

Chapter 5

Chatbot:

Customer Security and Data Privacy in the Travel, Tourism, and Hospitality Industry

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ABSTRACT

The increasing integration of chatbots in the travel, tourism, and hospitality (TTH) industry has transformed customer interactions, offered personalized assistance and streamlined services. Leveraging a systematic literature review and in-depth analysis, this research paper explores the security landscape of chatbots in the TTH sector, identifying potential threats and proposing targeted countermeasures for safeguarding customer data. The study outlines potential attacks on chatbot modules, highlighting risks to user privacy and system integrity. Proposed countermeasures extend beyond existing literature, addressing specific vulnerabilities identified through in-depth analysis. The paper contributes to understanding AI-specific security threats, raises ethical concerns, and identifies potential barriers to chatbot adoption. This research comprehensively analyses security vulnerabilities in TTH chatbots, offering tailored countermeasures.

1. INTRODUCTION

Chatbots, short for conversational AI or virtual assistants, are computer programs designed to simulate natural conversation with humans. They utilize natural language processing (NLP) and artificial intelligence (AI) to understand user queries and requests, and respond in a way that mimics human interaction. Typically, chatbots are employed in dialog systems—which can comprehend questions and provide

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relevant answers—for a range of useful functions, such as information gathering and customer support (Saluja, Maheswari, Kumar, & Sivagami, 2021). Chatbots, have rapidly infiltrated various industries, and travel, tourism, and hospitality are no exception. They play a vital role in booking flights, hotels, and activities, offering travel information and recommendations, answering customer service questions, managing room environments, and providing personalized travel experiences (Pillai & Sivathanu, 2020). These intelligent assistants are rapidly impacting customer experiences, streamlining operations, and driving innovation across the sector.

One of the most significant impacts of chatbots is the way they enhance customer experience. By offering 24/7 support and personalized recommendations, chatbots act as tireless virtual assistants, guiding travellers through every stage of their journey. From booking flights and hotels to finding attractions and restaurants, chatbots provide instant gratification and convenience, saving travellers valuable time and effort. By automating repetitive tasks such as booking confirmations, answering frequently asked questions, and handling simple customer inquiries, chatbots free up human employees to focus on more complex issues and provide personalized assistance. This automation not only improves efficiency and productivity but also reduces operational costs for businesses. Furthermore, chatbots offer a personalized touch that traditional customer service channels often lack. By leveraging AI and machine learning, chatbots can adapt to individual preferences and tailor their responses accordingly, creating a more engaging and satisfying experience for each customer. This personalized approach fosters stronger customer relationships and encourages repeat business.

As the tourism industry embraces the power of Conversational AI, with chatbots taking on increasingly prominent roles, the need for robust data privacy and protection becomes paramount. Degree of information comfort disclosure is the term used to describe how users perceive having revealed personal or private information about themselves (Ischen & Araujo, 2019). Interacting with chatbots makes people think of them as almost human, thus they would be more willing to provide them with personally identifying information having privacy hazards associated with this (Ye & Li, 2020). These virtual assistants collect a vast array of sensitive information from travellers, including travel preferences, financial details, and even location data (Atkins, Badrie, & Otterloo, 2021). Research on appropriate privacy controls for CAI is urgently needed, especially in light of the growing popularity of text- and voice-based chatbots as well as the public conversation surrounding privacy problems in CAI (Leschanowsky, Popp, & Peters, 2023). In the absence of proper safeguards, this information is vulnerable to misuse, posing significant risks to individuals and the industry as a whole. Data privacy and protection are not just technical considerations but essential components of responsible chatbot development and deployment in the tourism industry. By implementing robust safeguards and promoting transparency, user control, and ethical AI practices, we can unlock the potential of tourism chatbots while safeguarding the privacy and well-being of travellers.

This research paper aims to analyse and list out the existing security vulnerabilities present in chat bots being used in the travel, tourism and hospitality industry. Furthermore it will identify the data privacy and protection concerns that the data of the customers using these intelligent chatbots might face. Lastly this paper will suggest counter measures that can be applied by the travel, tourism and hospitality industry to win customer trust and promote transparency. All this will be achieved by conducting a review of the existing literature.

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