Revisiting "Hole-in-the-Wall" Computing: Private Smart Speakers and Public Slum Settings

Simon Robinson, Jennifer Pearson, Shashank Ahire,
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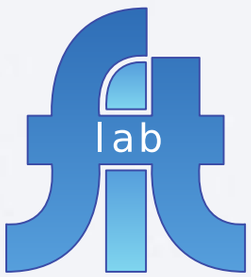

HAL 9000

IBM Shoebox

Siri

Google Assistant

Google Home

Amazon Echo

Dharavi (Mumbai, India)

Hole in the Wall

Hole in the Wall

This Research

- Speech recognition in public slum spaces
  - Design inspiration workshops
  - Wizard-of-Oz probe
- Gather use-cases; observe effects
- Map out design considerations

Design inspiration workshops

Procedure

- 3 x groups of four Dharavi residents
- Demonstration of "OK Google" and Amazon Echo

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L.C.A. CHURCH
MUMBAI

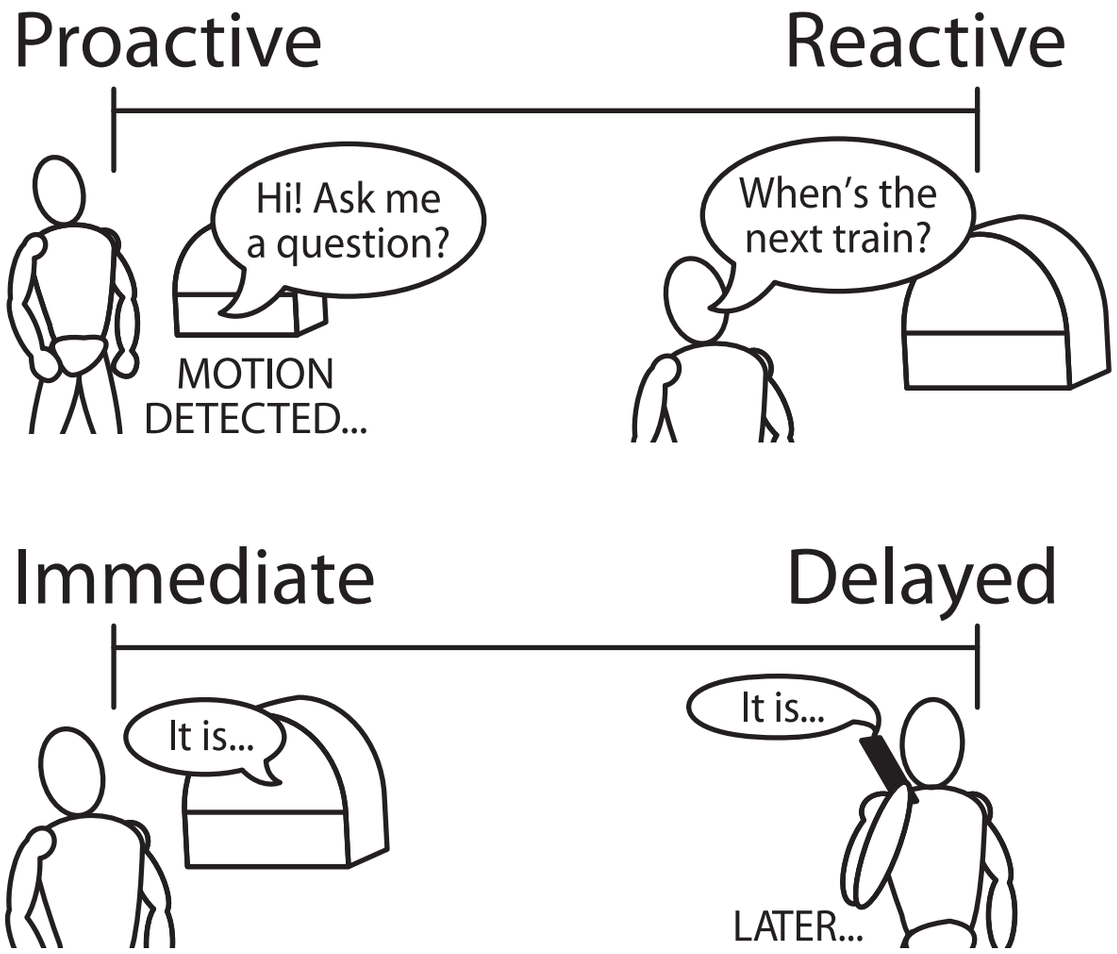
Procedure

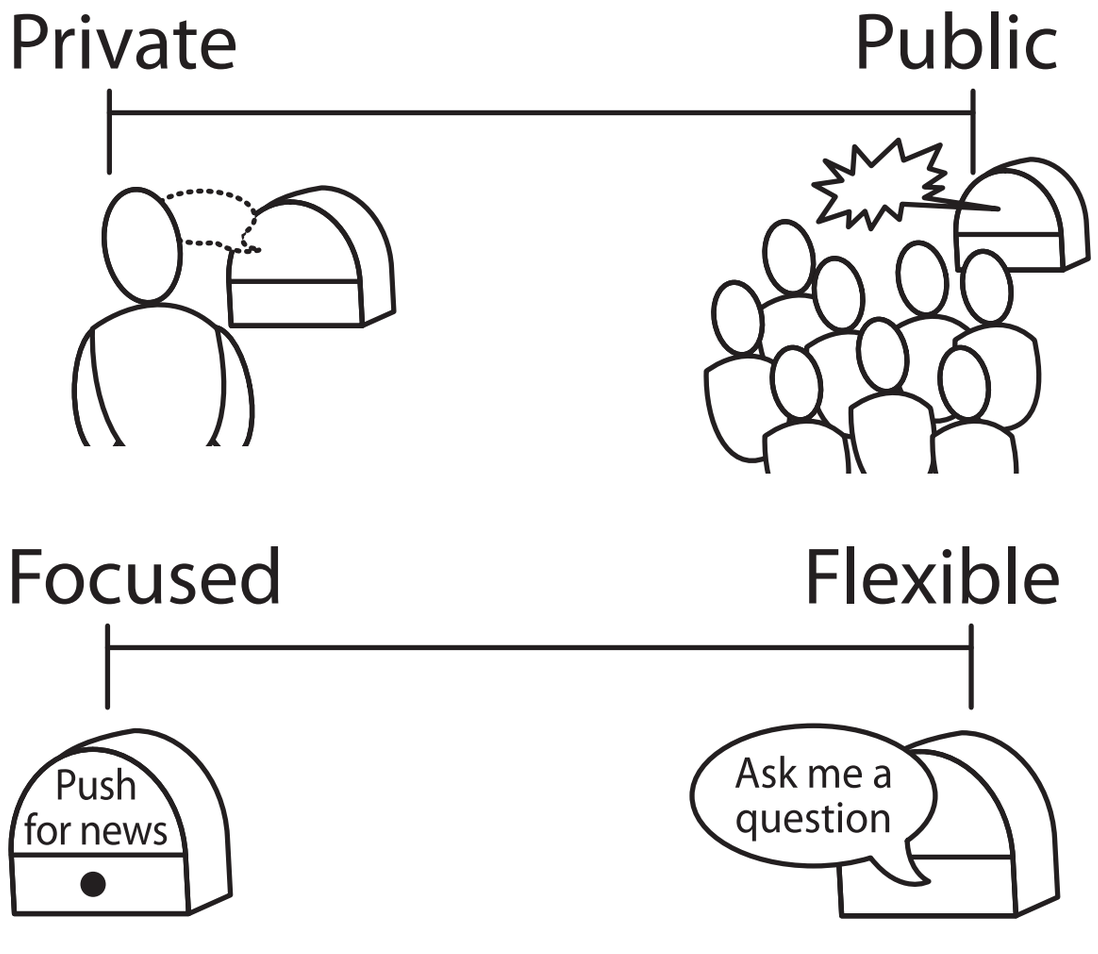
- 45-minute technology walk
  - Where might speech devices be placed?
  - Role-play
- Reflect on use-cases and potential services

Insights and Observations

- Practicalities
- Socioeconomic sensitivities
- Training and education
- Applications

Design Space





Deployed probe

Deployed Probe

- Wizard-of-Oz
- Speaker + phone + wizards

Locations

- Dharavi
  - Busy public square
- Chaitanya Nagar
  - Cafe
  - Snack shop

Google से प्रश्न पूछें

Deployed Probe

Types of Interactions

- Basic facts
- Context-specific queries
- Domain-specific queries
- Philosophical questions

Results

- Similarities/differences with mainstream use
  - Types of queries
- Hole in the Wall experiments
  - Group use
  - Query similarities
  - External factors

Challenges and Limitations

- Multiple users
- Privacy
- Awareness of system scope
- Query elicitation
- Long-term sustainability

Conclusions

- Potential benefits
- Balanced with other modalities
- This work shows first steps

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