

# An AI-Assisted Digital Guide for Cultural and Religious Tourism Integrating Interactive Maps and Text-to-Speech Technologies: A Case Study of Svishtov

Daniela Pencheva<sup>1</sup>  
University of Economics - Varna, Bulgaria<sup>1</sup>  
Science and Research Institute<sup>1</sup>  
d.pencheva@ue-varna.bg<sup>1</sup>

**Abstract:** *This study presents the development of an AI-assisted digital guide designed to support cultural and religious tourism through the integration of interactive mapping and text-to-speech technologies. The project focuses on the cultural heritage of the city of Svishtov, Bulgaria, where several historically significant temples and monasteries are organized into a structured digital cultural route. Historical and descriptive information about each site was collected from local historiography and field observations and subsequently transformed into a digital format suitable for web presentation. An interactive map created in Google Maps allows users to visualize the spatial distribution of the sites and navigate the cultural route. In addition, an AI-generated audio guide based on text-to-speech technologies provides accessible audio narration for each location, enhancing the interpretive experience for visitors. The platform integrates visual content, geographic navigation, and automated voice narration within a single digital environment. The proposed approach demonstrates how artificial intelligence tools and interactive mapping technologies can support the interpretation of cultural heritage, improve the accessibility of historical information, and create engaging digital experiences for visitors. The study highlights the potential of combining digital humanities approaches with modern AI technologies for the promotion of local cultural heritage and the development of innovative tourism applications.*

**Keywords:** ARTIFICIAL INTELLIGENCE, CULTURAL HERITAGE, DIGITAL TOURISM, INTERACTIVE MAPS, TEXT-TO-SPEECH, AUDIO GUIDE

## 1. Introduction

Digital technologies increasingly play an important role in the preservation, interpretation, and promotion of cultural heritage. In recent years, interactive platforms, geographic information tools, and artificial intelligence applications have created new opportunities for presenting historical and cultural sites in accessible and engaging ways [1]. These technologies are particularly relevant in the field of cultural and religious tourism, where visitors often seek structured information, spatial orientation, and interpretive narratives about heritage locations. Recent studies highlight the growing role of artificial intelligence and digital technologies in cultural heritage interpretation and tourism applications [2, 3]. In this context, the present study proposes the development of an AI-assisted digital guide designed to support cultural and religious tourism in the city of Svishtov.

This study explores the development of a digital cultural route focused on several historically significant temples and monasteries located in the city of Svishtov, Bulgaria. By collecting historical and descriptive information from local historiography and field observations, the project transforms traditional textual descriptions into a structured format suitable for web-based presentation. The platform integrates an interactive Google Maps route with an AI-generated audio guide based on text-to-speech technology, enabling users to explore the sites through both spatial navigation and audio interpretation. This approach demonstrates how modern digital tools can support the interpretation of cultural heritage and enhance visitor engagement. The resulting platform provides an accessible and intuitive environment that combines geographic visualization, historical information, and automated voice narration. The proposed model illustrates how artificial intelligence technologies and interactive mapping can be applied in the development of digital guides for cultural and religious tourism. The main contribution of this study lies in the development of an accessible digital platform that integrates interactive mapping, AI-assisted content structuring, and text-to-speech technologies for the interpretation and promotion of cultural and religious heritage.

The study is guided by the following research question:

*How can interactive mapping and AI-based text-to-speech technologies be integrated into a digital platform to support cultural and religious tourism and improve the accessibility and interpretation of cultural heritage sites?*

## 2. Problem discussion

Information about cultural and religious heritage sites is often dispersed across different sources, including historical publications, local historiography, archival materials, and institutional websites. In many cases, this information is presented in static textual form, making it difficult for visitors to obtain a structured and accessible overview of heritage locations within a specific region. As a result, valuable cultural sites remain insufficiently visible to potential visitors and are rarely integrated into coherent thematic routes that could support cultural and religious tourism.

In the case of Svishtov, the city possesses a rich historical and spiritual heritage, including several churches, monasteries, and sacred locations that have developed over centuries. Despite their historical significance, information about these sites is often fragmented and scattered across local publications, museum descriptions, and separate online resources. Such materials provide valuable historical insight but are not always easily accessible to visitors, particularly those who rely on digital navigation tools and mobile devices when exploring new destinations.

Another limitation is the lack of integrated digital platforms that combine geographic visualization, historical context, and interpretive narration within a single environment. Many cultural heritage descriptions remain text-based and do not incorporate modern interactive tools such as digital maps or audio interpretation. This limits the ability of visitors to engage with cultural heritage sites in a more intuitive and immersive way.

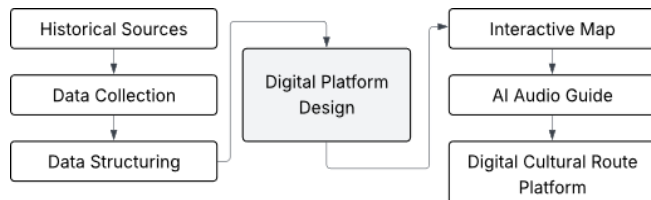
However, an integrated digital platform that combines interactive mapping, structured historical information, and AI-generated audio narration for the cultural and religious heritage sites of Svishtov has not yet been developed. This creates an opportunity to explore how modern digital technologies and artificial intelligence can support the presentation and interpretation of cultural heritage while improving accessibility for visitors and promoting local tourism.

## 3. Objective and research methodologies

The main objective of this study is to develop an AI-assisted digital platform designed to support cultural and religious tourism through the integration of interactive mapping and text-to-speech technologies. The project focuses on organizing and presenting the cultural heritage of the city of Svishtov, Bulgaria, by structuring historical information about local temples and monasteries into a digital cultural route. The goal is to transform traditional textual

descriptions of heritage sites into an accessible digital format that combines geographic visualization, multimedia content, and AI-generated audio narration.

The research methodology follows a structured, multi-step process (see Fig. 1). The proposed methodological framework integrates cultural heritage documentation, digital platform development, and artificial intelligence technologies in order to create an accessible digital guide for visitors. Each stage of the process contributes to transforming traditional historical information into an interactive digital environment suitable for cultural and religious tourism.



**Fig. 1** Methodological framework for developing the AI-assisted digital guide

**Data Collection:** Historical and descriptive information about the religious heritage sites of Svishtov was collected from local historiography, cultural heritage publications, and field observations. These sources provided the historical background, architectural descriptions, and contextual information necessary for presenting each location within the digital platform.

**Data Structuring:** The collected information was organized into a structured dataset describing each cultural heritage site, including historical context, location, and visual documentation. This structured content served as the foundation for the digital presentation of the cultural route.

**Digital Platform Design:** A web-based platform was developed using Canva, allowing the integration of textual descriptions, images, interactive navigation, and geographic visualization. The platform was designed to provide a clear and intuitive interface suitable for both desktop and mobile users.

**Interactive Mapping:** An interactive cultural route was created using Google Maps, enabling users to visualize the spatial distribution of the heritage sites and navigate between them. Each mapped location contains descriptive information, images, and navigation support.

**AI Audio Guide Generation:** Text-to-speech technology was used to generate AI-based audio narration for selected cultural heritage sites. The audio guide provides an accessible interpretive layer, allowing visitors to listen to historical information while exploring the locations.

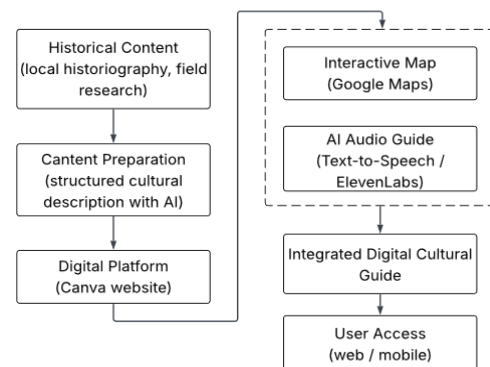
This methodological framework combines cultural heritage documentation with modern digital tools and artificial intelligence technologies. The approach demonstrates how interactive mapping, web-based platforms, and AI-generated audio narration can be integrated to create engaging and accessible guides for cultural tourism.

#### 4. Results and visualization

The developed solution represents an integrated digital platform designed to present cultural and religious heritage sites through interactive visualization and AI-supported interpretation. The platform combines structured cultural content, geographic

navigation, and automated audio narration in order to create an accessible digital guide for visitors.

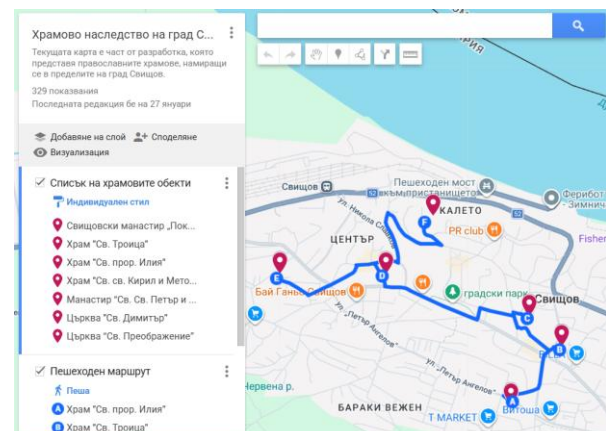
The overall system architecture integrates several technological components, including a web-based platform developed in Canva, interactive mapping through Google Maps, and AI-generated audio narration based on text-to-speech technologies (see Fig. 2) [4]. This architecture allows the platform to combine visual, spatial, and



auditory information within a single digital environment, facilitating a more engaging and intuitive user experience.

**Fig. 2** System architecture of the AI-assisted digital cultural guide platform

The core element of the digital guide is an interactive cultural route created using Google Maps. The map visualizes the spatial distribution of the selected religious heritage sites in the city of Svishtov and allows users to navigate between them through a structured route. Each location is marked on the map and connected to descriptive information and visual documentation of the site, supporting intuitive geographic orientation for visitors (see Fig. 3). The map-based navigation also enables users to plan their visits



more effectively by understanding the spatial relationships between the different cultural sites within the urban environment.

**Fig. 3** Interactive cultural route map of religious heritage sites in Svishtov

The digital platform interface was designed using the Canva website builder, allowing the integration of textual descriptions, images, and navigation elements within a unified visual environment [5]. The platform presents the cultural heritage objects through dedicated pages that combine historical context, visual documentation, and access to additional interpretive resources (see Fig. 4). The use of a visual website builder enabled rapid prototyping and flexible content organization, making it possible to structure cultural information in a user-friendly and easily navigable format.



Fig. 4 Web interface of the digital cultural guide platform

An additional interpretive layer is provided through an AI-generated audio guide created using text-to-speech technologies [6]. The audio narration transforms written historical descriptions into accessible spoken content that visitors can listen to while exploring the cultural sites. This functionality enhances user engagement and provides an alternative mode of accessing historical information, particularly suitable for mobile users and self-guided cultural routes (see Fig. 5). Audio narration also improves accessibility for users who prefer auditory learning or who access the platform while physically visiting the sites.

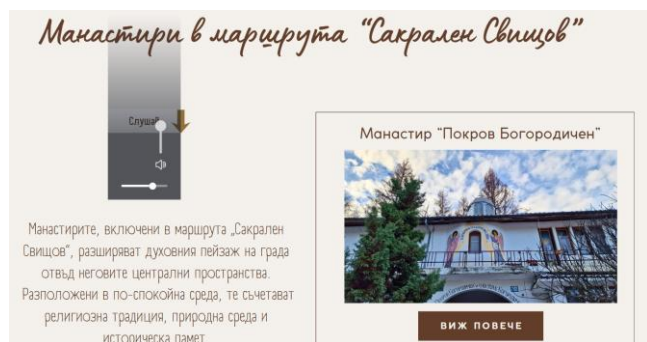


Fig. 5 AI-generated audio guide interface based on text-to-speech technology

The audio narration was generated with the ElevenLabs text-to-speech platform, which converts written descriptions into natural-sounding speech. During the development process, ChatGPT (OpenAI) was used as an assistive tool for structuring the website content, refining textual descriptions, and supporting the conceptual organization of the digital platform [7]. These AI tools contributed to the efficient transformation of historical information into accessible digital content suitable for web presentation and audio narration. The use of generative AI technologies demonstrates how contemporary digital tools can support the interpretation and dissemination of cultural heritage.

Together, these technological components form a unified digital environment that integrates interactive mapping, web-based presentation, and AI-supported audio interpretation. The resulting platform demonstrates how modern digital tools can be applied to support cultural heritage interpretation and improve accessibility to local historical information. Such approaches can contribute to the digital promotion of regional cultural resources and provide new opportunities for developing innovative tourism experiences.

## 5. Key findings and discussion

Figure 6 presents the final output of this study – the operational version of the developed digital platform, accessible through a QR code and web link. The platform represents an AI-assisted digital guide that integrates interactive mapping, structured cultural information, and automated audio narration into a single digital environment. Through this interface, users can access a curated

cultural route presenting religious heritage sites in the city of Svishtov, including churches and monasteries that form an important part of the local historical landscape.

The digital platform allows visitors to explore the selected heritage sites through multiple complementary layers of information. Users can navigate the route using the interactive Google Maps interface, view visual documentation of the sites, read historical descriptions, and listen to AI-generated audio narration created through text-to-speech technologies. This combination of spatial navigation, visual representation, and audio interpretation provides a richer and more engaging experience compared to traditional static information sources.

One of the key advantages of the proposed solution is the accessibility of cultural heritage information through modern digital technologies. By integrating interactive maps with web-based presentation and AI-generated audio guides, the platform supports self-guided exploration of the city's religious heritage. Visitors can access the information directly from mobile devices while physically visiting the sites, which enhances the interpretive experience and facilitates independent cultural tourism.

The developed digital guide also demonstrates the potential of low-cost and widely available digital tools for cultural heritage interpretation. The combination of Canva for website development, Google Maps for spatial visualization, and AI tools for text processing and audio generation illustrates how accessible technologies can be effectively used to build digital cultural platforms. This approach enables rapid development of digital heritage applications without the need for complex programming infrastructure.

Beyond its immediate application as a digital tourism guide, the platform also provides a methodological model for integrating artificial intelligence tools into cultural heritage presentation. The use of AI-assisted content structuring and automated voice narration contributes to the efficient transformation of historical knowledge into interactive digital formats. Such approaches can support the wider promotion of regional cultural heritage and encourage the development of innovative digital tourism initiatives.



Fig. 6 QR code providing access to the AI-assisted digital cultural guide

The QR code presented in Fig. 6 provides direct access to the developed platform, allowing users to explore the digital cultural route and experience the AI-assisted guide in practice. This approach allows users to access the digital guide instantly using mobile devices without the need for prior installation of dedicated applications. The full digital guide is also available online at:

<https://shevitsa.my.canva.site/svishtovchurcheaiguide/>.

## 6. Conclusion

The presented study demonstrates the development of an AI-assisted digital platform designed to support the interpretation and promotion of cultural and religious heritage through modern digital technologies. By integrating interactive mapping, web-based presentation, and AI-generated audio narration, the project illustrates how different digital tools can be combined into a unified environment for presenting historical information in an accessible and engaging way. The resulting digital guide provides users with

the opportunity to explore the religious heritage sites of Svishtov through geographic navigation, visual documentation, and audio interpretation, offering an alternative approach to traditional forms of cultural information dissemination.

The platform highlights the potential of combining interactive maps with text-to-speech technologies in order to enhance the visitor experience and improve accessibility to cultural heritage resources. Through the use of an interactive Google Maps route and structured web pages dedicated to individual sites, users are able to navigate between different cultural locations and access contextual historical information. The integration of AI-generated audio narration further expands the interpretive dimension of the platform by transforming written descriptions into accessible spoken content, allowing visitors to engage with the cultural environment while physically exploring the sites.

An important aspect of the presented approach is the use of accessible and widely available digital tools for the development of the platform. The combination of Canva for web interface design, Google Maps for spatial visualization, and AI-based text and audio technologies demonstrates how digital cultural applications can be created without the need for complex technical infrastructure. This methodological approach may serve as a practical model for similar initiatives aimed at the digital promotion of regional cultural heritage.

Beyond its immediate application as a digital tourism guide, the proposed platform contributes to the broader field of digital humanities by illustrating how artificial intelligence tools can assist in structuring, interpreting, and presenting cultural knowledge. The integration of AI-supported content generation and automated narration supports the transformation of traditional historical materials into interactive digital formats that are more accessible to contemporary audiences.

Future developments of the platform could include the expansion of the cultural route with additional heritage sites, the integration of multilingual audio guides, and the implementation of more advanced interactive functionalities. Such developments could further enhance the potential of the platform as a tool for cultural tourism, education, and public engagement with local heritage. Overall, the study demonstrates how the combination of digital mapping, web technologies, and artificial intelligence can support innovative approaches to the interpretation and promotion of cultural heritage in the digital age.

## 7. References

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