The Ambient Kitchen 2.0:

Situated sensing for independent living with cognitive impairment

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The Big Picture

The Ageing Population phenomenon

- And the rise in associated medical conditions
- Pervasive or Ubiquitous Technology Theory in ICT
- The importance of the kitchen in day-to-day life



The Path to Impact

Background Research Concept and Design Lab Prototype I **Field Deployments** Industrial Partners

The Path to Impact



The Concept

- Providing care 24/7 can be exhausting
- Reducing the time spent on care allows for
 - Improved quality of contact
 - Greater independence and a sense of personhood
 - Financial savings
- The ambient kitchen design philosophy: Doing what a caregiver does

The First Prototype

Diverse range of sensors

- Pressure sensitive floors
- Accelerometers on utensils
- Cameras
- RFID technology

Not without it's problems though

- Machine learning challenges
- Feedback challenges





The Second Prototype

- Evaluation from many, many sources thanks to the "living lab" concept
 - Industry, older adults and people living with dementia, academics, schoolkids, students
- Focused on the technologies that showed the most promise
 - Improved machine learning
 - Improved sensing technology
 - Fibreboard replaces RFID
 - Improved the display



Unforeseen Outcomes

 A spin out company selling some of the custom sensor technology

Numerous student projects

- Automated cooking shows
- Cooking and nutrition skills evaluation
- Remote tele-presense

The French/European kitchen

What's happening now: Field studies

- Where do we deploy this?
- What do we deploy?
- Ethical issues?

Looking forward: Industrial interest and the future

Deployment of the kitchen has not yet begun

- The Newcastle group are currently securing funding to do this
- Many people have expressed an interest in the kitchen
 - Councils (particularly those with large retired populations)
 - Large ICT businesses
 - Care home suppliers

Other work within the area

- Design work with people with cognitive impairment
- Nutritional studies
- Educational prospects

Thank you for listening, any questions?

The Ambient Kitchen Website

http://culturelab.ncl.ac.uk/research/digital-interaction/ambientkitchen-cels

The original position paper

http://di.ncl.ac.uk/publicweb/publications/Olivier09ABRA.pdf

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