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## Unreviewed Mixed Matters Article:

# High Tech for the Stone Age – iBeacons in Open-Air Museums

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Over the last few years, a lot of different digital communication technologies for the transfer / transmission of audio-visual informations have been developed, some very sophisticated, some very complicated (and expensive) and in recent times mostly based on applications for mobile devices like smartphones and tablets. For museums, these new technologies are a chance to provide additional information and services to visitors, to stay in contact with them after the museum visit, and also to reach new target groups.



In the forthcoming season we will have the first experiences with this new mobile technology, and we think that it will provide good, future-oriented opportunities to better inform our visitors, both children and adults.

The focus of this article is on integrating smartphones in communication with the visitors, like the implementation of a mobile *application (app)* into the digital strategy of a cultural institution. An app is designed to run on a mobile device, such as a smartphone or a tablet computer. The latest trend in app technology is the implementation of so-called “iBeacons”, a type of small-scale network transmitter. These iBeacons broadcast signals using the Bluetooth Low Energy (BLE) standard, allowing precise indoor geo-location (often called “Microlocation”), but also enabling contextual interaction or engagement, as proximity to an iBeacon can trigger specific app functionalities.

iBeacons technology allows your mobile device to understand its position, even indoors where smartphones or tablets are not always able to pick up GPS signals from satellites overhead.

iBeacons-enabled apps on your mobile device are notified when the device moves in and out of range of the iBeacons, and are able to monitor the distance as their proximity changes over time. They broadcast an “I am here!” message about once per second to any device within range of the BLE radio signal; since each iBeacon has its own ID, the mobile device can tell them apart and recognize the context of the world around itself. Note that iBeacons broadcasts have no data payload; they just identify themselves via customizable IDs (major/minor number), which are scanned by special apps like the Estimote app, the producer of the first iBeacons implemented in an archaeological open-air museum.

For the first time, this iBeacons-technology was tested intensively for several months of the 2016 season in an outdoor museum area in the “Steinzeitpark Dithmarschen” (Stone Age Park) in Albersdorf (Schleswig-Holstein, Germany), which is an archaeological, open-air museum that integrates the surrounding landscape. Since 1997, the park has been developed on a plot of land of more than 40 hectares, with nine original archaeological monuments under the cultural landscape mission statement. The Steinzeitpark aims to teach the public about the relationship between the natural environment and the development of land used by humans. The Steinzeitpark Dithmarschen attempts to teach people in a way that integrates theory, practice, intellect, and new methods of mediation with the visitors, not at least on an emotional level. Especially in this respect, the use of modern communication technologies and their possibilities is of importance to the institution and can establish new methods of mediation with the visitors.

In the medium-term, a new exhibition and educational center with the name “Steinzeithaus” (Stone Age House) is being planned for the entrance area of the Steinzeitpark. This project will

start in 2017 and of course the use of modern digital communication techniques will be compulsory, including the iBeacons.

The test for the iBeacons in 2016 was developed and executed by Ulrike Kroll, Managing Partner of Oroundo Mobile Services (Vienna, Austria) in Germany, and involved museum staff, experts, and also some visitors.

As a base for the content, the existing audio guide tour (created for the Steinzeitpark in 2012 by iTour city guide GmbH, Berlin) was set up on the Oroundo app via CMS. Here, audio files (for both adults and children) and some illustrating images were used for the practical test-phase. We are now working on new audio-guides for the next season, made for children by children.

On our new Website, which will be launched in March 2017, you will find further information and a link to the Android and Apple app stores, where you can download the Oroundo app for free. To download the content you will need to buy a code in our entrance building for €3,-, which must be entered into the smartphone.

Ulrike Kroll:

*“For the Steinzeitpark we first encountered some obstacles that we needed to overcome in order to implement the solution in a complete package. First of all, Internet issues caused the application not to download its content fully, especially on iPhone devices. This caused application users to experience issues with the download, since iPhone devices have sensitive software that disable user download content if a network is experiencing issues by losing connection to the Internet. It immediately stops the download process after the first time the iPhone goes offline, even for a millisecond. This is not a problem for Android devices, which are able to continue downloads even with an interruption to the Internet connection.*

*After better Internet was implemented on site, this issue was resolved.*

*The other issue we encountered was with the radius that had been set for some beacons, which was causing iPhone devices not to get beacon push notifications about the point of interest. This was adjusted through the Estimote app, with which we increased the radius through our account.”*

In the forthcoming season we will have the first experiences with this new mobile technology, and we think that it will provide good, future-oriented opportunities to better inform our visitors, both children and adults.

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