

live Scent : evil Stench

This (not so) Perfect (Smelling) Day



live		evil
live		veil



energetic happy calm good lively peaceful | anxious irritable fearful sad tired depressed

Background: *A Science Fashion Story*

- Senior Research Fellow, Central Saint Martins **Scentsory Design**®
- Founder / Creative Director **Sensory Design & Technology Ltd**, Cambridge
- Visiting Scholar - Institute of Biotechnology, University of Cambridge

- PhD Textiles - Royal College of Art
- BA Fashion Communication - Central Saint Martins
- Fashion Stylist / Sensory Designer - Charmed Technology (MIT Media Lab)
- Inspiration: Science Fiction + Healthcare sector (Mental Health, HIV & AIDS)

Charmed Technology Inc

MIT Media Lab High-tech spinout : WEARABLE COMPUTING

'Brave New Unwired World' show 2000



Prof Sandy Pentland



Prof Thad Starner



'Twiddler' keyboard



... wireless
everywear

Charmed Technology Inc

'Brave New Unwired World' 2000: London, Berlin, NYC, Seoul, Sydney



Aroma Badge



SolarCool



ScentreFace



PheroMATE



VitaWare



SmartSecondSkin



BionicBoxer



Osmical Fashion

Scentsory Design®

Central Saint Martins / University of Cambridge

Break the tradition of scent delivery

Specialise in the Research & Development of wearable wireless sensor networks and microfluidic devices for fragrance delivery and therapeutic applications in *'emotional clothing'*

'Smart Second Skin' : exploits olfaction in multi-sensory fabrics (active *'scentsory'* properties)

Introducing eScent[®]

Miniaturisation + Biology + Design = Wearable Technology

[1] Functional 'Wellbeing' Scent
Dispensing Jewellery



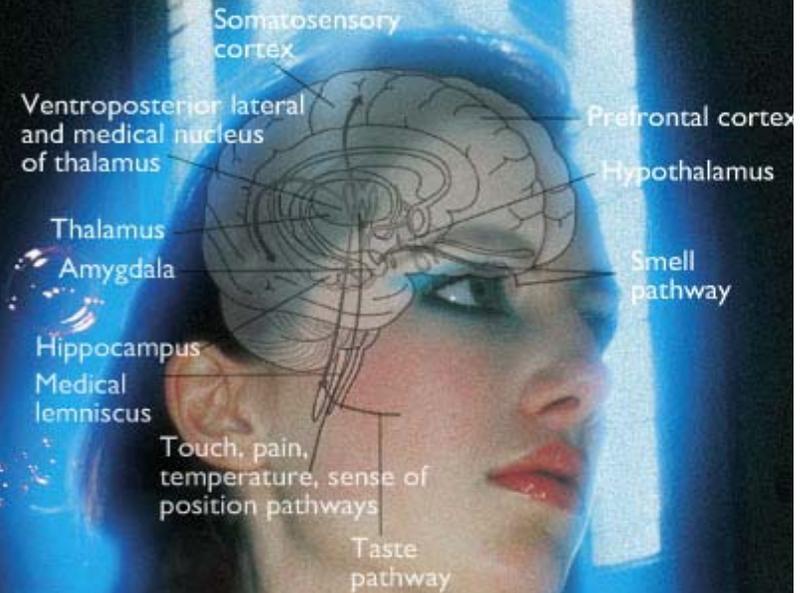
[2] Wearable/Mobile Technologies
(consumer electronics/cell phones)



[3] Smarter materials interactive
products

SCENT COMMUNICATES A MESSAGE

- Ancient and primitive sense. 10,000 more sensitive than other senses
- Plumbed into **memory** via limbic system
 - access to feelings, likes/dislikes
- Increases wellbeing via changes in electrical brain activity
- Mood-enhancing effects of scent on brain influence
 - Performance, behaviour
 - Learning, mood. . .



Hotline To The Brain

The sense of smells known affective potential to regulate mood, physiological & psychological state

Reduces:

Performance related stress *

Startle reflex

Confusion

Insomnia

heart rate

Fear

Balances

nervous system

Stimulates

adrenal cortex

Soothes

muscle stiffness

'SMART SECOND SKIN': Strings Of Emotion

'Smart Sensory Fabric' vs. microencapsulated techniques

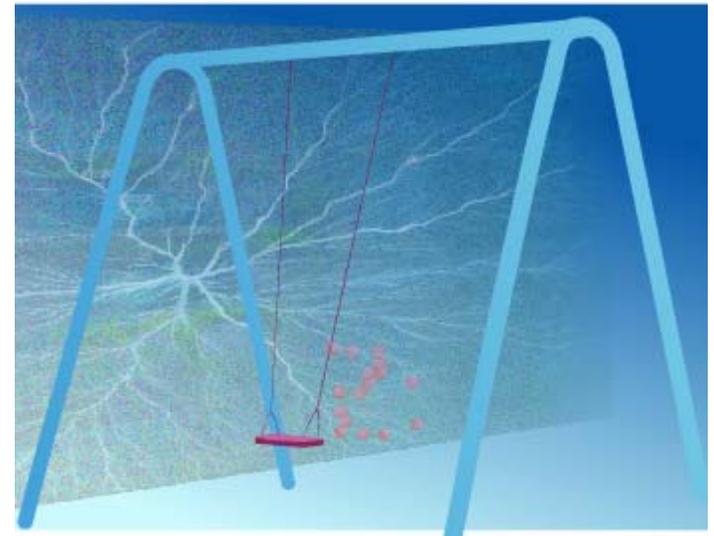
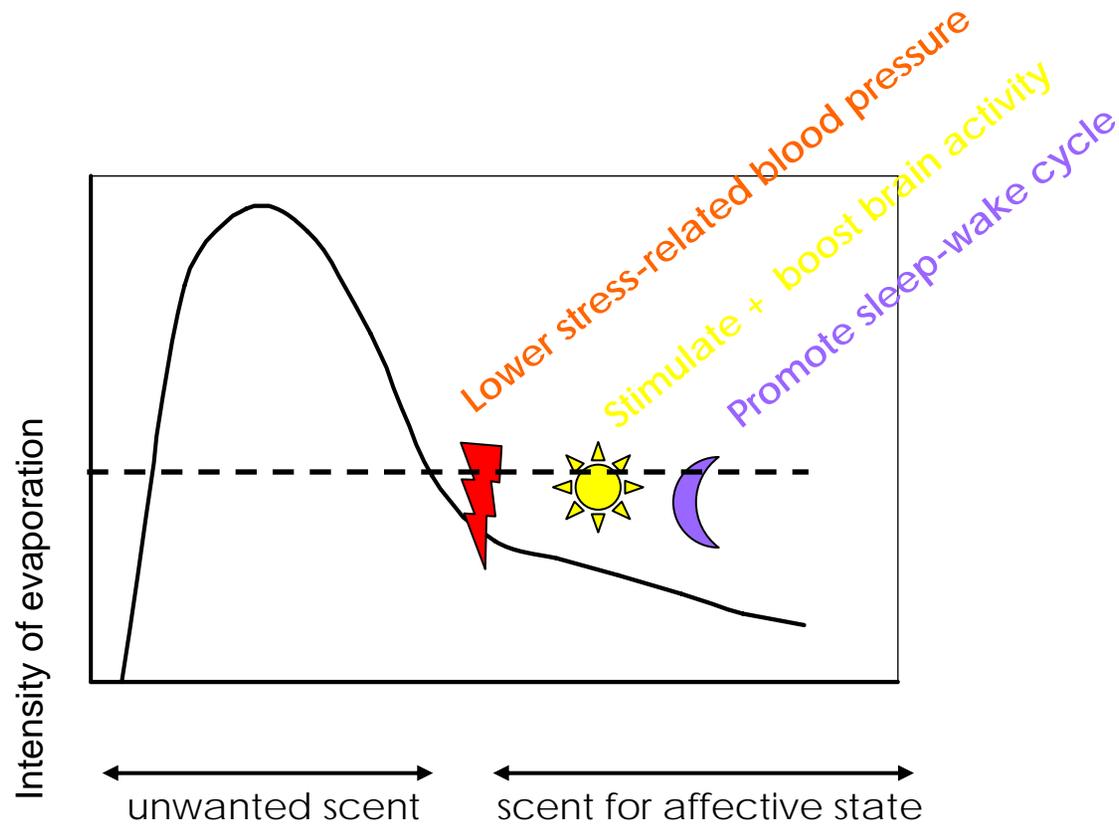
Rivals Natures capillaries

- Inspired by '*neurobiological delivery mechanisms*'
- Mimics nature's **microfluidic processing system**; (veins, senses)
- forms an additional layer of **sensitive skin** that interacts with the wearer's emotions (joy, anger)
- controls the different *emotional states of the wearer*



Adeline Andre Haute Couture - Paris

Mood Swings?



Jewellery to manage moods swings?

Moods are important factor in determining well-being & behaviour

good – bad – lively – energetic – calm – peaceful – anxious – irritable – fearful – sad – tired – burnout – depressed

eScent ®

Scent By A Wireless Web



PATENT 046382.8

'Wearable system and method for dispensing fluid in response to a sensed property such as biometric data from an individual or various ambient sounds'.

This Pervasive Day: The Potential And Perils Of Pervasive Computer

live Scent : evil Stench

live – *to be alive / living*

evil – *wicked, associated with the devil*

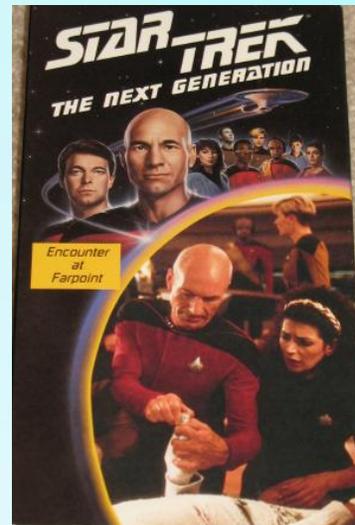
veil – *conceals, disguises or obscures*

vile – *unpleasant, morally bad*

So what if eScent® was misused??

HEALTH & WELLBEING

Affective state mood-enhancing scented clothing – inbuilt ‘sniffers’
Influence behaviour



Star Trek The Next Generation ‘Encounter At Farpoint’ – military police

**Scents to suppress positive feelings, increase extreme mood swings,
negative emotions, distort reality,**

HEALTH & WELLBEING

Smell the colour of the rainbow!



Lavender

Rose

Lemon

Apple

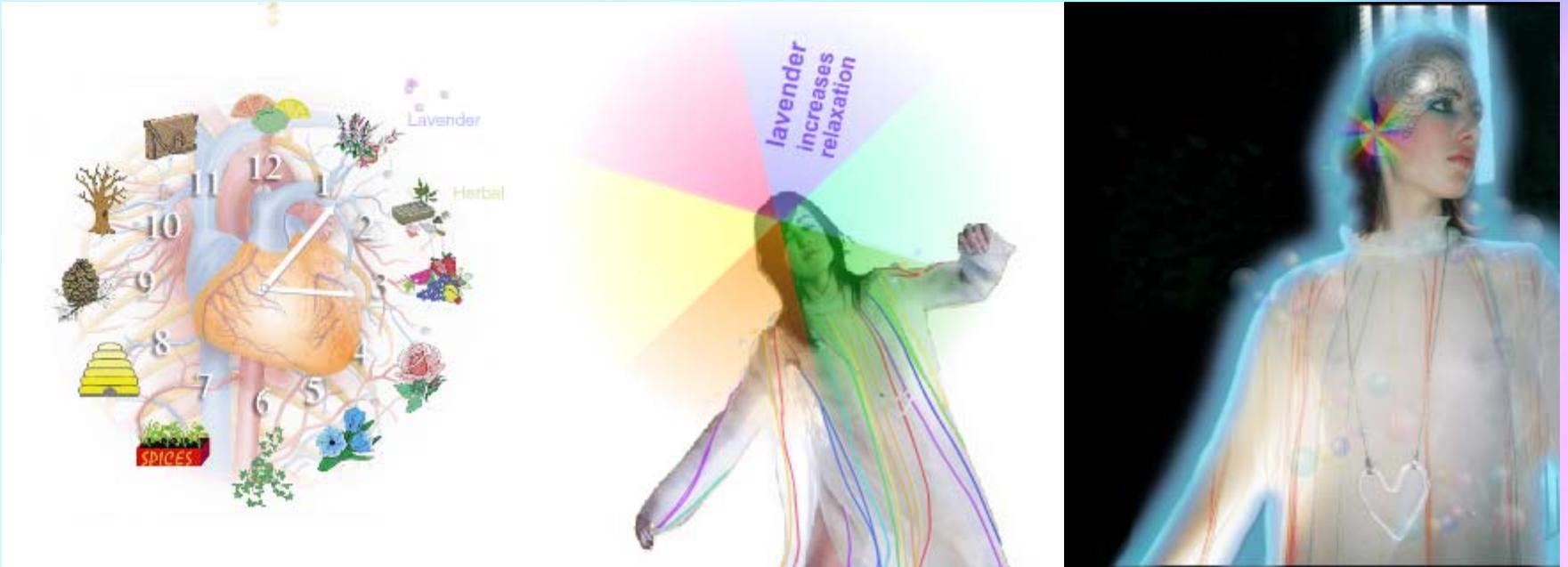
Orange

Augment **positive** emotional experiences, excitement, love, happiness, joy

Augment **negative** experiences, the smell of fear, sadness, guilt, anger, disappointment, bitterness, *implanted sensory hallucinations* Synaesthesia

HEALTH & WELLBEING

'Smell the time' - creates a personal scent symphony that adjusts body clock - scents changing over time - improve sleep



Imposes 'congenital anosmia' (similar to blind/deaf but inability to smell due to brain injury) - distorts scentsory perception, sleep deprivation

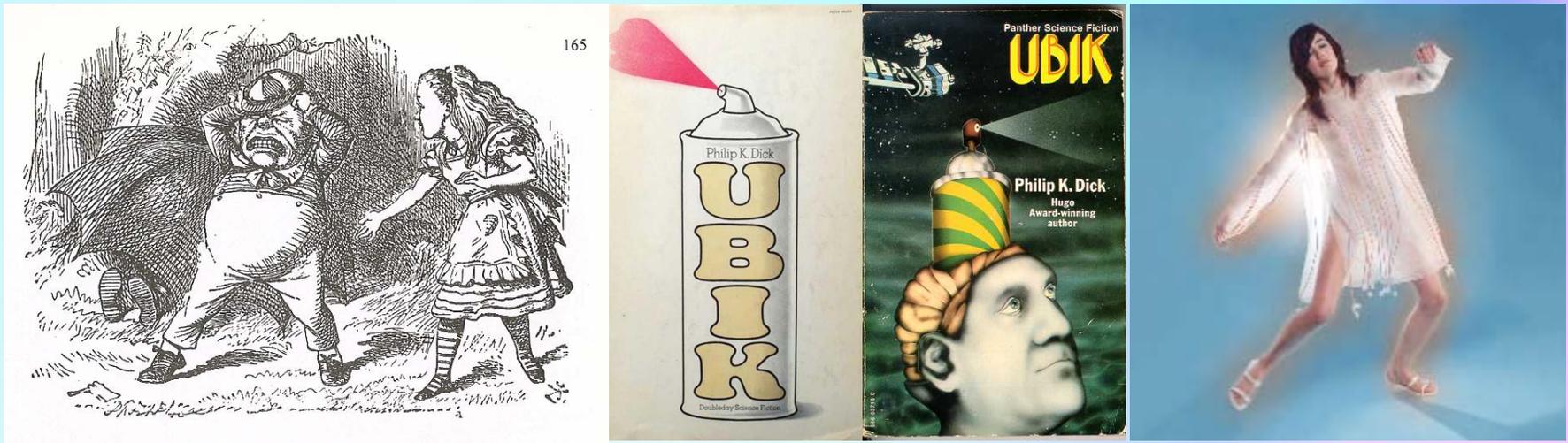
(1). Yagyu, T. 1994, Neurophysiological findings on the effects of fragrance: Lavender and Jasmine. *Integrative Psychiatry*, 10, 62-67

(2) Komori, T., Fujiwara, R. Tanida, M., Nomura, J., & Yokoyama, M. M. 1995, Effects of citrus fragrance on immune function and depressive states, *Neuroimmunomodulation*, 2, 174-180.

HEALTH & WELLBEING

UBIK – Philip K. Dick 1969

UBIK '*scent bubble*' (veil) stabilise nightmare: reduce fear, anxiety, stress, boost self-esteem, confidence, maintain communication skills



UBIK nightmare '*reality in a can*', anti-wellbeing, increase fear and stress levels, reduce communication skills –

increase risk of mania and chronic depression (bipolar affective disorder)

HEALTH & WELLBEING

Smart Hologram / Electronic nose sensors detect stress related body odour, early stages of lung and breast cancer, TB, diabetes "off" food



Deliberately diagnoses the wrong illness / increase probability of asthma attack (scent allergy), increase side effects from drugs

LIFESTYLE

Scentsory Nutrition



Scent to reduce obesity,
minimise eating disorders

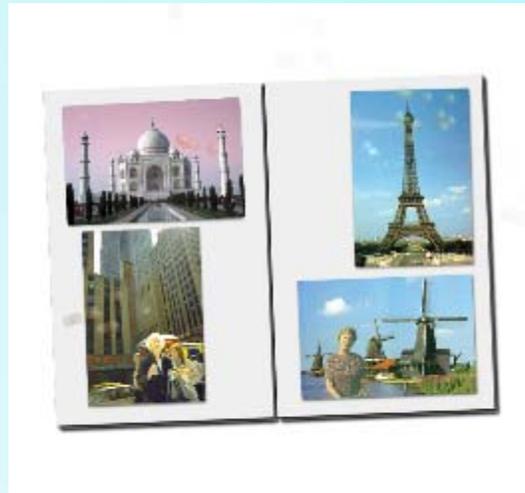
**Scent as an aid to
increase appetite to
encourage the obese to
*get fatter and fatter***

Hirsch, A., 1995, Weight Reduction Through Inhalation of odours, J Neurol Orthop Med Surgery, 16:28-31

LIFESTYLE

. . . Smell the story . . . memory recall

Ignite pictures with scent communication / branding. Increases odour training mechanism in elderly – reminiscence therapy, independent skills



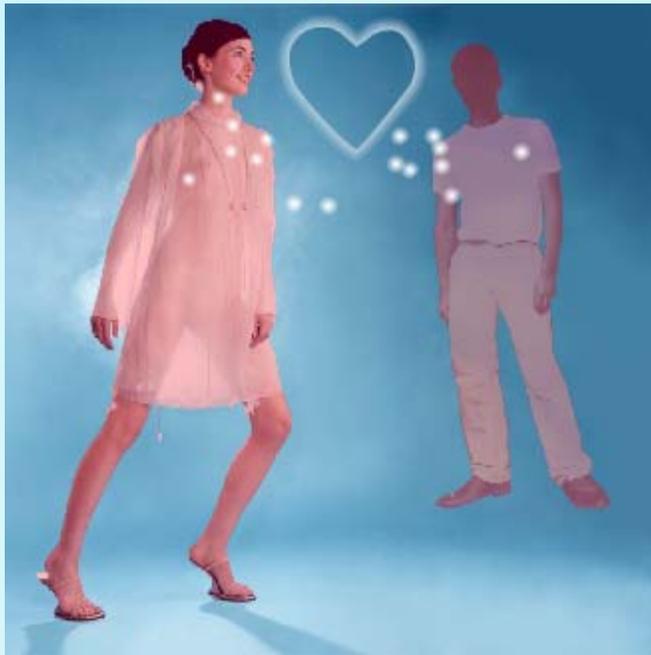
Sensory overload / bombard elderly with negative, terrifying smells from past (entice stroke, heart attack = death)

Confuse our (pre-historic) ability to smell.

SEX

social seductive magnets

Pheromones for healthy sex life, freedom for intimate romance and privacy



Pheromone overload: mass orgy, dating clothes attract wrong partner, promotes rape / violence, lack of trust. Arranged pheromonal matching

PROCREATION

Attraction: Pheromones for procreation



**Control population : synchronized menstruation (McKlintock Theory 1971)
control ovulation 'pheromone fertility' mass female conception community**

PROCREATION

Attraction: Pheromones for procreation



Control population : synchronized menstruation (McKlintock Theory 1971)
Control ovulation: speed up or slow down hormones to pinpoint ovulation

TRUST

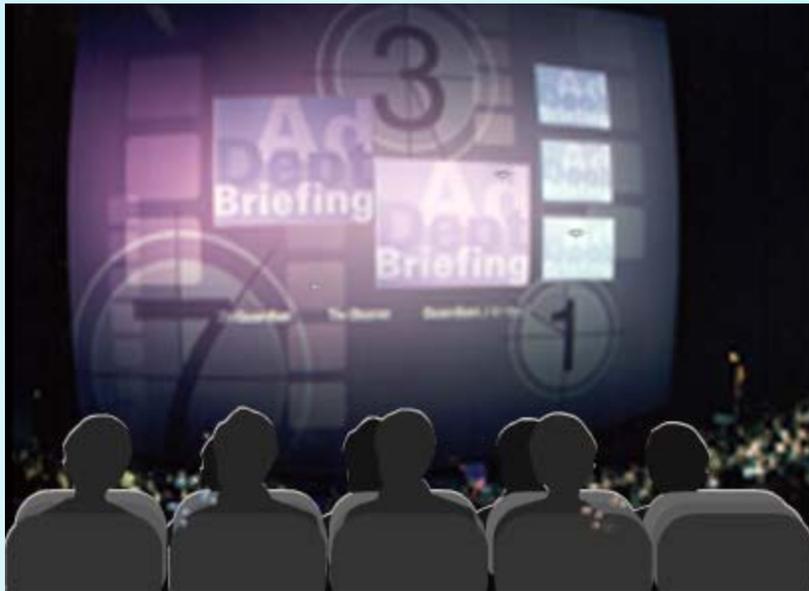
Pheromones to calm new born babies. New born baby smell calms mother promotes parent and child bond



Lactation 'mind games' for new mothers: clone maternal body odour and confuse new born babies (warped 'wet nurse')

LEISURE

Multi-sensory enhancement - clubs/TV concerts, scent experience



Anti-(sc)entertainment promotes extreme fear / audience scaremongering

LEARNING

Improve maths & finance skills - sensory internet banking, enhance creativity



10/04	3.75	AAA	Aaa	100.4300	1.69	-0.02	-0.41	+0.38
02/06	6.88	BBB-	A3	105.2500	3.26	-0.01	-0.71	+0.83
04/06	6.10	A+	Aa3	105.5100	2.85	-0.02	-0.52	+0.33
06/09	6.88	AAA	Aa2	112.3800	4.14	-0.02	-0.47	+0.56
02/11	6.75	A	A2	109.9800	4.95	-0.04	-0.19	+1.32
03/26	7.10	A+	A1	107.8440	6.45	-0.01	-0.32	+1.26
01/31	6.50	BBB	A3	115.8500	7.16	-0.02	-0.42	+1.96
11/31	6.00	BBB	A3	101.9100	7.83	+0.12	-0.22	+2.63
	-0.01							
	-0.22							
	+0.48							
	-0.01							
	-0.26							
	+0.61							

Encourages overspending and mass gambling (scent in casinos Las Vegas)

LEARNING

Scentsory Brainwaves: Improve consolidation of memory and learning (slow-wave sleep 'pulses')



Minimising affectivity in learning by 'brain-wash' during slow-wave sleep 'pulses'

Rasch, B., Büchel, C., Gais, S., Born, J., Odor Cues During Slow-Wave Sleep Prompt Declarative Memory Consolidation, **Science**, 9 March 2007: Vol. 315. no. 5817, pp. 1426-1429, March 2007

SECURITY

Early warning danger signal for fire, leaking gas, mobile phone 'scent tones'



Entice danger : loose total control of navigation: confusion 'scent implants' for enemy warfare – poison 'scent by a wireless web'

SECURITY

New data senses

Maintain personal identity '*olfactory signature*' – privacy issues

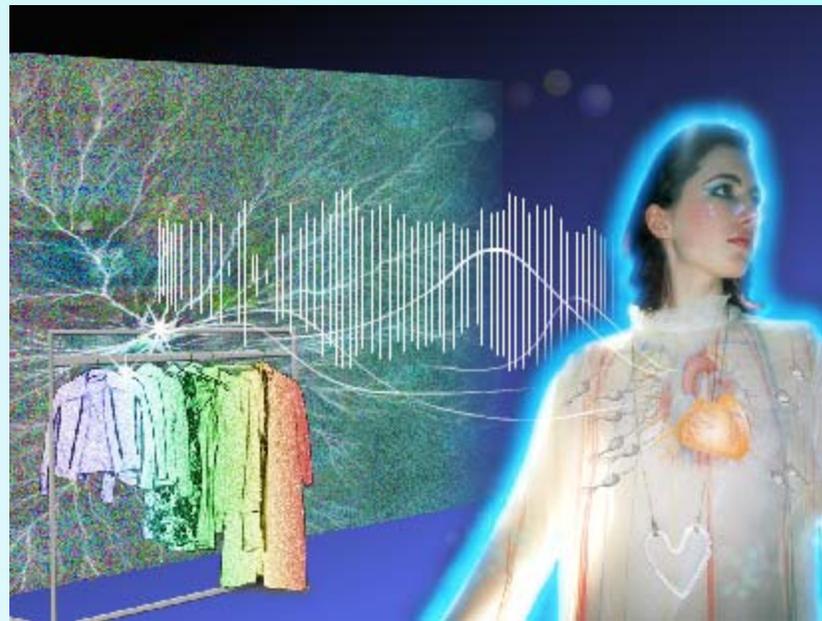


**Loose control of 'odour signature' stored in 'Smellcode database'.
Electronic nose (vs physical biometrics) passport control holds BO data**

PUBLIC SPACE

Stop making scents!

Wireless inhibitor reduces transportation of fragrance molecules overload in constricted environments (lifts, the tube etc) and 'perfume-free zone'

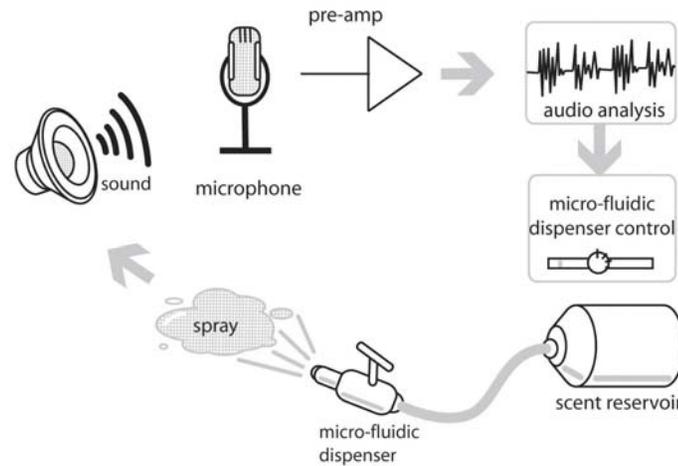
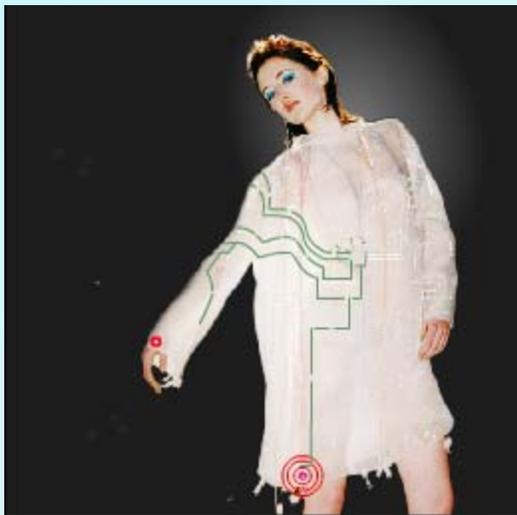


Intense olfactory intrusion in public spaces – computer controlled stink bomb

PROTECTION

Stop Biting Me!

Insect repellent acoustic sensor clothing - Delivers anti-malarial chemicals



Enhanced body odour attracts swarms of insect bites & higher risk of malaria

PROTECTION

The Wearable Stink Bomb

Clothes to destabilise prisoners – induces violent vomiting ('*Stench soup*')
Military application, Crowd control, stop muggers/rapists/burglars



Malodour loss of control causes discomfort, violent vomiting, annoy people!



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