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Phone creates interactive maps from snapshots

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Cellphones that add interactive information to printed maps could soon provide a simple way to find local points of interest.

Researchers have created a system that processes a snapshot of a printed map, captured on cameraphone, and forwards an interactive version of the same map back to the handset.

Symbols representing points of interest such as restaurants, hotels and festivals can be displayed, along with images, contact details and web links.

"If someone is out walking and reaches a town, they'll be able to simply point their phone at the map and find out places they could go for lunch, or other information not on the map," says Paul Lewis, of Southampton University in the UK, who developed the system with colleague Jonathan Hare.

Ordinary phones

Lewis admits that cellphones fitted with GPS (Global Positioning System) receivers will not need the technology. But until these become ubiquitous, he believes the system, dubbed Map Snapper, could prove useful for people armed with ordinary cameraphones. Lewis and Hare developed the Map Snapper in cooperation with Ordnance Survey, the UK government's agency responsible for producing maps.

Map Snapper software on a user's phone first sends a photo of a section of map to a central server via GPRS. "The server uses the image to generate a unique signature for that area of the map," Hare explains, "and then finds matches in a database of signatures for all the [Ordnance Survey] maps published."

A signature is generated by analysing areas with a rich complexity of edges and colours. Concentrating on these regions makes it possible to create an identifying signature that is much smaller, in data terms, than the original image. When the map's signature has been matched to an area on file, the system adds local information and sends an interactive version of the map back to the user.

User-generated content

Along with permanent landmarks, these maps can feature temporary events, such as local music



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An interactive map, with clickable icons, is returned to a phone by a central server (Image: Layla Gordon/Ordnance Survey)

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festivals. The developers also plan to let users add their own information through an online interface.

"It's a great idea," says Steve Coast, a UK mapping expert and founder of OpenStreetMap, a community-driven mapping project. "This is a good way of adding value to paper maps."

Coast says user-generated content could make Map Snapper very popular. "One obvious use is pub and bar ratings, because people like playing with their phones in those places," he adds.

However, he agrees that GPS is likely to make Map Snapper become obsolete before long. "I think they have maybe three years until people leave paper maps behind," he says, adding that the relatively high cost of mobile data transfer in the UK might also deter users before then.

The Ordnance Survey is currently seeking commercial partners willing to bundle Map Snapper with cellphone handsets.

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