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

1. Background Research
2. Concept and Design
3. Lab Prototype 1
4. Field Deployments
5. Industrial Partners
The Path to Impact

1. Background Issues
2. Concept and Design
3. Lab Prototype 1.0
4. Lab Prototype 2.0
5. Field Deployments
6. Industrial Partners

Spin-out companies and much more!
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/ambient-kitchen-cels

The original position paper
http://di.ncl.ac.uk/publicweb/publications/Olivier09ABRA.pdf

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