science smell fashion

biofeedback scent interventions to complement orthodox treatments for chronic mental illness

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Winston Churchill Travel Fellowship

Establish a new project in **smell communication and olfactory tracking** (e-nose)

Personal CRUSADE: design **behaviour change** to benefit me:

1. Academic
2. Designer
3. Mother
4. Wife
5. Entrepreneur - *exploiting wearable technology and smell*
Informed by

• living with and managing long-term mental health condition (bipolar 20+ years)
• At times MUTE and unable to communicate
  (Ironic? Fashion is a form of expression and communication)
• Ashamed to have an illness – **STIGMA** around ‘being sick’ = social isolation
What Drives Me?

Motivation to PREVENT Triggers

Invent a simple but effective way to manage a better life – reduce stress / improve sleep / increase confidence

Is it 25-50-75%?

(both parents with the bipolar gene)

Bipolar I

Bipolar II

Stress

Relax 😊
Use technology to break down issues . . .

Induce *positive* states

Reduce the risk of a bipolar relapse via the use of evidence-based scents
Manage Mood Swing
Complement taking meds

Keep it green (balance): prevent triggers!
Smell is *untapped* sense – **personal** – cannot switch it off
Using smell to keep the balance
Immediate Goal

• Build a customised ‘scent bubble’
  NEAR THE NOSE!

• Find a calming method to reduce:
  • Stress (cortisol) = chaos, havoc, trauma
  • Performance anxiety
  • torrent of SWEAT
  • Insomnia
  • Loss of memory
  • Nausea etc…
Inspiration . . . Sci-fi - ‘bubbles of reality’

UBIK (Philip K.Dick) mystical bubble projection sprayed to stabilise a nightmare – reality-in-a-can

Brave New World ‘scent organ’
Inspiration . . . Sci-fi fashion

"Fashion will change dramatically in the coming years
It will be more human - closer to the needs of the people in terms of their wellbeing not "well showing"

Thierry Mugler

1980
Build tools:

Creative Convergence of
Ancient Art of Perfumery + Emerging Technologies

1. **wearable technology + fashion = jewellery, smart clothing**

2. ‘**miniaturisation**’, MEMS, lab-on-a-chip biometric sensors, nanotechnology

3. **smell communication**, how this affects the brain, mood, feelings and senses

eScent® platform technology
Perfumed Past to the Fragrant Future

3000 BC: Ancient Egypt: ‘fragrant wax cones’

17th century: French: alcohol-based

21st century eScent®

Computer-controlled scent output

3000 BC: Messy / Sticky

17th century: Dry skin

21st century eScent®
Aromachology

the study of aroma and effects this fragrance have on human psychology and behaviour
Fashion: Smart Second Skin

Exhibitions - Science | Art Festivals - Catwalk Shows - Conferences - Debates - Installations – prototypes
eScent®: wearable wireless device

Dispenser where frequency & type of scent delivery ("scent bubble") is flexible & determined by the user.
Real-time Biofeedback Scent Interventions

*Offers social and therapeutic value in a desirable fashion context*

1. Track Mood + Sleep
2. eScent releases **counteractive scents to relieve tension** when stress levels exceed threshold
3. Select which aroma for me??
4. How does this make a difference?
5. EMPOWER!

**eScent: Sensing Smell tool**
Smell The Colour Of The Rainbow

Collaboration with Philips Stress & Sleep businesses on “Meaningful” innovations - demonstrated the benefits of scent on demand in ‘emotional products’
Sleep 1 – good sleep hygiene

Clinical evidence on the properties of lavender critically reviewed – a sense of relaxation (caused by a release of serotonin)

Sleep 2 – wake-up rise + shine

Clinical evidence on the properties of citrus to reduce anxiety

Citrus – stimulating, energising
Jasmine – sense of wellbeing
Peppermint – invigorating
What did I learn . . .

• Using the fellowship as a vehicle to raise mental health awareness . . .

• Teaching me to re-communicate and regain confidence – empowerment!

• Start new Fashion Communication projects and commercialise

• Using own personal experiences to guide the research and new projects

In return, learning early warning body signals . . . .
Personal experience to prevent relapse / stay focused

- reduce stress levels: neroli, citrus
- increase alertness / energy: peppermint

- More relaxation, yoga, improve quality of sleep: lavender

- Stress crossed out
- Relax symbol
- Zz symbol
Endorsement from USA Psychiatric Community

Monitor *little* cognitive shifts before *bigger* shifts appear

- PRODROME intervention:
  - learn signs
  - send feedback

Fashion element + “De-stigmatising”
PRODROME “warning” Scent Interventions

Build your own therapeutic rainbow: peaceful > relax > energise > de-stress > relief > calm

- Loss of confidence
- Irritable
- Insomniac
- Angry
- Anxious
- Drowsy
- Worried
- Tearful
The scent was playing a delightfully refreshing Herbal Capriccio rippling arpeggios of thyme and lavender, of rosemary, basil, myrtle, tarragon... a series of daring modulations through the spice keys into ambergris; and a slow return through sandalwood, camphor, cedar and... new mown hay.

‘Smart Second Skin’ **Tailored To Fit Mood & Physiology**

In tune with your body - become accustomed to your **OWN** programmable palette of scents (rainbow) - changing over time... Automatic access to wide range of scents
‘Scent Bubble’ – the science works!

Non invasive, localised ‘scent bubble’
– rate of scent diffusion and detection threshold calculated from composition of perfume ‘notes’
Long-term Goal
Stress-related body odour detection

- Electronic nose tracks propanoic acid (smallest sweat)
- inspired by biological olfactory systems - mimic human senses and apocrine gland
- Integrate sensors into clothing
- Creates fast immediate ‘scent bubble’
Measure stress-related body odour in ear wax

Body odour in ear canal
stress hormone cortisol appeared in the waxy plug of blue whale
Develop eScent® App for wearable ‘scent bubble’

- Set goals
- Track mood
- Track sleep
- Track smell
- Watch self improve

Less stress
Many other different applications, tools . . .

Memory recall - dementia
CBT Cyber tool – impact *behavioural change*
*Curb / enhance appetite . . .
Learning, entertainment, etc
Diagnosing disease . . .

eScent®
BENEFITS

DON'T PANIC!
Thank you!

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