

Telling the Local Story: An Interactive Cultural Presentation System for Community and Regional Settings

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Abstract

This paper presents the results of the implementation of prototype culture heritage presentation systems in a village, a small town and a region. These systems focus on cost efficiency, sustainability, local identity and integration in tourism, and are based on an innovative approach of interactive storytelling. This approach facilitates effective public presentation of historical and archaeological data systems in local cultural heritage settings.

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1. Introduction

Because of their relatively high cost and maintenance requirements, the use of IT Cultural Heritage presentation systems is often confined to large museums and high profile archaeological sites and cultural monuments. Yet small communities and regional authorities also possess Cultural Heritage resources of great value to the general public that can benefit from digital presentation. This paper describes the use of a prototype application that can provide local communities with a method of interactive storytelling that is cost-effective, sustainable, and suited to a wide range of visitor informational needs.

The initial site for the implementation of this application was Ename, a small, rural village about sixty kilometers west of Brussels (see Figure 1). Around the year 1000, it was a major trade settlement at the border of the Holy Roman Empire, with a significant military and economic importance.

Today, it has a major archaeological park, an innovative museum, a well preserved and recently restored church, and a unique historical landscape. All these elements are presented for a general audience by several systems [PCKS00] in one heritage presentation project called Ename 974. These presentations are closely linked to the inhabitants of the village, and highlight their local identity. Several successful activities have emerged from this Ename 974 project, organised by the local population, and have revitalised the social and cultural scene in Ename. This paper describes the implementation of three systems in Ename, as well as Tervuren (Belgium) and Wieringen (Netherlands), where the historical, archaeological and cultural assets of each community are highlighted by a central system that seeks to facilitate visitor understanding and enjoyment.



Figure 1: *Enneme*

2. Presenting local heritage

The primary aim of Cultural Heritage information systems is to explain the history and significance of a place, and to highlight the character and context of the historical elements that are still visible today. The key approach of the systems discussed here is readability, as they help the visitor to “read” the landscape elements and features in the village or town, when exploring it.

This is realised through a central system, providing a choice of themes and a virtual walk through the village, town or region. The themes deal with different aspects of the village or town, such as history, landscape, art, archaeology, and nature. The virtual walk allows the visitor to explore the village, town or region through 360 degree virtual panoramas, in which the visitor can click on the elements of interest, and learn more about them. All stories are interconnected so that the visitor can identify the physical location of the elements described in the various themes, or can learn about the various thematic aspects of the elements that he or she finds interesting while making the virtual tour. In this way, virtual exploration of the village, town or region precedes physical exploration, helping the visitor to recognise the buildings, places or landscapes he or she has learned about in the virtual tour.

In this way, local cultural heritage elements are placed in a wider context. An old house becomes the home of an important family with clear links to the national political, cultural, and historical scene. A small rural road becomes the border between a 13th century wood and the fields of the village, and is appreciated as the oldest recorded instance of planned forestry in Europe. As the themes span many different visitor interests, the amount of information that can be disseminated by this system is far more than ever be made accessible through information panels.

3. Telling a multi-themed story

Effectively communicating the cultural heritage of a village, town or region to a wide audience requires that multiple visitor interests be covered, yet it also requires that a coherent story be told. To achieve this, the application utilises an interactive storytelling system that allows the visitor to build his or her own the story. Conceptually, the process can be compared to walking through an unknown city: the visitor begins walking down a certain street, but can choose to stop and explore an interesting square or can turn off onto a side street, and follow another direction.

The interactive storytelling system described in this paper uses multiple, interconnected units of information called “nuggets.” Each nugget can contain written text, spoken text, a timeline, multiple images (which are shown with a specified timing), animated images, video sequences or interactive panoramas or objects—all of which describe the relevance of a certain heritage feature from a particular perspective or theme. Each of the interactive stories consists of a sequence of visitor-selected nuggets that may follow a single theme or explore several themes, as the visitor chooses.

Since information about a particular heritage feature has several aspects, the nuggets are interconnected. For example, a spatial nugget may show where a certain house is located, and it is linked to an architectural nugget that explains that this is the oldest stone house of the village and belongs to an important family. Both, in turn, are linked to an historical nugget describes the political or military events that occurred in the period when the house was built. Each of these nuggets is a component of a separate thematic story (virtual tour, architecture, history) but they are also linked in their relation to a particular heritage feature. In other words, nuggets relating to a particular feature can be said to have different thematic “flavours”, in this case, spatial, architectural, and historical.

The user interface allows the visitors to choose from a rich set of informational nuggets to construct personalised storylines. Once the visitor chooses a certain spatial element or theme, nugget after nugget are shown on the screen. When a nugget exists in multiple flavours, buttons appear to on the screen to allow the visitor to explore the other thematic dimensions of the chosen element, and to decide whether to follow a new thematic story or return to the original theme.



Figure 2: *Interactive panoramas*

Spatial storylines are made accessible through interactive panoramas, containing points of interest, indicated by the international information symbol “i”. These panoramas are accessed from an interactive map, and can be followed in spatial sequence to make a virtual tour (see Figure 2). If the visitor clicks the i-symbol, information is given about the selected element and buttons appear to indicate which kinds of thematic information are available for this element. The visitor can explore this extra information or continue his virtual tour. Thus clicking the old house in the panorama will call up the spatial nugget and provide a general description. Buttons will simultaneously appear on the side of the screen to provide access to the other thematic nuggets (history, architecture) related to this feature.

Thematic storylines proceed in an opposite direction. If a visitor chooses to follow the historical narrative of a particular village, he or she may arrive at a nugget that describes the period in which the old house was built. Buttons will simultaneously appear on the side of the screen to provide access (if desired) to the other thematic nuggets related to this feature, such as its physical location and architectural style.

Visitors can therefore take side trips from the initially chosen storyline, either at some point choosing to follow a different thematic story line or wandering at will. The sequence of nuggets and thus the eventual storyline is a result of the visitor’s personal interests and choices of which links to follow.

In this way, the set of all nuggets in the system represent the universe of potential presentational information about the village and the visitor selects a subset of these nuggets to create his or her own story, based upon personal interests. Due to obvious time and attention constraints, each visitor will only see a part of the available

information, but it will most likely be the part of greatest interest, based on personal choice. In this way, the interactive storytelling system adapts itself to the user.

This system is also suitable for use by organized visitor groups. When guides use the system to give presentations to large groups of people, they can consciously select those aspects of the heritage that are most in line with the interests and comprehension of the group.

The Ename Center has developed the interactive storytelling software that is the kernel of this presentation system. This software is an OpenSource development, based upon XML, Java, and an Apache Tomcat server, and its development was commissioned to IBM Belgium. Interactive panoramas and objects use the VR capabilities of QuickTime [App]. A prototype version of the system was developed for the presentation of monuments [PSC03].

This approach relates to similar interactive storytelling systems such as the work of Kurt Fendt [MM] and Glorianna Davenport [JBW] at MIT.

4. Feasibility and cost-effectiveness

Creating the system we described above requires structuring the available data into several defined themes, composed of a sequence of informational nuggets. In a second phase, nuggets in the different storylines that relate to the same element are identified and linked (providing the different nugget flavours of a particular cultural element). In a third phase, panoramas are made that optimally connect to existing nuggets and to each other. Where appropriate, a spatial flavour is added to existing nuggets. In this way, nuggets with multiple flavours create the links between the different stories.

This process has been tested for the three systems described below, and has proved to be simple and repeatable. As the process is largely concerned with providing content, it can be performed by content specialists, such as historians, archaeologists or script writers with no particular technological expertise.

The content of the interactive storytelling system described in this paper can be input by these non-technical people through a simple form-based user interface (see Figure 3). This allows this presentation system to utilize local heritage knowledge (and reduce production costs) by having local specialists write and even input the information and images. After the initial startup phase, updating or further expansion of the system content can be done by the same local specialists or heritage site staff. From the hardware point of view, this system requires only a normal PC and touchscreen. For indoor use, standard kiosk systems can be used.

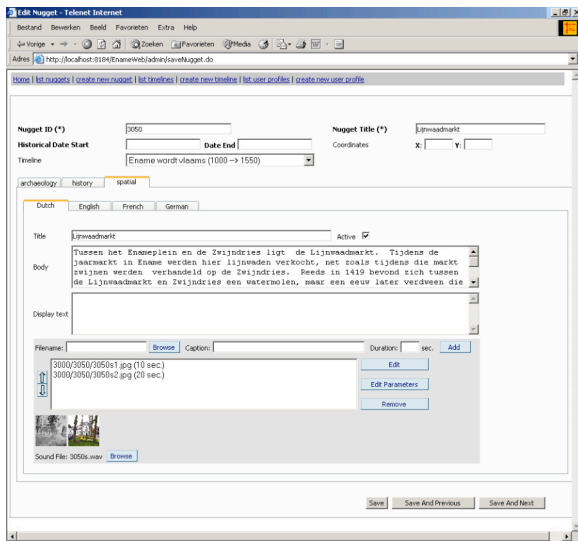


Figure 3: The input screen of the interactive storytelling system



Figure 4: The Ename system in the museum garden

As a consequence, the cost of such systems is significantly lower than systems made entirely by

multimedia companies, both in creation and in maintenance. The extent of local involvement in the creation of content also provides a clear sense of involvement and ownership by the local community. This social aspect helps to ensure that the system remains well maintained, that the quality of the information is of relevance, and that support and interest in this system by this local population remains high.

5. Ename: Presenting village heritage

As mentioned before, the Ename system is a good example of an implementation in a small community, linked to the existing Provincial Archaeological Museum. The system is located in the garden of the museum (see Figure 4).

The system replaces the former TimeScope2 system that was operational during the restoration and excavation of the Saint Laurentius church [PSC01]. As the church is operational and a new system, called TimeScope3, provides an explanation of the cultural heritage significance of the church [PSC03], we have reused the existing hardware of TimeScope2 to create this new system. This system is connected to the intranet, and can be updated from the Ename Center offices, 500 m away from the museum.



Figure 5: The user interface of the Ename system

The system contains historical and spatial storylines, as well as local oral histories (see Figure 5). Seven inhabitants of the village have been interviewed and tell anecdotes related to the history of the village. The curator of the nature reserve "Bos t'Ename" tells about the efforts to introduce medieval land use techniques; a local resident tells about his experiences in World War II and how it affected the village. These interviews help create a strong

connection between the cultural history of the village and its contemporary identity.

The system also serves as a hub for arriving visitors by highlighting the museum, as well as other presentation systems at the archaeological site and in the church, and the walking trail in the nature reserve. Its main informational function is to introduce visitors to the story of the medieval trade settlement, abbey village, and modern Flemish community. And it makes clear that the still-visible remains of the past are part of a dynamic, unfolding present still shaped by the village inhabitants

6. Heritage in small towns

Another prototype of this system was developed for Tervuren, a small city, south-east of Brussels. This community has a residential character, with its small commercial centre located next to a public park containing a remnant of the castle that once dominated the town. The presentation system is situated in the new municipal museum in the city centre; it links archaeological finds, historical iconography and paintings from local artists to the landscape of the town through an extensive virtual walk (see Figure 6). A wide variety of cultural heritage topics are presented, ranging from prehistoric archaeology, to the medieval castle, to the painters of the Cobra group who resided in Tervuren, to the famous Africa museum located in the park.



Figure 6: *The Tervuren museum*

The informational content of the system was provided by the staff of the Culture Department of the city of Tervuren, who are also responsible for further updating. While the initial system set-up was done by the Ename Center, it is now maintained by the local cultural authorities, so that the content and functioning of the system is optimal. As the owner is the municipality of Tervuren, this system is also

serves as a method of cultural communication between the municipality and its inhabitants.

The structuring and input of the content was done by an archaeologist with no specific multimedia or computer skills. Based on a brief introduction to the methodology, she identified the main themes, selected the nuggets, and created the links between the nuggets and the panoramas to provide a large range of potential storylines.

The system utilises an interactive map of the town, and a set of historical and cultural themes (see Figure 7). Each hotspot on the map consists of a cluster of closely interrelated panoramas that provide a good visual representation of the particular spot. Some spatial nuggets use iconography or old photographs which clearly relate to contemporary features on the landscape.



Figure 7: *Startpage of the Tervuren system*

7. Regional heritage

The Region Kop van Noord-Holland is a part of the County of Noord-Holland, and contains the former island of Wieringen. Archaeological finds have revealed that the island was inhabited from prehistoric times onwards. The most spectacular discoveries are two Viking silver hoards, indicating that Vikings settled there for at least two generations.

In order to encourage outside visitation to this region as well as provide local educational services, the Viking Information Centre has been built at Wieringen (see Figure 8) where the archaeological finds are on display and regional tourist information is provided. The centre is run by the non profit organisation “Stichting Weg van de Vikingen” (the Dutch Viking Foundation).



Figure 8: *The Viking Information Centre*

Working in close cooperation with the Region Kop van Noord-Holland, the municipality of Wieringen and Stichting Weg van de Vikingen, the Ename Center developed another prototype of the system described in this paper to present the historical, archaeological and tourist resources of the former island of Wieringen to the general public. The virtual tour consists of 10 points of interest, located on Wieringen, in the form of interactive panoramas in addition to several historical and cultural themes. As in the other prototypes, visitors are encouraged to construct their own stories, interactively.

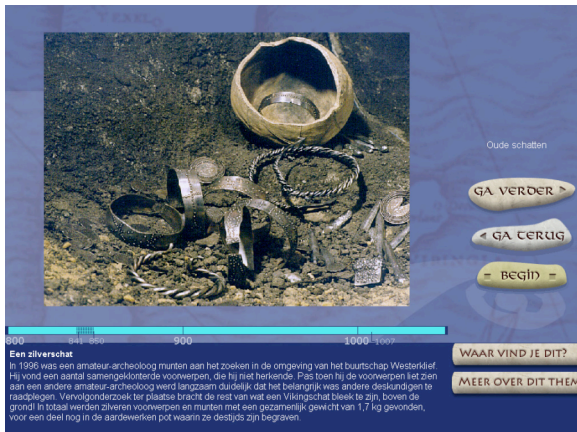


Figure 9: *User interface of the Wieringen system*

The informational content was provided by Jan Stobbe of Stichting Weg van de Vikingen, in cooperation with several scholars. Visitors to the Viking Information Centre on Wieringen can explore the island virtually, discover the peculiarities of the landscape formed by glaciers, see where the silver treasures were found (see Figure 9), learn about how Vikings lived on Wieringen and which elements still can be found on the island that indicate their presence. The continuous struggle against the sea, and the transformation of the landscape by reclaiming vast areas of sea are another

key element in the presentation. After their visit to the Information Centre, visitors are encouraged to explore the island by bike or car, aided by practical information and assistance provided by the local tourist board. The latter has its office in the Information Centre.

The Information Center already attracts significant visitation from various target groups. An extensive marketing programme, part of the Destination Viking network, has recently begun. This extensive network of Viking-related sites stretches from Saint Petersburg in Russia to Newfoundland in Canada.

The implementation of the system in a centrally located visitor centre has extensive advantages. First of all, the hardware of the system does not need to be vandalism and weather proof, which creates a significant cost reduction. Secondly, it avoids the need for portable hardware, which forces the visitors to return to the visitor centre, which is a major drawback for tourists by bike. Thirdly, it allows an integrated approach where heritage presentation goes together with tourist services, such as information and booking of trips and accommodation.

By the end of 2004, the Wieringen system will become part of an experimental cultural route setup that is being developed in the EPOCH Network of Excellence. Together with other EPOCH members, the Ename Center will continue the development of a computer aided cultural route and will implement this further in the Francia Media project [FM].

8. Conclusions

The cultural heritage presentation system described in this article has obvious advantages for utilization by local communities of relatively modest means. The use of standard PC and touchscreen hardware and the assignment of the task of content input to local heritage staff enhances its cost-effectiveness. Furthermore the distinctively local nature of the cultural interpretation adds an important element of local identification with the project, which is seen as a community endeavor—rather than an imported presentation device.

At present, the Ename Center is closely following the impact of these systems on visitation and local educational programs. This follow-up will be essential to the continuing development of the interactive storytelling methodology and to determining its impact on local awareness and appreciation of cultural heritage resources.

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The content of the Tervuren system was provided by Maurits Wynants and Elisabeth Sanders of the Culture Department of Tervuren, the information was structured by Iris Langen.

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The user interface and multimedia of all systems was created by Truus Helsen.

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