

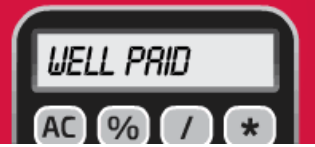
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GPS workaround helps make dumb phones smart

» 27 September 2012 by [Jacob Aron](#)
» Magazine issue 2884. [Subscribe and save](#)

Clever workarounds give older cellphones some of the applications that smartphone users take for granted

IT MIGHT seem as if everyone has a smartphone, but it's not the case. So-called "feature phones", the previous generation of mobile technology, are still used across much of the world ([see graphic](#)).

These phones don't have high-tech sensors or app stores, but their low cost and reliability make them very popular in countries such as India. That's why Kuldeep Yadav and colleagues at the Indraprastha Institute of Information Technology, New Delhi, are researching ways to bring smartphone-like functionality to older mobiles.

One such system [provides location data](#) to phones without access to GPS via a little-known feature of mobile networks known as the Cell Broadcast Service (CBS). This is able to transmit text messages to every handset in the immediate area and can be used for sending local weather information, adverts or emergency broadcasts.

Alternatives to GPS do exist, as smartphones can use signals from wireless hubs and cell towers to triangulate an exact location, but this only works if there is a database of transmitter locations. Companies such as Google have built such databases in the developed world but they are rare in India, says Yadav.

Cell towers transmitting via CBS include the name of their location, but not the specific latitude and longitude. Yadav created software for feature phones that captures these location names and finds their exact coordinates using the Google Maps online geocoding service - which phones can access over the cellular network.

Just using a single CBS-provided location is not very accurate, however. Yadav and colleagues tested 143 locations and found they were out by an average of 600 metres. Taking a user's location history into account and giving a higher weighting to more recent messages reduced the average to 400 metres.

That is not accurate enough for the turn-by-turn navigation possible with smartphones, but it could be useful for highlighting landmarks, says Yadav.

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No Google Maps... no problem (Image: Brent Lewin/Bloomberg via Getty Images)

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"Many areas in developing countries do not have very rich map interfaces and people still rely on landmark-based directions."

It might even help improve smartphone navigation, he says: "In future, we plan to work on a combination of GPS and CBS, so that power consumption of GPS can be minimised." The results were presented in July at the [International Conference on Mobile Data Management](#) in Bengaluru, India.

Yadav and colleagues are also working on a new way for feature phone users to share files, without having to rely on the slow data transfer rates on [cellular networks](#). The system, dubbed MobiShare, lets users search online for songs or movies being shared by their phone contacts or Facebook friends. If someone has the file you want, it then predicts when you and your contact are likely to be in the same location.

Previous research has shown it is possible to use phones to predict future locations, as most people are often either at home or at work. The location of you and your friend is estimated using the CBS method or when both phones are using the same cell tower. When you might be close, you both get a text message letting you meet up and transfer the file via Bluetooth for speedy sharing.



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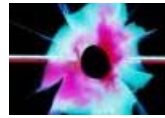


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