Reference Application

Bluetooth supervision of children with diabetes

The Norwegian Centre for Telemedicine (NST) in Tromsø is a research and development centre that aims to gather, produce and provide knowledge about telemedicine and eHealth, both nationally and internationally.

Diabetes Selfcare

One way to approach the problem of improving the health situation is to investigate user experiences and the importance of improving the feeling of empowerment. This is assessed in a project focusing on self-care for children with diabetes.

Today the diabetes self-care involves frequent metering of the glucose level in the blood. This may be a daunting task for children, and there is a need for supervision.
Trying to make every-day life easier for the people involved in this kind of situation, the children and their parents, NST has developed a solution which makes it possible to monitor the blood glucose from a distance.

Wireless Data Transfer

Bluetooth has made it possible to develop an automatic and wireless solution based on standard components, minimizing the impact on the patients' every-day activities. This includes using a standard blood glucose meter, a Bluetooth Serial Port Adapter and a Bluetooth enabled mobile phone.

As the blood glucose meter features a serial communication port, the Bluetooth Serial Port Adapter is convenient for providing wireless communication between the meter and the mobile phone.

The mobile phone runs an application that picks up the glucose data from the Bluetooth connection and transforms it into a text message (SMS). The message is sent automatically as an SMS over the GSM mobile phone network and is received at the supervisors end (e.g. parents), using a standard mobile phone.
Provided the child's phone is within range the blood glucose data will automatically be sent when performing a metering.

Future plans

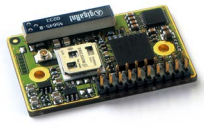
The project investigates and analyzes the user experiences of the involved parties when using this kind of tool for supervision. A test is carried out involving 15 children with diabetes and their families.

Future plans involve sending the glucose data to health care specialists and diabetologists at care centres for statistical and follow-up purposes.

Using Bluetooth technology in combination with mobile phones and body sensors opens up for other remote wireless health monitoring applications as well, and will become increasingly important in future health care systems and services.

The project at the Norwegian Centre for Telemedicine is using the connectBlue Bluetooth Serial Port Adapter that simply replaces a RS232 cable between two devices.

The small physical footprint of the serial port adapter makes it easy to integrate with the users' set of blood glucose metering equipment, which is required for ease of use.



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