

A Smell Communication Interface for Affective Systems

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RECAP: Objectives

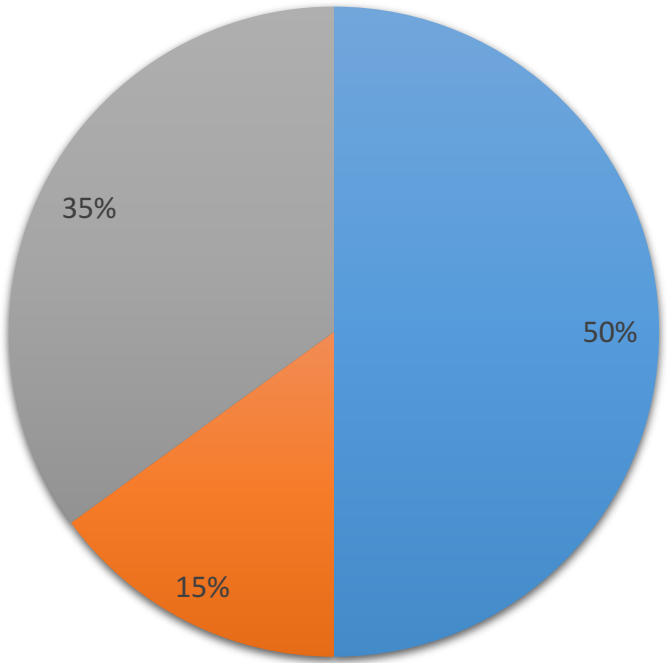
- Design and build a smell interface that can emit a range of scents to be integrated into affective systems
- Enable social robots to communicate with human through smell
- Enable human to communicate emotions remotely through smell

Survey

- Name 3 smells you smelled today and why you remember them?
- How good is your sense of smell?
- How important is the sense of smell in your daily life?
- Should robots make smells?
- Why would robots make smell?
- What kind of robots should make smells?
- Give an example of how smell has influenced your decisions?

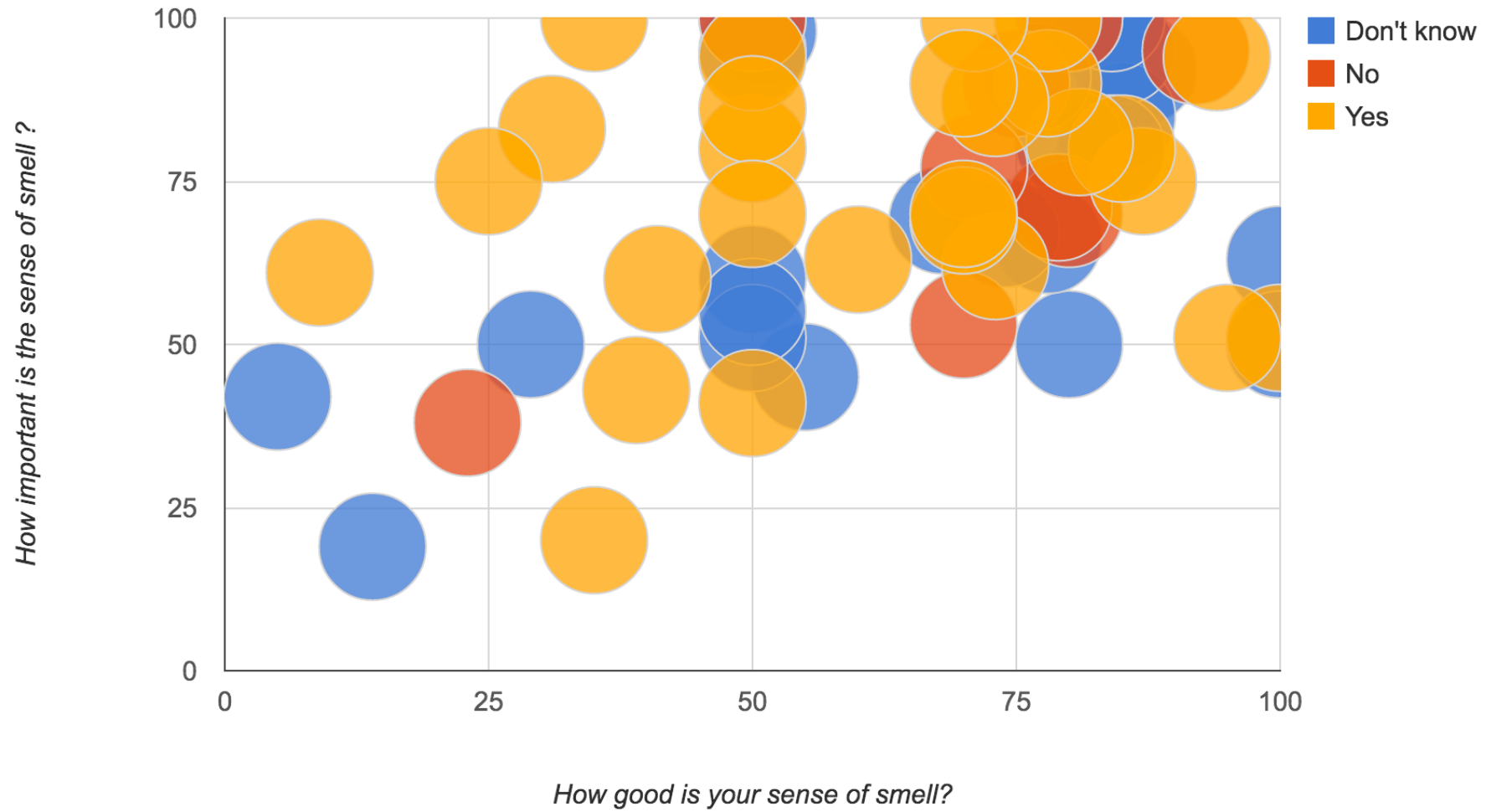
Should robots make smells?

Answer



■ Yes ■ No ■ Don't Know ■

How important vs. How good vs. Should robots smell ?



Why would robots make smell?

To help human feel comfortable, pleasant, calm, change mood
(enhance their environment/atmosphere)

To provide information through smell/body odour (sweaty robots are working hard)
-Recognise them from one another - identity

New language for communication (for the elderly, sight-impaired)

For memory recalls

For warning - overheating, cooking etc.

To reduce human's fear of mechanical things - to make robots more humanistic, natural and less artificial

To describe people's situations - happy, stressful

Communicating with humans and animals

They shouldn't

For the sex industries

Who should robots make smells for

People	Place	Machines	Animals	Object
Babies/Children	Public	Themselves	Pets	Fruits (for ripening fruits)
Owners/Users	Home	Robots		
General public, whoever interacts with them		Computers		
Patients (in hospitals)				
Visually-impaired				
Military				
The elderly				

What kind of robots should make smells?

Companion/partner robots

Visually-impaired guide robots

Pet robots

Telepresence - smell another place/person from afar to evoke virtual presence

Waiter robots

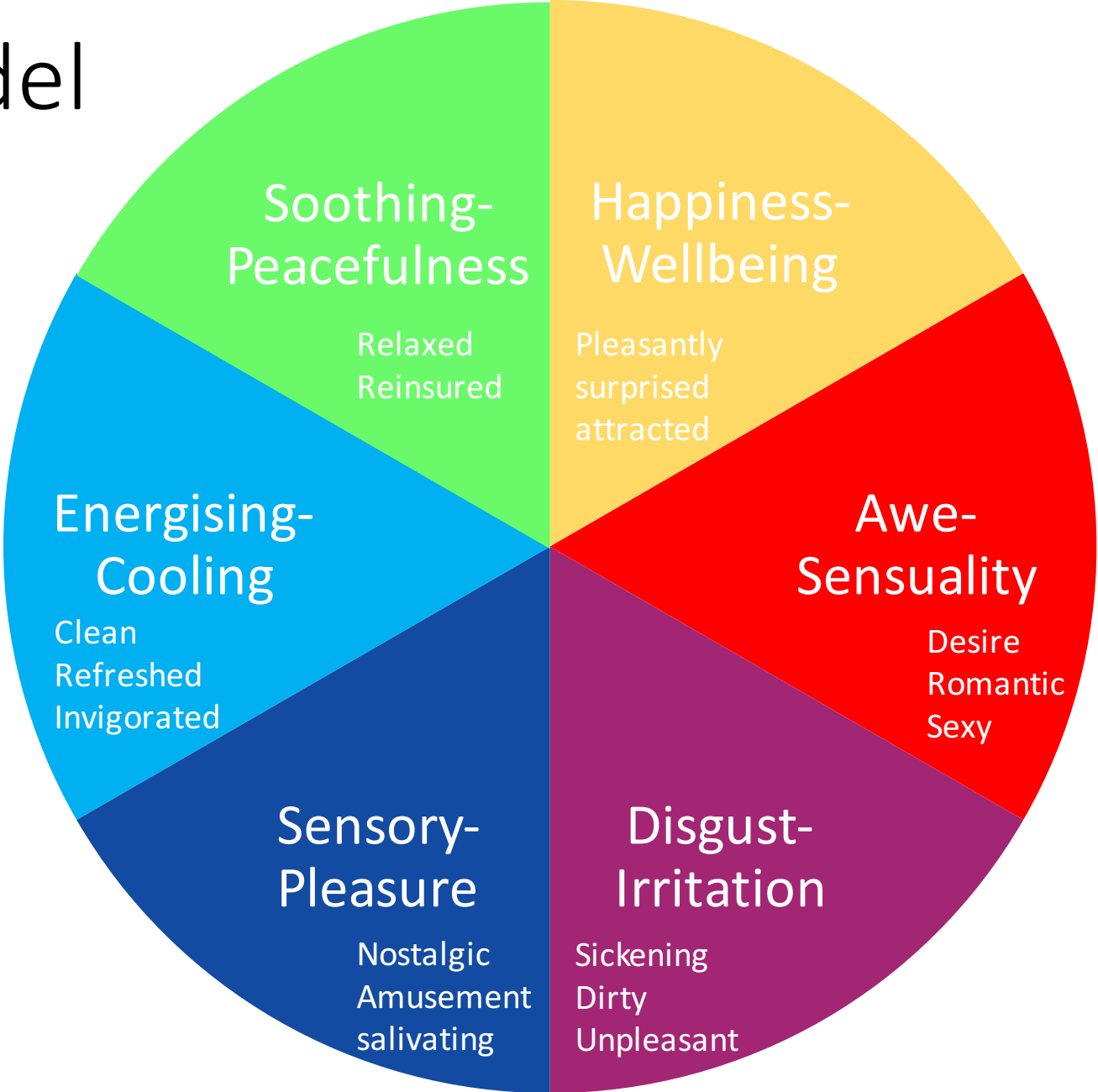
Cleaning robots - air quality

Rescue robots - warning of danger

Smell Emotion Model

- Conventional model: Affect grid = arousal, valence
- GEOS model - 6 dimension model. Odour-elicited emotion

GEOS Model



GEOS model REFERENCE!

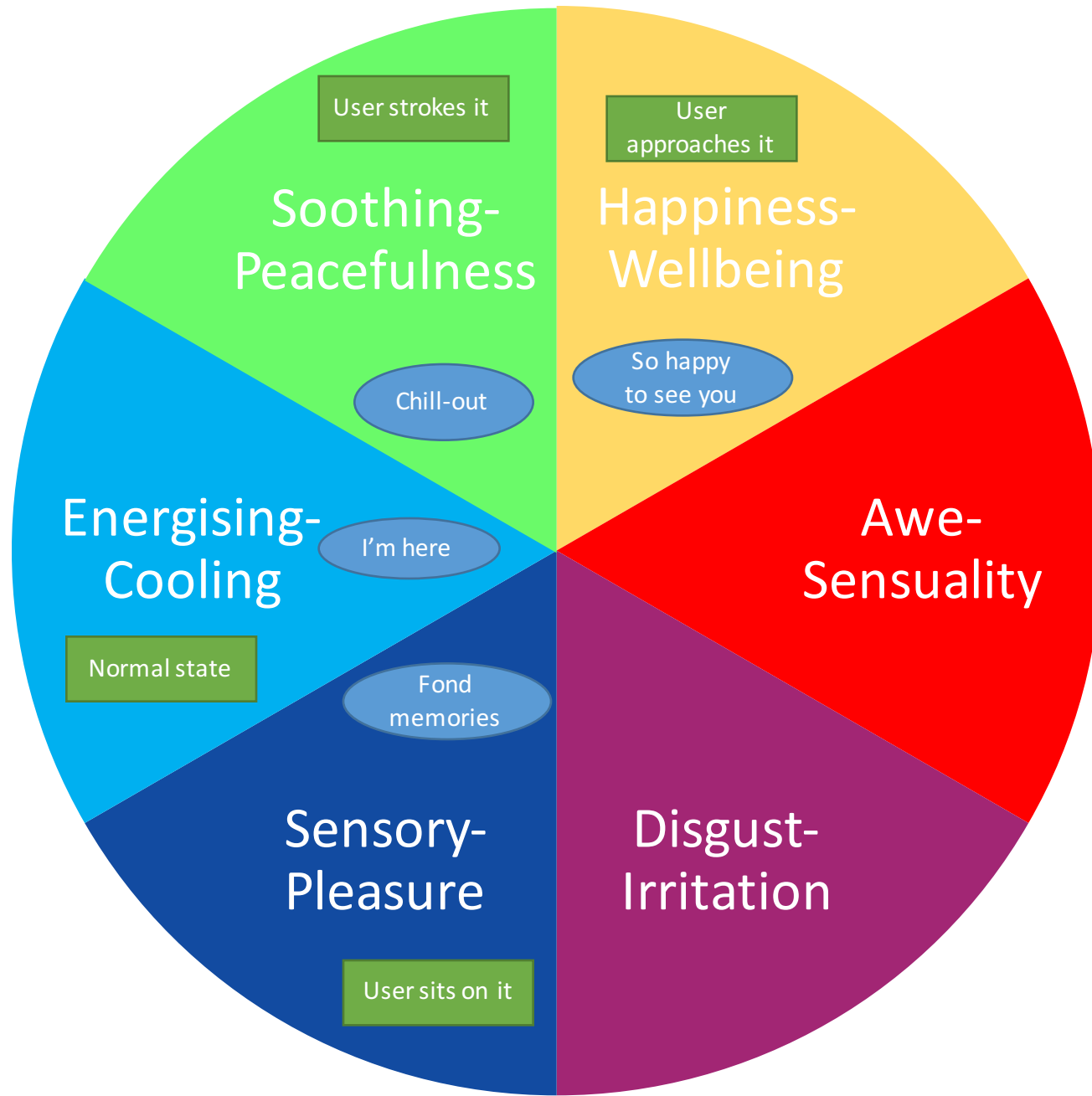
New objectives

- Digitally-controlled affective scent system based on GEOS model
- Open source framework smell interface (previous)
 - multiple scents
 - 3D printed
 - Controlled by Arduino

Prototype

Interactive Companion Couch

- People living alone with robots require emotional support and companionship
- Designed a companion couch that communicates affection and provide companionship through smell



Emotional Character

User Interaction

References

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