







Centre for Data Analytics

Insight 


Textile Sensors and Smart Garments


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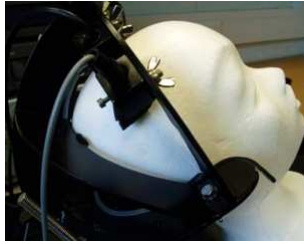
Insight 



- Combines 5 Centres of Excellence
- 8 Institutions
- 40+ Funded Investigators
- 200+ Researchers (PD, PhD)
- 40+ Collaboration Partners
- €88m Funding for 6 years

7/7/2015 Slide 2

My Background



PhD Biomedical Engineering, NUIM



Diploma in Fashion Design,
Grafton Academy

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My Research

Adaptive Sensors Group
Multidisciplinary team led by Prof. Dermot Diamond

Development of new materials and sensors
Applications in Healthcare and Environment



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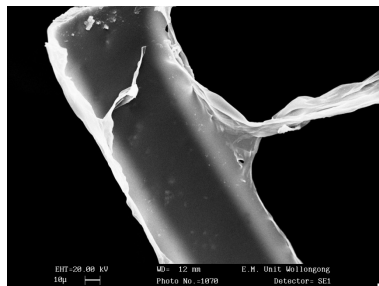
Wearable sensors, electronic textiles



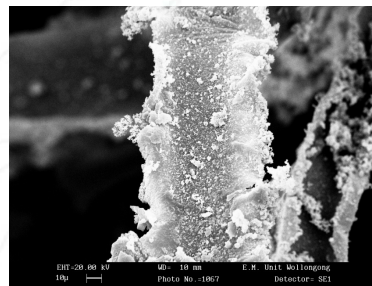
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Fabric sensors

Modify fabric, textile itself becomes the sensor



Uncoated foam



Foam coated with conducting polymer


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Fabric sensors

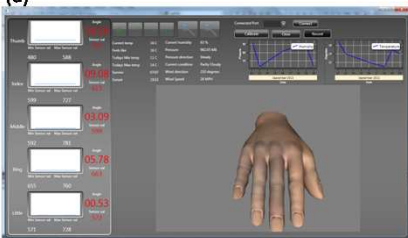


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Fabric sensors

(a)



(b)



Fabric sensor glove
 Collaboration with University of Ulster, James Connolly, Joan Condell
 Graphical user interface to monitor Rheumatoid Arthritis at home

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Fabric sensors

Monitoring spinal flexion
"Schober's test"
Currently a tape measure is used



Monitoring breathing patterns

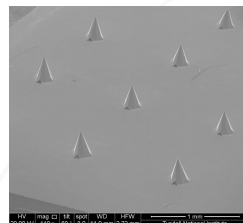


Wearable chemical sensors

Body fluids



Tears

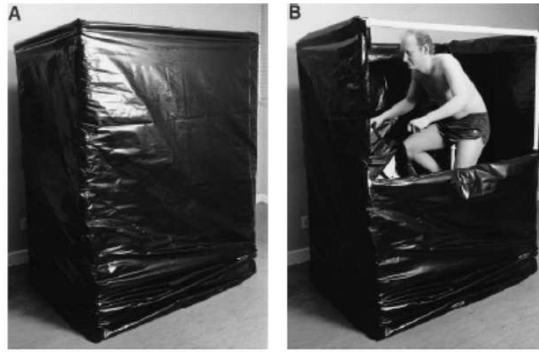


Interstitial fluid



Saliva

Sweat analysis

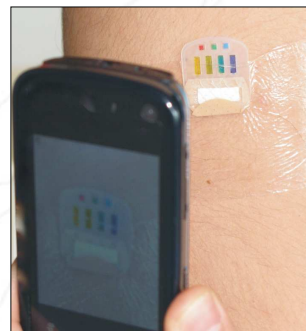
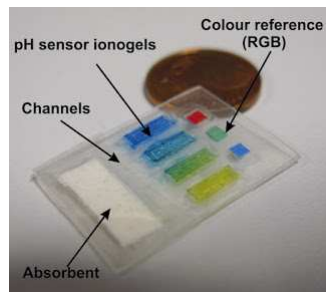


Wash-down technique

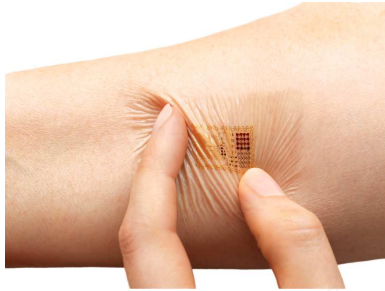
S. M. Shirreffs and R. J. Maughan, *J Appl Physiol* 82: 336-341, 1997

Wearable sweat sensor

Wearable microfluidic patches



Future



mc10 biostamp