

# **Designing technology to support mobility assistant dogs**

For: *Beyond early adopters: Designing smart homes with underrepresented user groups*

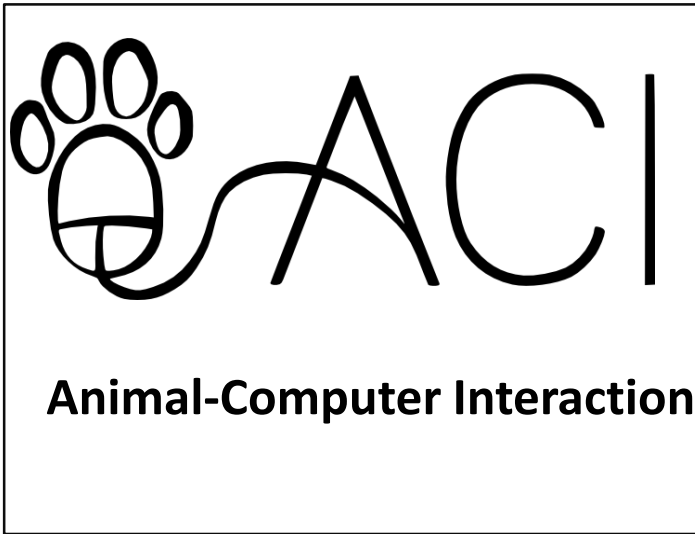
**February 14 2020**

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- 1. Researching the relation between animals and technology**
- 2. Designing technology to support animals and inter-species relations**
- 3. Informing user-centred approaches to develop animal technology**

## **Areas**

Wildlife/ecology

Captive (zoo, sanctuary)

Companion

Farm-animal (welfare)

Working Animals (mostly dogs)

Methods/Ethics

# Types of assistance dogs in the home:

- Mobility assistance dogs
- Medical alert dogs (including allergy, seizure)
- Autism support dogs



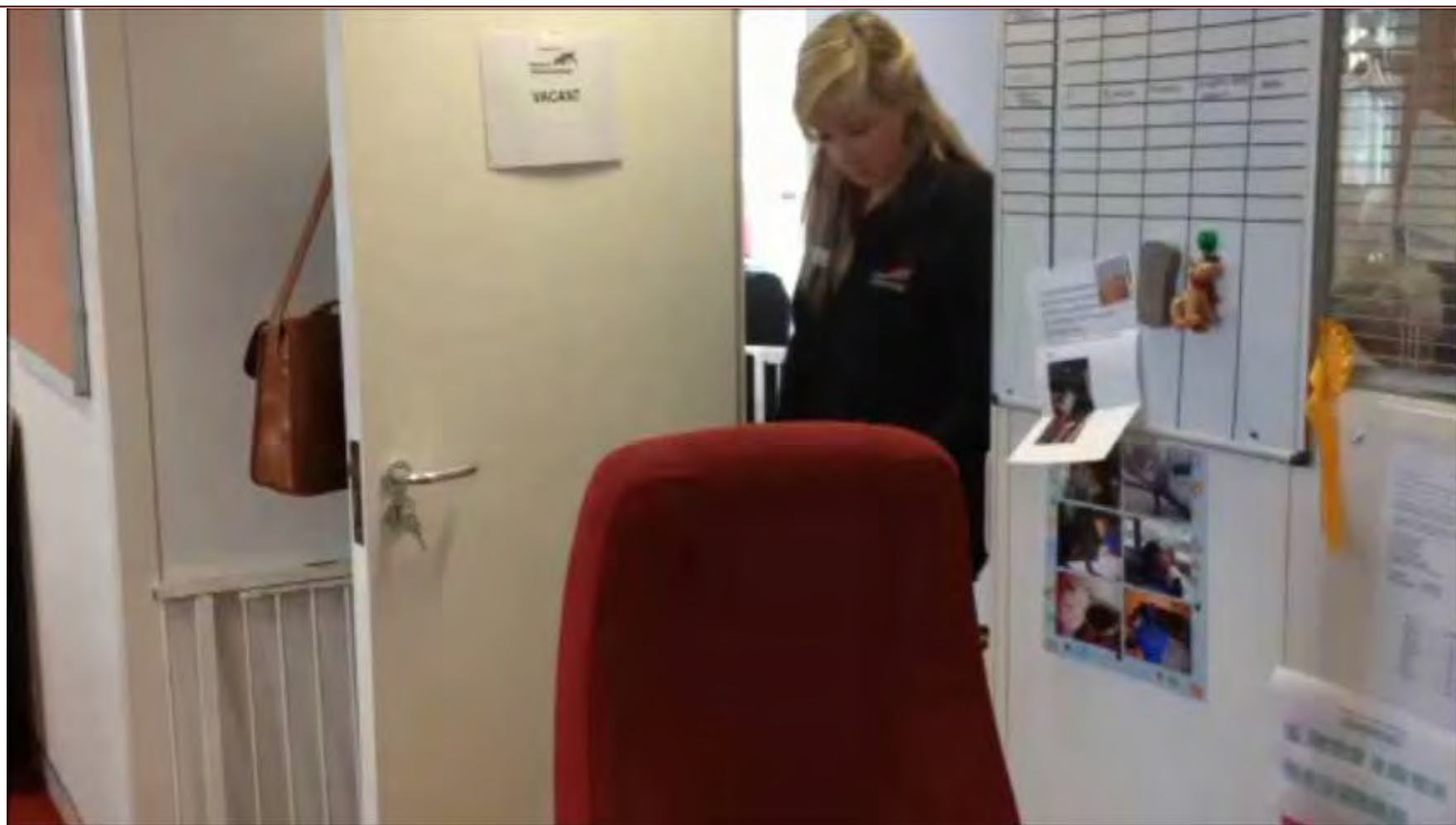
# Problem space

Intersection of built environments, the “smart home”, assistive tech, and assistance dogs

## **Initial inspiration:**

- assistance dogs during emergencies
- parents’ anxieties for children/privacy
- uptake of assistive tech ***versus*** dogs
- potential technological interventions

# 2012 – Helping Assistance dogs in Emergencies











## An example application of ACI for Assistance Dogs





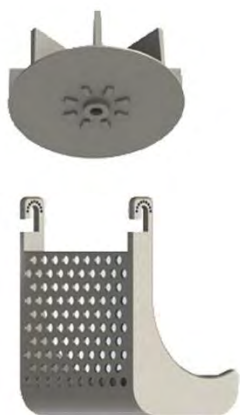
## *Virt-EU Design Competition*

*How might connected Internet of Things (IoT) systems and products enter into and change communal spaces of home?*

We designed a **treat-dispenser** that could take any switch input device, and from this work envisioned toolkit that would make it easier to make custom smart home solutions for individuals with assistance dogs, such as emergency call-for-help solutions and and treat-dispensers, which supports bonding between a person and their assistant dog.

# Voice-controlled pet care devices





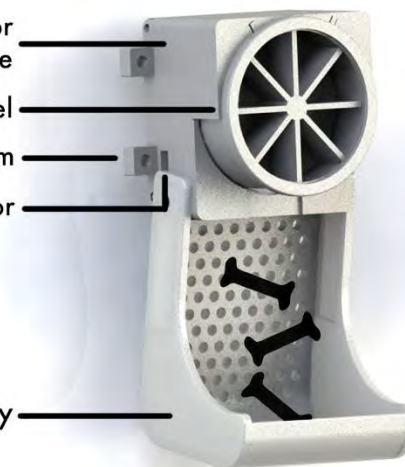
Arduino, servomotor  
and bluetooth module

Carousel

Fixation system

USB connector

Tray







“All participants gave us information about their history of adapting voice-activated technologies within their homes. Three of the four participants found that some daily task functionality, that they had previously relied on their assistance dog for, was recently "**taken over**" by a voice-activation home assistant instead. This was usually related to environmental light control, and the participants still relied on their dogs to open and close doors, cupboards, and drawers, and also to retrieve dropped objects from floor.” (Robinson et al. CHI 2020, Honolulu)

# Themes – Users with Assistance Dogs and Voice-Activated assistants

- From 2013 to 2020, the landscape of how users expect to rely on their dogs have changed dramatically due to voice-activated emergency calling apps on phone and smart home assistants
- For some users, the management of some household tasks (especially lights on and on) has also changed significantly
- But(!) fitting a home to be fully accessible (beyond lights) is expensive- and doesn't cover hotels, friends houses...
- Emergency situations versus day-to-day tasks are viewed differently? (needs exploration)
- Privacy a massive issue for some users – may be pressure from friends/family or support team



# Questions?

