

Artificial Intelligence in Modern Web Development: Designing an Improved Chatbot for User Support

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Abstract

This research focuses on building a smart, user-friendly, and interactive chatbot that helps users on websites through Artificial Intelligence (AI). The chatbot has a clean and modern design and works smoothly on both computers and mobile phones. It uses an AI system to understand user messages and reply with helpful answers in real time. To make the experience more engaging, the chatbot includes features like sending images, choosing emojis, and showing a typing animation while responding. These features help make the conversation feel more natural and enjoyable. The main goal of this work is to show how AI can improve user support on websites, making it faster, easier, and more interactive. This study highlights the growing importance of AI in modern web development and how it helps create smarter and more helpful websites.

Keywords: Chatbot, Interactive Design, Real-Time Response, Mobile-Friendly UI

Introduction

In today's digital world, websites are not just used for showing information—they are also expected to help users quickly and interactively. People now expect websites to talk back, answer questions, and give support instantly. One of the most useful tools that makes this possible is a **chatbot**.

A chatbot is a virtual assistant that can chat with users directly on a website. It helps answer their questions, gives guidance, and makes the website feel more interactive. Instead of searching through pages or waiting for someone to reply, users can just type their question and get a response right away.

This research focuses on building a chatbot that is not only smart but also looks modern and works well on both computers and mobile phones. The main aim is to create a chatbot that is easy to use, responds quickly, and feels like talking to a real person. To do this, the chatbot uses **Artificial Intelligence (AI)**, which helps it understand what the user is saying and respond in a helpful and natural way.

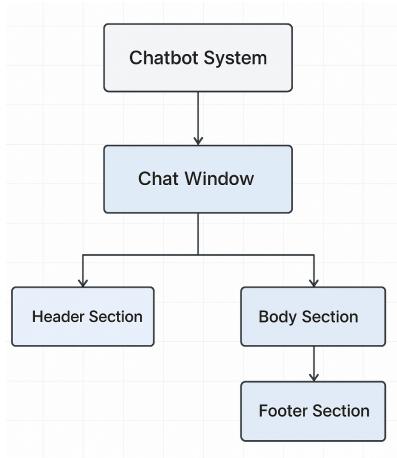
This chatbot is designed to make website support better, faster, and more enjoyable for users. It shows how AI can be used in modern web development to make online communication smoother, smarter, and more helpful.

Challenges

Chatbots often struggle to understand complicated or multi-part questions and may respond with incorrect or incomplete answers. They typically do not remember user preferences or past interactions, which makes conversations feel robotic and repetitive. While chatbots are effective at handling common queries (such as "track my order"), they often fail when users ask something unique or unexpected. Additionally, if a user needs human assistance, the transition from chatbot to a live agent is often not seamless and may require the user to re-explain the issue.

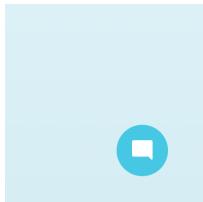
System Design

The chatbot is designed in a simple and organised structure, divided into three main parts:



1. Chat Window

- A small button appears on the screen to open or close the chatbot.
- When clicked, it opens a clean and modern chat box on the screen.



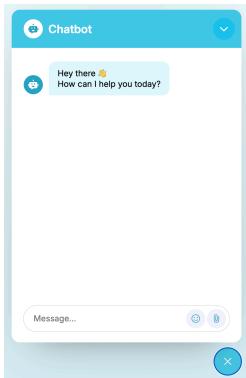
2. Header (Top Section)

- Shows the chatbot name and icon.
- Has a close button to hide the chatbot window.



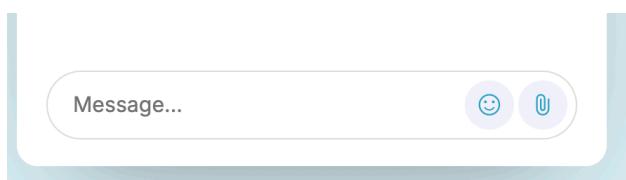
3. Body (Middle Section)

- Displays all the chat messages—both from the user and the bot.
- Messages are shown in different styles for the user and the chatbot.
- Images shared by the user appear neatly inside the chat.



4. Footer (Bottom Section)

- Has a text area where users can type messages.
- Includes a button to choose emojis.
- Allows image attachments and file previews.
- A send button is shown only when a message is typed.



The chatbot looks and feels like modern messaging apps, which makes it easy for anyone to use.

Implementation

The chatbot was created with special attention to layout, smoothness, and user experience.

- The layout was carefully structured so that the chatbot looks attractive and works well on both large and small screens.
- The styling includes soft colours, rounded buttons, icons, and clean spacing to make it visually appealing.
- All actions, like sending messages, showing thinking dots, selecting emojis, or uploading images, are handled by interactive scripts.

The most powerful part is the connection with an online smart tool (AI). When a person sends a message, the chatbot sends it to an AI engine that understands the message and replies like a human would. This makes the chatbot feel smart and helpful.

Result: Comparison of Amazon Website and Chatbot (Based on Chrome Lighthouse)

Chrome Lighthouse was used to test different performance factors. Lighthouse is a tool built into the Chrome browser that checks how fast and user-friendly a website is.

Here is a comparison of how the chatbot and the Amazon website performed based on Lighthouse testing:

1. Navigation Mode

Measures how the full page loads from start to finish.

Scores:

Testing Parameter	Amazon Website	Chatbot
Performance	91	95
Accessibility	85	100
Best Practices	74	100
SEO	85	90

See Figures 1 & 2 for Lighthouse screenshots:

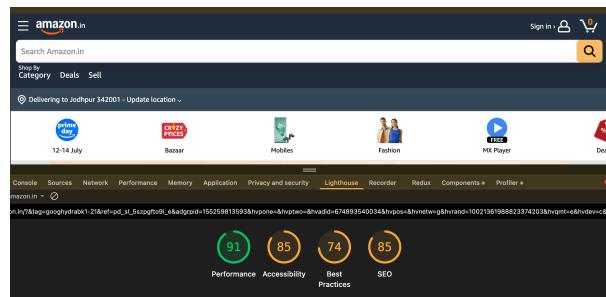


Figure 1: Amazon Website

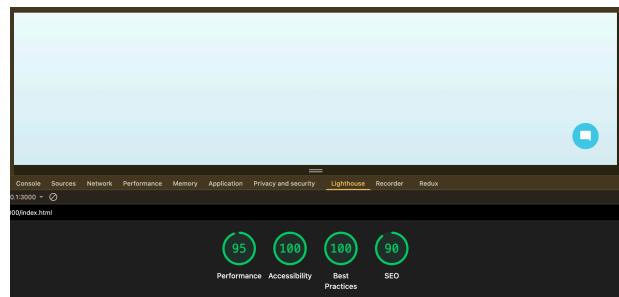


Figure 2: Chatbot

2. Timespan Mode

Evaluates performance during real-time interactions.

Scores:

Testing Parameter	Amazon Website	Chatbot
Performance	18/20	10/10
Best Practices	7/8	8/8

See Figures 1 & 2 for Lighthouse screenshots:

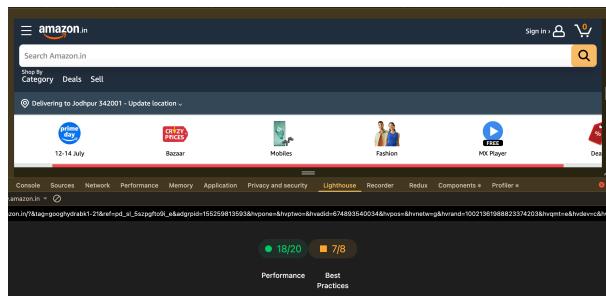


Figure 1: Amazon Website

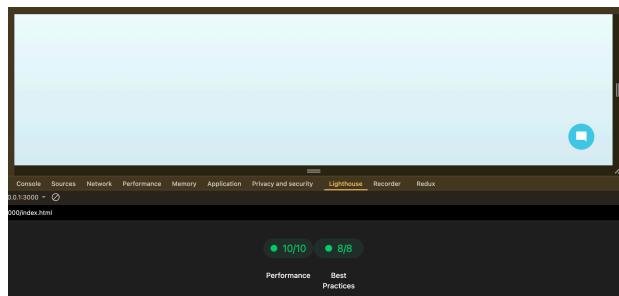


Figure 2: Chatbot

3. Snapshot Mode

Evaluates static elements and layout consistency.

Scores:

Testing Parameter	Amazon Website	Chatbot
Performance	1/4	3/4
Accessibility	30/32	11/11
Best Practices	4/5	5/5
SEO	5/6	3/4

See Figures 1 & 2 for Lighthouse screenshots:

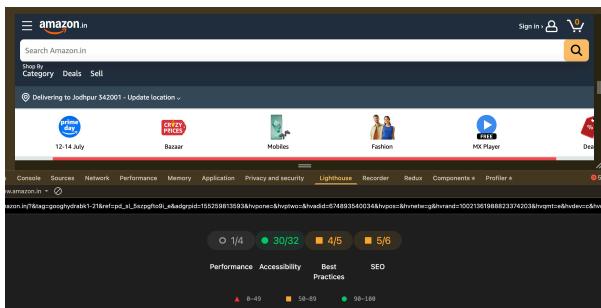


Figure 1: Amazon Website

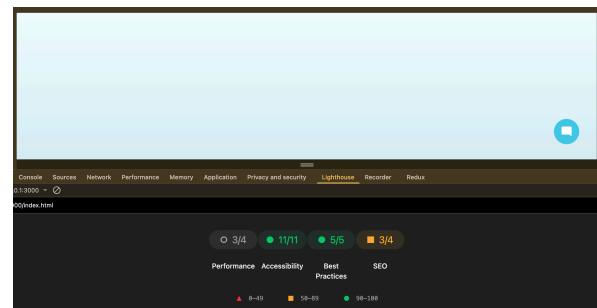


Figure 2: Chatbot

Conclusion

This research demonstrates how a chatbot can enhance websites by making them smarter, more helpful, and more interactive. It combines design, ease of use, and artificial intelligence to enhance the online support experience for people. By allowing file sharing, emojis, and smooth conversations, the chatbot feels modern and friendly.

It helps users get fast replies without needing to wait for a real person. This makes the website more efficient and gives a better experience to visitors.

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