# Empowering Citizens

# Smarter Societies

Dr Aoibheann Bird

In this blog I'm going to talk about what I learned from Dr Bird which is, what a smart city is, how microcosms of it can be adapted and used in various aspects of life data analytics in relation to our cultural heritage.

## A Smart City



A Smart city is an urban area that uses different types of electronic Internet of Things (IoT) sensors to collect data and then use insights gained from that data to manage assets, resources and services efficiently. Data Analytics is the fundamental factor of smart city. It is also used in health management, sports, flood management.

The most common example of data analytics to do with smart city is, crowd behaviour detection. This technology is amazing in

deciphering chaos in towns and cities. It detects violence like mass fights or street protests and almost immediately informs the police. The adaptation of this technology can help us make informed decisions. For example, these computers can differentiate between pillow fights and serious hate violence. In the case of pillow fight the police won't need to be involved as it is not serious.



## Neurological Diseases
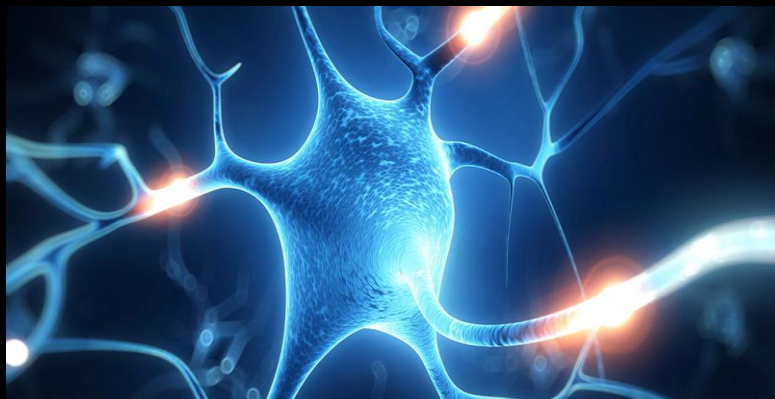


One microcosm of a smart city is the production of wearable sensors for patients with neurological Diseases. This technology provides memory assistance for people with the likes of dementia or Alzheimer's disease. It addresses cognitive problems. For example, a common problem for a lot of families with relatives suffering from neurological diseases is the fact that they forget a lot of stuff. This can be names, faces or even important information. This technology

can help these sick people remember some of those things. It gives them better mental agility that can ease their process.

## Assessing Skin Physiology



Another microcosm of a smart city is the creation of smart tattoos and samplers. This technology is designed for people with Chronic Skin diseases such as psoriasis, eczema, contact dermatitis, etc…These diseases an disrupt the skin barrier causing microbes to penetrate the barrier. Volatile gases can be sensed with smart tattoos or samplers

## SWEATCH



Figure 1: A. Exploded view of the watch platform where 1. is the watch enclosure,2. battery 3. Shimmer electronics board, 4. bottom slider of enclosure which includes a silicon seal and 5. the sweat harvester plate and reservoir. B. Rendered image of the watch and strap. C. Image of the watch platform on body.

The final microcosm of smart city I will talk about in this blog in a new piece of technology that has changed the game in terms of sort and health is the sweatch. It is a watch that monitors sodium and

analytes in sweat in real-time. It also monitors what exits your body. If we know what is coming out of your body, we know what should be put back in. This can be used for patients in hospital to help them recovery in favourable conditions. It can also be used for professional athletes. In a match situation this device can tell you what the player needs to give them maximum performance for the last few minutes.

For more on SWEATCH, visit : http://doras.dcu.ie/21115/

## Data Analytics and our Cultural Heritage



In Ireland we are proud to have and still play our native sports such as Hurling and Gaelic. In order to keep the level of interest high, Insight teamed up with GAA to find out why people play these games. They found out that the reason people play GAA is because the want to be like their national and local heroes. All these people want to play like and with their heroes. The team asked what could be done with this information to get people to continue playing? They decided on creating a simulation game that allows players to play against their heroes. Another mode puts you into the game and get you to repeat moves done by your heroes which inevitably helps you improves your skills. This game can be used in actual training when training with the team isn't possible for example, rainy days.

# Obesity in Ireland



In a study ran by the World Health Organisation (WHO) they predicted that "Ireland to be the most obese nation in Europe by 2030". National Physical Activity Guidelines for children states that every child should be involved in at least 60 minutes of physical activity every day This information is shocking as Ireland is such a small country relative the others in Europe. In the CSPPA study, children who met the physical activity guidelines, had significantly healthier heart fitness, weight status and blood pressure than those who didn't.  17% of primary children met the National Physical Activity Guidelines.  10% of post-primary children met the National Physical Activity Guidelines.

SPORT EIREANN teamed up with Sport Northern Ireland and GAA Dublin to find out the cause of obesity in Ireland. They went to 44 different schools across 12 counties and assessed over 2000 student between the ages of 4 -13. They measured things like, muscular strength, height, weight, BMI, Cardiovascular Endurance and many more

By Nicolas Oyeleye