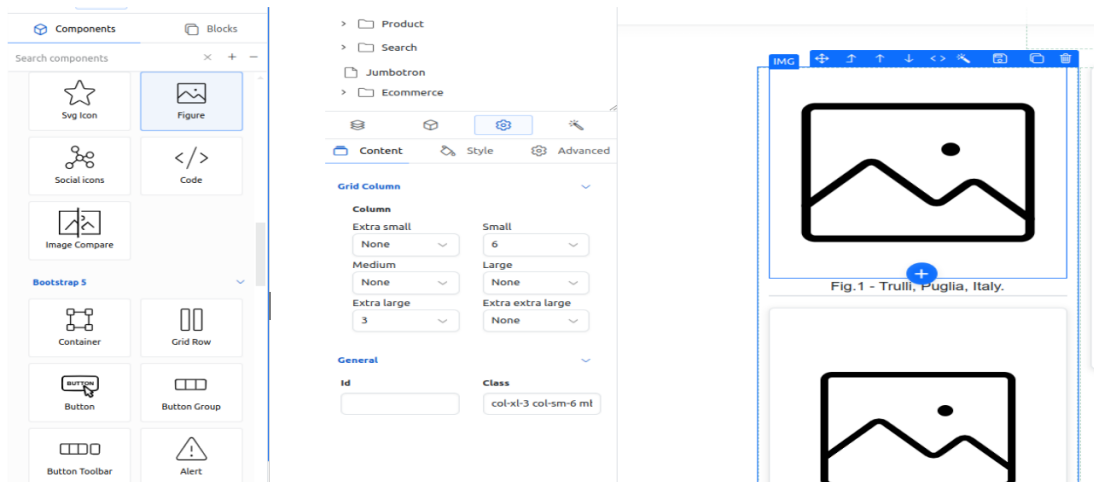


Figure 3: Drag and Drop Functionality

1. Select an Element

- Choose a **text box, image, button, or other web component** from the side panel.

2. Click and Hold

- Press and hold the **left mouse button** on the selected element.

3. Drag to the Canvas

- Move the element to the **desired position** on the webpage layout.

4. Drop the Element

- Release the mouse button to **place the component** onto the canvas.

5. Customize the Element

- Adjust size, text, colours, or images as needed using the **settings panel**.

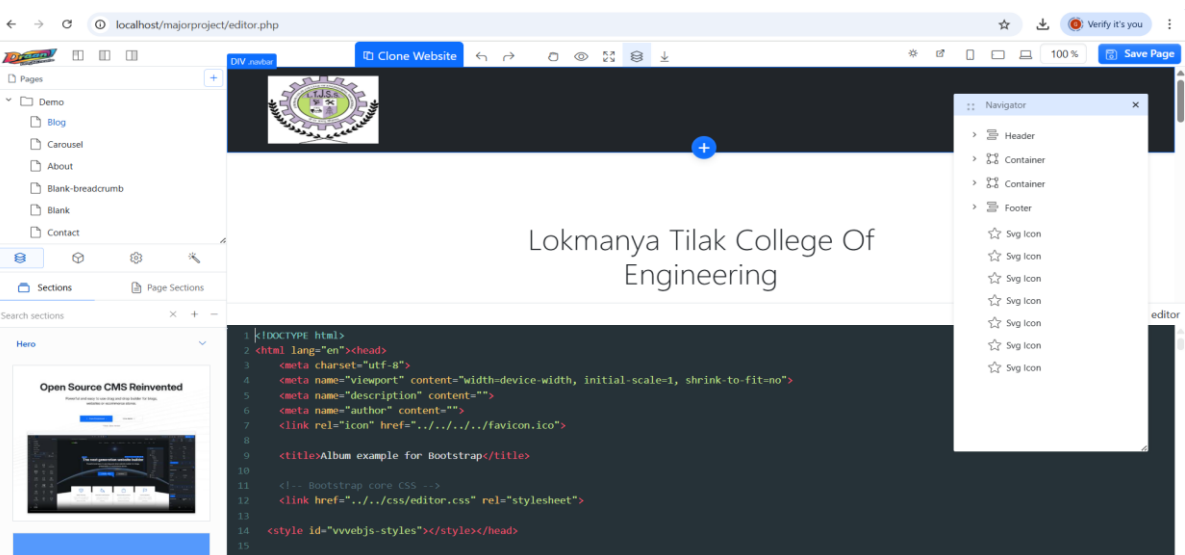


Figure 4: Overview of the Builder .

1. Responsive Design:

The website builder is designed to create responsive webpages that adapt seamlessly to different devices and screen sizes. This ensures that your website looks great whether it's viewed on a desktop, tablet, or smartphone.

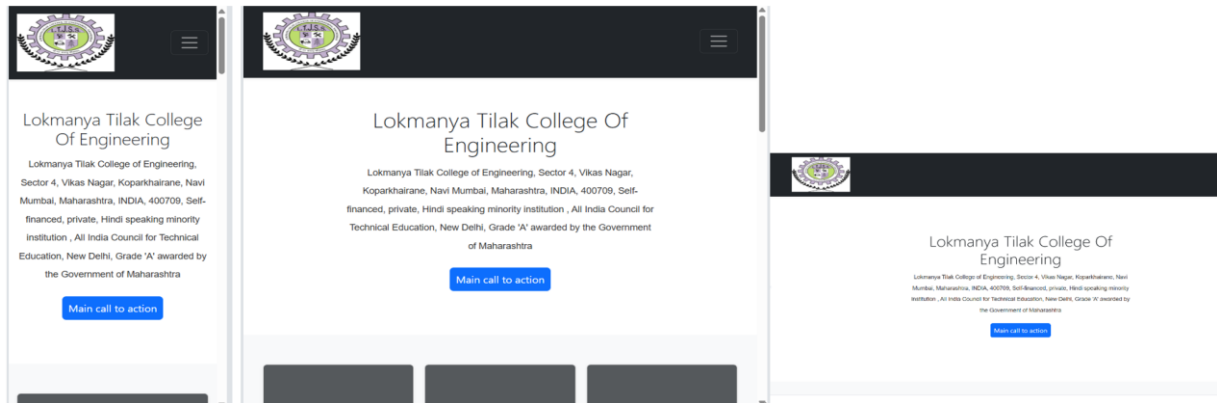


Figure 5: Responsive design.

2. Live Preview:

A live preview is provided so that as you build your website—whether by dragging and dropping elements or by editing the code—the changes are immediately visible. This real-time feedback helps you see exactly how your site will appear to end users.

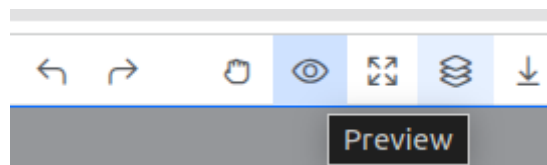


Figure 6: Preview

3. ZIP Format Download:

Once your website is complete, the builder offers an option to export the entire project in ZIP format. This bundled download includes all necessary files (HTML, CSS, images, etc.), making it straightforward to deploy or share your site.

4. Code Editor:

For users who prefer or require more granular control over the design, an integrated HTML/CSS code editor is available. This feature allows you to manually customize the layout, styling, and functionality of your website beyond what the drag-and-drop interface offers.



Figure 7 : Code editor

5. AI Content:

The platform includes integrated AI modules that automate content creation. For example, the AI text generation (powered by Gemini/ChatGPT) can quickly provide well-structured, contextually relevant text, while the image generation tool (using Stable Diffusion) creates custom visuals. These features streamline the creative process and enhance the overall quality of the website.

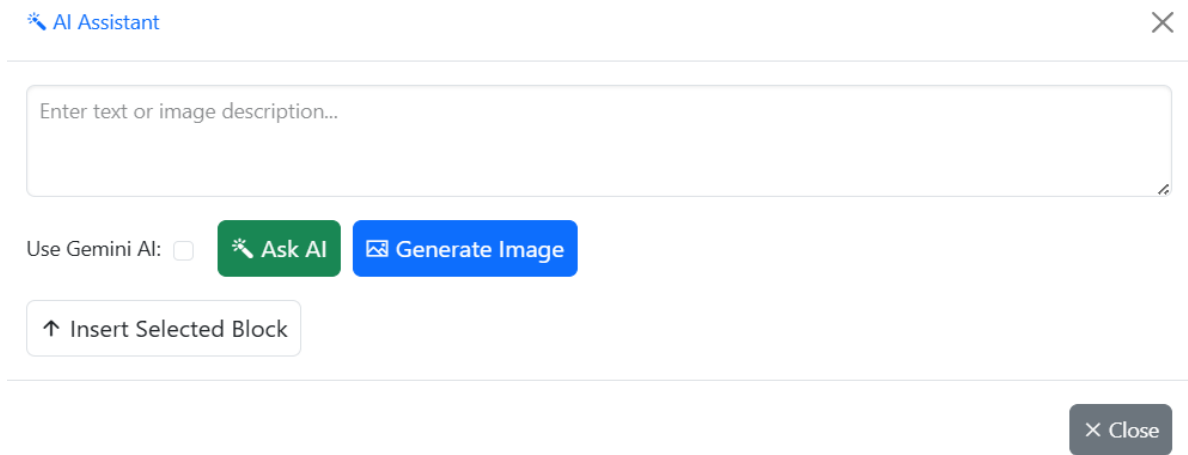


Figure 8 : AI content generation

1. Text Generation:

Users can click the "Generate Content" button to auto-fill text blocks with AI-generated content. This reduces manual writing time while allowing users to review and refine the content for accuracy and clarity.

2. Image Generation:

The "Generate Image" option allows users to create custom visuals by providing a short descriptive prompt (e.g., "Modern school building at sunset"). This feature enables quick and personalized image generation, which can be directly inserted into the webpage.

VI. CONCLUSION

The AI-powered website builder provides a comprehensive solution for creating responsive and customizable websites. With its intuitive drag-and-drop interface, live preview, code editor, and advanced AI content generation features, users can efficiently design professional websites without extensive technical knowledge. The integration of text generation and image creation tools enhances productivity by automating content development, while the option to export projects in ZIP format ensures easy deployment and sharing. This platform not only simplifies the web development process but also bridges the gap between beginners and experienced developers, making website creation faster, smarter, and more accessible.

VII. REFERENCE

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