

Health Monitoring



Annagh Ltd

Annagh Ltd is a start-up company developing wearable devices for people who live on their own and have conditions which limit their independence, e.g. diabetes and epilepsy. The purpose of these devices is to monitor a range of parameters and, by using algorithms within the device, to alert on specific events in order to assist independent living.

Funding: Invest Northern Ireland Innovation Vouchers

PROBLEM TO BE SOLVED

Annagh wished to develop a wrist worn device to monitor a diabetic patient which would be capable to alert a friend or carer via a smartphone in the event of a hypoglycaemic event. The company was confident that hypoglycaemic events could be detected by monitoring the patient's heart rate, skin temperature and conductance. The implementation was to allow the user freedom to perform normally daily activities while gathering real data over a long period of time. The project was funded by a series of three Innovation Vouchers and direct funding from the company.

WiSAR SOLUTION

Over the course of 3 Innovation Vouchers WiSAR developed hardware, firmware and a basic Android application. The first voucher work was used to develop the base device giving capability to measure skin conductance and temperature and to wirelessly stream these measurements to a PC for later analysis. This was achieved by developing a sensor module and integrating it into the back of a Texas Instruments Chronos watch. In addition, the WiSAR module was used to gather information from a heart rate monitor strapped to the patient and to stream this data to the PC. Voucher 2 was used to add Bluetooth connectivity to the wrist worn hardware and the development of an Android application. Following voucher 1 and 2, the company used the hardware developed to conduct initial trials confirming that it was possible to monitor patients conditions and to then raise an alert if an event was detected. However, during these trials an additional requirement was identified in that it became necessary to store significant amounts of information to support long-term tests. For this reason a third voucher was undertaken to add an SD card storage element in the wrist worn device. This SD card storage allowed Annagh to perform long term tests on patients and to determine if it was possible to detect hypoglycaemic events.

Wireless & Network



868MHz



Sensors Used



IMPACT & BENEFITS (OPTIONAL)

The outcome from the work carried out by WiSAR has been the deployment of a comprehensive prototype which has allowed Annagh to perform field trials and gather real measurements from diabetic patients, which in turn has allowed them to gain a better understanding of hypoglycaemic events. The Bluetooth hardware and corresponding android application gave the company a functional prototype to demonstrate their concept.



WiSAR Lab

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ABOUT WiSAR

The Wireless Sensor Applied Research Centre (*WiSAR*) provides solutions to industry for The Internet of Things (*IoT*) using expertise in wireless, embedded systems and power electronics. WiSAR is an established versatile engineering group experienced in a wide range of electronic challenges from industry. As technology is proliferating into all sectors we help companies develop products and integrate solutions into their systems in sectors such as Healthcare, Fashion, Sports & Tourism, Industrial Control, Environmental Management, Renewable Energy and Electric Vehicles.

We work with companies throughout Ireland (North & South) and can assist our clients draw down European and State research funding.