



University of Turku, Turku and Kaarina Parish Union 16 Nov 2016

Augmented-reality app Wordsmith brings sixteenth century to life in Turku Cathedral

Wordsmith (Sanan seppä in Finnish) is a mobile app that uses augmented reality in Turku Cathedral to tell the story of the Protestant Reformation in Finland and the changes it brought to the church and to the lives of ordinary people. The app is a collaboration between the University of Turku, Turku and Kaarina Parish Union and the Evangelical Lutheran Church of Finland. It is part of marking the 500th Anniversary of the Reformation in 2017. The app can be downloaded for free on Android and iOS tablets.

Augmented reality is the term used when computer-generated virtual elements are added to the actual material reality around us.

‘Wordsmith is an augmented reality app that enlightens cultural heritage through telling a filmlike story and actually provides quite a lot of content. The app uses markerless tracking and functions on modern consumer-grade mobile devices. There are few if any apps that offer this combination of elements in the world,’ says **Teijo Lehtonen**, Senior Research Fellow at the Technology Research Center at the University of Turku.

Through eight scenes set in various parts of Turku Cathedral the Wordsmith app brings events from the sixteenth century to life for its users. The scenes can be viewed on your own tablet device as you move through the Cathedral with the characters virtually present in the building.

Live action amid the Reformation

The Protestant Reformation changed the church as well as Finnish society. How did it impact on the lives, habits, thoughts and faith of ordinary people in Finland?

The Wordsmith app answers these questions through the blacksmith Olavi, his wife Katariina, their son Hemminki and 46 other characters as they experience the events that have brought them to Turku Cathedral in the sixteenth and seventeenth centuries. The app tells the story of the fictional family of the blacksmith, whose son becomes a pupil of reformer Mikael Agricola in Turku. As the Lutheran faith takes hold, many things change in the church and society at large. The son is the first in a line of Lutheran ministers who become involved in the development of written Finnish as well as education for the general populace. The starting point for the Wordsmith app is the Beatification festivities of Bishop Hemming on June 18, 1514. The story ends with the publication of the first Bible in Finnish on August 1, 1642.

‘The Wordsmith app is part of the Reformation Anniversary 2017 programme in Turku. One of the aims of marking the 500th Anniversary is to encourage Finns to get to know their own cultural and religious roots,’ says **Katariina Ylikännö**, Project Coordinator for the Reformation Anniversary in Turku.

Primarily aimed at visitors to Turku Cathedral, the Wordsmith app can also be used for classes in history, religious education, Finnish language and technology when school groups visit the Cathedral. The app provides its users with information about the characters portrayed in the story, some of them are real people from history, while others are fictional. The people in the story, as well as the objects and events depicted, are explained and the app also links to a wider selection of background material online. The main language of the app is Finnish, but captions are also available in English and Swedish.

Research project studies the use of mixed reality in cultural settings

The Wordsmith app is an outcome of the MIRACLE research project. MIRACLE is an acronym for Mixed Reality Applications for Culture and Learning Experiences. The project aims to produce cost-effective methods that would also allow smaller parties to offer the general public new and interesting ways of experiencing culture.

‘Mixed reality offers a fascinating way of concretising historical phenomena through combining our intangible cultural heritage with surviving buildings and objects and digital content. For a researcher in history the advent of new forms of presentation in addition to the written word provides both opportunities and challenges,’ says **Lauri Viinikkala**, Project Researcher in Finnish History at the University of Turku.

‘We need to pay attention to the traceability of digital information generated through the study of history,’ adds Viinikkala, who is working on his PhD thesis on the subject.

The Wordsmith app is a collaboration between the Technology Research Center at the University of Turku, the Department of Finnish History at the University and the partners involved in the project. The researchers at the Department of Finnish History at the University of Turku have gathered the historical data used in the app, while e.g. professor emeritus **Kaisa Häkkinen** has provided the expertise on sixteenth-century Finnish. The storyline of the app was penned by Turku-based author **Tytti Issakainen**.

The Technology Research Center sculpted the characters, who were dressed in period costume by researchers in Finnish History. The characters have been animated using motion-capture technology from scenes directed by **Emmi Louhivuori** using local amateur actors, who also provided the voices of the characters in the app.

The overall design and architecture of the app along with its technical implementation is by a development team at the Technology Research Center. The platform for the app is a Unity 3D game engine. The virtual elements are placed on the screen using a visual tracking system called ALVAR, which has been developed at the VTT Technical Research Centre of Finland. The coarse positioning needed inside the Cathedral is provided by the Bluetooth radio beacons installed in the building.

MIRACLE (Mixed Reality Applications for Culture and Learning Experiences) is a research project financed in 2015–2017 by Tekes, the Finnish Funding Agency for Innovation, which in addition to the University of Turku involves research units from the VTT Technical Research Centre of Finland as well as the University of Helsinki and the University of Tampere. In addition, there are two dozen other project partners from public organizations as well as private enterprises.

Facts at a glance

- App website: www.sananseppa.fi
- The Wordsmith app is available from the Apple AppStore and Google Play, for download on to users’ own tablet devices from the beginning of November 2016. Requirements for the devices the app supports are available on the app’s website.
- At Turku Cathedral there are a few tablet devices with the app pre-loaded for visitors to borrow as a temporary exchange for their passport or ID.
- Wordsmith app page on the University of Turku website: <http://ar.utu.fi/project/wordsmith>
- The MIRACLE project: <http://ar.utu.fi/research/miracle>

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