



FUTURIS 8 Wearable Technologies

SCRIPT ANGLAIS

2.00 gen

2.08

A person's sweat can reveal a lot about their state of health.

That's why researchers at the Biotex project in Dublin want to develop ways of analysing transpiration. Their latest prototype has in-built bio-chemical sensors that record data such as the saltiness, the acidity and the temperature of sweat.

The results are sent wirelessly to a computer.

2.33 SOT Deirdre Morris, Biochemical Engineer Dublin City University:

"What we do is we take a piece of fabric, and in that fabric we define a fluidic channel, which you can see here. Along that channel we place a PH sensor, conductivity sensor, sodium sensor and temperatures sensors".

2.47 Virgule musique upsound

2.52 SOT Deirdre Morris, Biochemical Engineer Dublin City University

"The composition of sweat changes as it ages, so it is important to have it as it is excreted by the body. And this is quite difficult. So what we have done in this system is by defining this channel and placing this absorbent at the end of the channel we can be continuously pulling fresh sweat through the system and analysing it as the person exercises. It has not been possible to do this before".

3.12

The sports industry would be among the first to gain from wearable technology, like smart shoes or T-shirts equipped with sensors.

Studying sweat is not meant to replace traditional methods like blood tests, but rather to complement them.

3.32 SOT Deirdre Morris, Biochemical Engineer Dublin City University:

"This is more person friendly. People don't like to give blood, lot of people gets nervous, they feel faint. "In the future we hope to develop this system into a T-shirt, which will integrate others sensors beside what we see here. so we will have a full physiological picture of a person as they train or exercise."

3.49 Football match at the University (music)

The technology could soon be used as a weapon in the battle against sports doping, or a tool for physios and trainers to keep an eye on how their athletes are performing.

Either way it's good news for sport.

4.07 SOT Niall Moyna, Professor in Sport Sciences, Dublin City University:

"We are really at the first generation of sensors, I think it will revolutionise how we prepare our sports team how we manage our sports team. We will be able to individually track players and players who having decrement in performance, we will be able to assess that at a much early stage in the game



and to be able to make appropriate changes and to put people in the appropriate position in the field because of our ability to track real time".

4.32

Outside of the sports world, the technology may also be used in medicine. For example, diabetics or cystic fibrosis sufferers could be monitored continuously from home.

The possibilities will grow as researchers overcome new obstacles.

4.50 SOT Dr Kim Lau, Doctor in Chemistry, Dublin City University:

"Textiles are soft, electronics are hard, chemicals will change as they are not very stable, to integrate everything into something wearable to measure activities is extremely difficult. It is possible to reduce the size, the best way is to make the fabric itself the sensor, rather than to have the sensor added on to the fabric, in the next 10 years we will see products in the markets measuring biometrics, sweat, saliva and probably... tears".

5.25 cyclist at the airport music

5.32 Plane

From Dublin to another wearable technology site in Bremen, Germany.

5.40

Here scientists are developing devices designed to aid multi-tasking, allowing users to carry out physical jobs while using a computer at the same time.

5.47

The Wear It At Work project leader at Bremen University explains that the idea is to create various gadgets that fit specific job needs. It's called wearable computing.

6.00 SOT Michael Lawo, "Wearitatwork" project Manager:

"With wearable computing you get an information on the move, but it is different from mobile computing, in so far as it gives you an information in an ambient way. It is detecting the context in which you are actually, and adapt the applications to your specific working environment"

6.20 Fire fighters, simulation of intervention at the University of Bremen (music)

Emergency services are one of the fields of study. Different sensors are built into fire fighters' equipment like their boots. With wireless communication fire crews could get computer images of a site when there is little or no visibility. Or perhaps it could identify the presence of toxic fumes. Several crews across Europe have taken part in tests.

6.45 SOT Michael Lawo, "Wearitatwork" project Manager:

"We had to understand what the users really feel during their work, what their problems are when they do their we have to understand their work.»

"so we had to participate in training workshop and in training sessions of the Paris fire Brigade, to really understand what fire fighters do and how they prepare for such interventions".

7.05 Demo TV, wearable Ward round support at hospital (music)

Another use is medical surgery. Wearing an electronic bracelet and belt, a doctor can use his computer and transfer data from a distance.



In testing, developers made adjustments according to various factors, including psychological ones, as the technology may make some patients feel uneasy.

7.24 SOT and demo Michael Lawo, "Wearitatwork" project Manager :

"You can use this wristband by gestures. (...) but there is also one of the experiences we made with the acceptance of this technology. if you do that at the patient bed and you move your arm vertically and horizontally then people think that is probably not a good idea because it had a different meaning" "therefore we came with a new approach which is now based on micro gestures and this gestures are much more accepted than the gestures we had at the very beginning of the project"

7.56 Labo work, electronic stuff (music)

This new interaction between man and computer needs to avoid over-complicating daily tasks, but instead provide useful data and warn of eventual problems.

Developers are constantly trying to innovate and fine-tune these tools of the future.

8.16 SOT Rüdiger Leibbrandt, University of Bremen:

"On the PCB (printed circuit board) there is a bluetooth module, a small power supply unit, and interfaces which connect to sensor modules and to an RFID (radio frequency identification) reader. So this module collects the information from both the RFID reader and the sensors and sends them over bluetooth back to a PC"

8.36 Virgule

8.38 sot and gesture (music)

"left click, right click, yes, no, up, down" so that the entire design does not restrict movement at all. It will be able to track moving up moving side wards with this or that speed at a given time"

8.57 SOT Michael Lawo:

"if you want to get the information in an ambient way, you have to support a primary task which has nothing to do with a computer at all, by information which comes from the computer system and this has to not disturb you during your primary task".

9.13 SOT Rüdiger Leibbrandt explaining the Hot wire test:

"This is our so-called hot wire simulator. I use these glasses here, which carry a small display. I now see the same thing that you see on the monitor, so I try to do two tasks at once, moving this rod along and at the same time answering the questions that appear on my field of vision on the screen".

9.35 demo The hot Wire test (music)

Working at a computer without using a keyboard or a mouse opens up a world of possibilities. The technology exists in labs. Soon we may be using it at work and even at home.

9.55 Générique

10.00 THE END