

A multimedia archaeological tour on your mobile phone



A tour of a big outdoor cultural site can sometimes be a frustrating experience if objects are not easily located, identified or placed in historical context. The Agamemnon project is working on an interactive multimedia system that provides relevant text, videos, speech and pictures with 3D reconstructions, to visitors' mobile telephones, says Matteo Villa, an engineer from the project coordinator, Milan-based TXT e-Solutions.

Agamemnon tailors a visit path based on site visitors' interests, cultural knowledge and time available. The on-screen itinerary constantly updates as the visitor moves around the site. The system's image-recognition function allows visitors to dial in via a data line, photograph objects they are interested in and receive information about them. Agamemnon also takes voice commands.

"It's a powerful tool that can enrich customers' cultural experiences, while helping to avoid overcrowding of the sites," says Villa.

The IST-funded project, named after the king of Mycenae, leader of the Greeks in the Trojan War, began in January 2004 and should end on 30 June 2006. Its computer scientists and technicians developed the system's software from scratch, based on a Java Enterprise backbone with JavaBean components. They are currently testing the research prototype in pilot sites in Paestum, Italy, and Mycenae, Greece.

Agamemnon works on visitors' personal telephones, so customers don't need to rent devices, such as CD or cassette players, or learn how to use them, and institutions don't have to invest in or maintain a stock of electronic devices, says Villa. The system works over existing UMTS, GPRS and GSM networks, so institutions don't have to invest in wireless networks, such as WiFi.

Traffic-sharing agreements between sites, museums and 3G mobile phone operators could bring in new revenue for cultural institutions, reducing strain on public finances, and also boost income for networks. In addition, Villa estimates the Agamemnon service could attract 5 per cent more visitors per year to sites and museums. "The final price to customers depends on agreements between network operators and site owners, but we estimate it will range from 2-4 euro," he says. "So on the high end, a site like Paestum, Italy, which gets about 400,000 visitors per year, could earn an extra 80,000 euros from increased visitors, plus revenues from traffic sharing. For these sites' budgets, that's a significant amount," says Villa.

The system could eventually also be used to provide guides to historical buildings, such as churches and ancient houses, and city centres, says Villa. It could also improve site monitoring and security, by creating a maintenance-free, closed-circuit camera system based on visitors' images, he says.

In experiments at the University of Genoa, which developed the system's image-processing algorithms, researchers are using global positioning systems (GPS) to boost image recognition results. Although some

phone models already have GPS, this feature will be more feasible for future phone models, on which GPS functions will be more common.

Since archaeological sites are sometimes in remote areas not covered by high-speed networks, the system includes options for low-bandwidth connections, but supplying less information. "We are looking for the right balance between performance and bandwidth," says Villa. "Of course we prefer to develop for use at higher bandwidth."

Network saturation should not be a problem initially. "If the system is very successful, as more and more people use it, telephone companies can increase network power," says Villa.

"Mobile devices are an expanding market, and so is tourism. So we believe it is well worthwhile to invest into this sector. But of course, the main thing is to make sure that the technology is as attractive and easy-to-use as possible, and not too expensive. The visitors have to like it," says Villa.

Source: [IST Results](#)

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