

Modified Bluetooth speeds up telemedicine

November 2 2009

A telemedicine system based on a modified version of the Bluetooth wireless protocol can transfer patient data, such as medical images from patient to the healthcare provider's mobile device for patient assessment almost four times as fast as conventional Bluetooth and without the intermittent connectivity problems, according to a paper in the forthcoming issue of the *International Journal of Medical Engineering and Informatics*.

Telemedicine is a rapidly developing technology of clinical medicine where medical information is transferred via telephone, the internet or other networks for the purpose of consulting as a remote medical procedure. However, there are drawbacks to using direct connections between monitoring devices and the healthcare provider, not least the intermittency of standard connections.

Now, T. Kesavamurthy and Subha Rani of the PSG College of Technology Peelamedu, in Coimbatore, India, have devised a dedicated embedded system that uses the short-range [Bluetooth](#) wireless networking protocol to connect patient data to the network and then on to the healthcare provider. This avoids the problem of trying to ensure that a viable connection between monitoring devices and the internet or cellular phone network is maintained constantly.

The team has demonstrated a specific application of their technology which involves the transfer of patient medical images (CT scans) to the healthcare provider's personal digital assistant (PDA) device as an example of how Bluetooth might work for telemedicine.

"In medical imaging, picture archiving and communication systems (PACS) are computers in networks dedicated to the storage, retrieval, distribution and presentation of images," the team explains. However, PACS, which replaces hard-copy based means of managing medical images, such as film archives, cannot circumvent the connectivity issues associated with standard internet connections.

The team has developed a system that can handle the digital imaging and communications in medicine (DICOM) standard for medical images and use it to produce compressible images that can be transferred readily using Bluetooth.

The embedded system used in this project is an ARM based processor (AT91SAM9263), which is a 32 bit advanced embedded processor of the type commonly used in mobile data devices. "The design and implementation of an embedded wireless communication platform using Bluetooth serial communication protocol is proposed and problems and limitations are investigated," the team explains.

The team adds that tests with DICOM images of approximately 1.5 megabytes can be transferred using their modified Bluetooth system in just 120 seconds, compared with 400 seconds for standard Bluetooth.

More information: "DICOM medical image transmission using Bluetooth through ARM based processor for telemedicine applications" in *Int. J. Medical Engineering and Informatics*, 2010, 2, 52-71

Source: Inderscience Publishers ([news](#) : [web](#))

Citation: Modified Bluetooth speeds up telemedicine (2009, November 2) retrieved 26 April 2024 from <https://phys.org/news/2009-11-bluetooth-telemedicine.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.