

EVALUATING DEFORMABLE DEVICES WITH EMERGENT USERS

Jennifer Pearson, Simon Robinson,
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EMERGENT USERS

- Typically from Developing Regions
- Just starting to get their hands on smart devices and services

Devanuj and Anirudha Joshi. 2013. Technology adoption by 'emergent' users: the user-usage model. In *Proceedings of the 11th Asia Pacific Conference on Computer Human Interaction (APCHI '13)*

CHALLENGES

A group of men are sitting on the floor in a brick building, engaged in a discussion. One man in a checkered shirt is speaking to the others. The background shows a brick wall and a window with a view of greenery.

- Low-literacy
- Low disposable income
- Little technology exposure
- Intermittent power
- Low internet connectivity (mobile and fixed line)
- Dangerous environments

TRADITIONAL HCI



- **Build something based on gaps in knowledge, problems with current systems or feedback from probes**

TRADITIONAL HCI **4D**

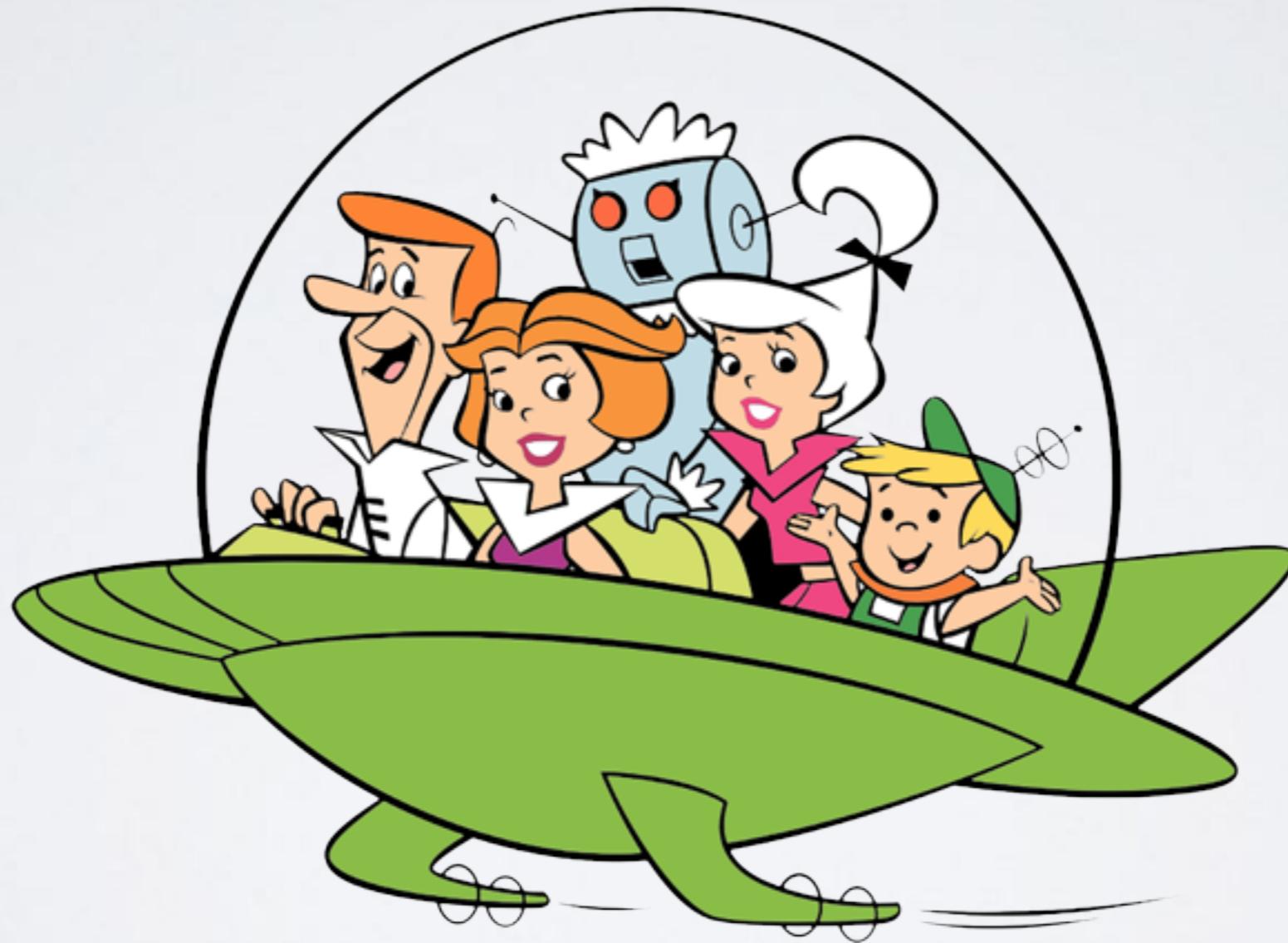
- Innovating mobile solutions using current or older tech; adapting or appropriating where appropriate



IN CONTRAST...



In “developed” contexts with “resource rich” communities



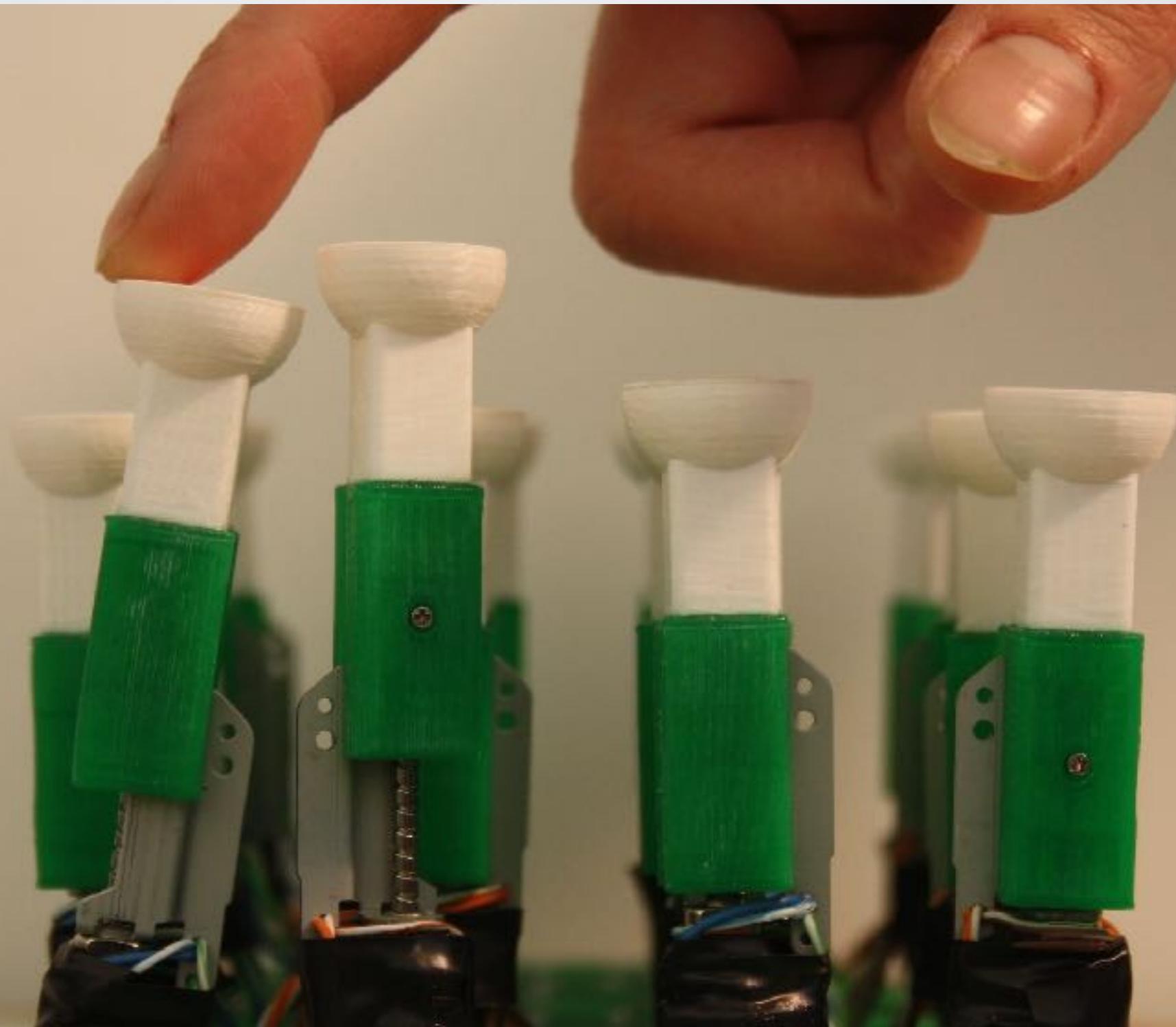
A photograph of a multi-tiered waterfall cascading over rocks in a forest. The water is captured with a long exposure, creating a soft, blurred effect. The rocks are dark and wet, and the surrounding forest is lush with green foliage. A tree trunk is visible on the right side of the frame.

TRICKLE DOWN TECHNOLOGY

HCI4D: OUR VIEW

- **Unique perspectives**
- **Directly involve emergent users in the creation of far-off future devices and services**

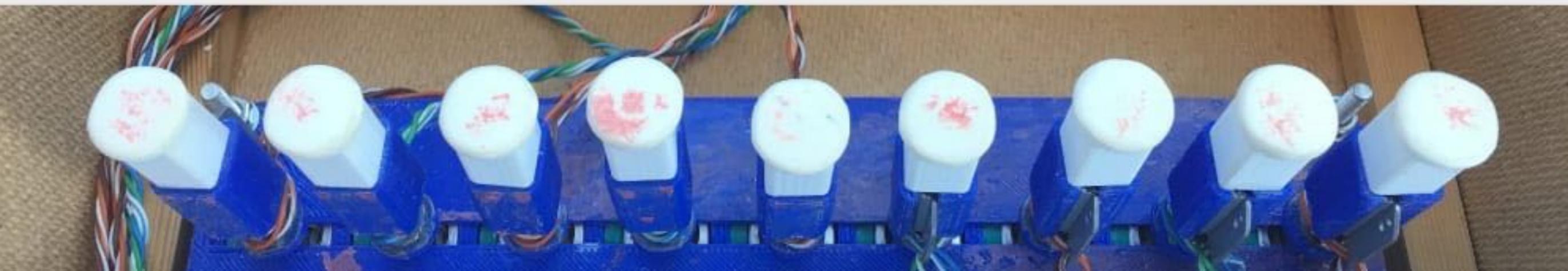
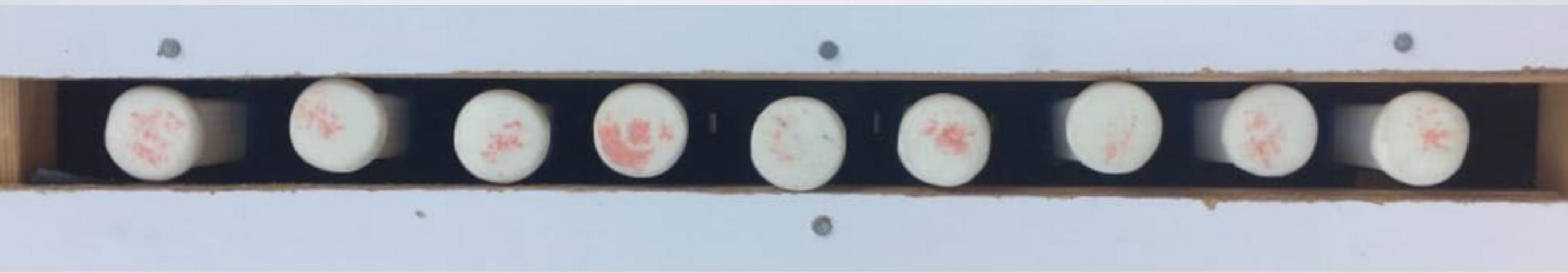
FROM EMERGENT USERS TO EMERGEABLE DEVICES



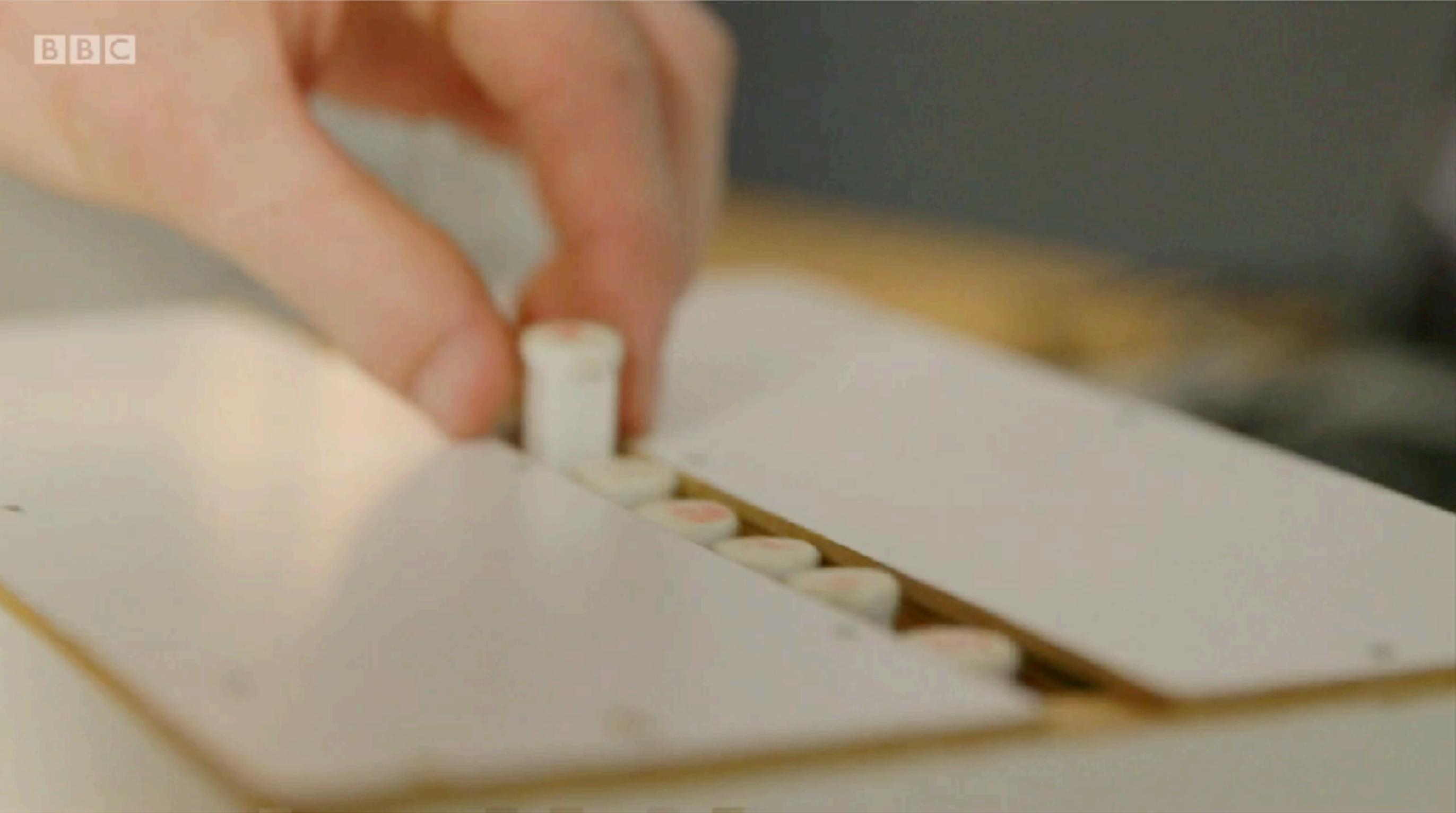


Simon Robinson, Céline Coutrix, Jennifer Pearson, Juan Rosso, Matheus Fernandes Torquato, Laurence Nigay and Matt Jones. 2016. Emergeables: Deformable displays for continuous eyes-free mobile interaction. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16)

EMERGEABLE SLIDER V2

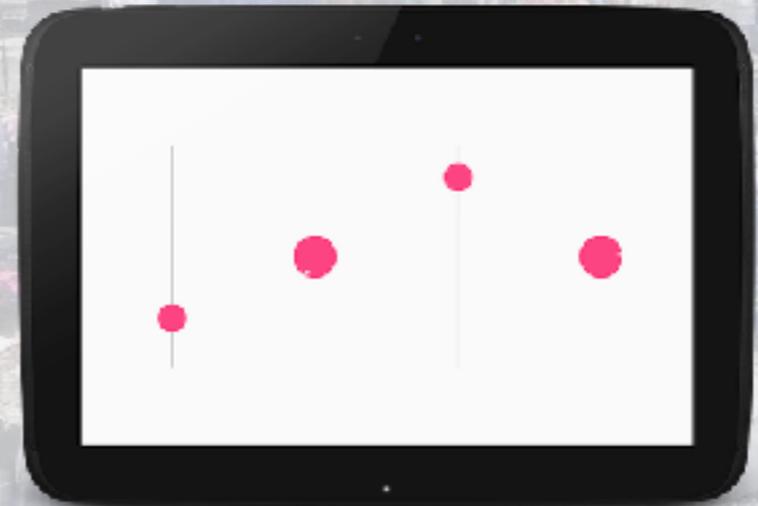


BBC



COMPARISON EVALUATION

deformable slider vs touch screen slider

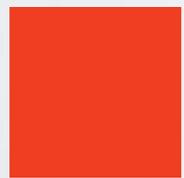
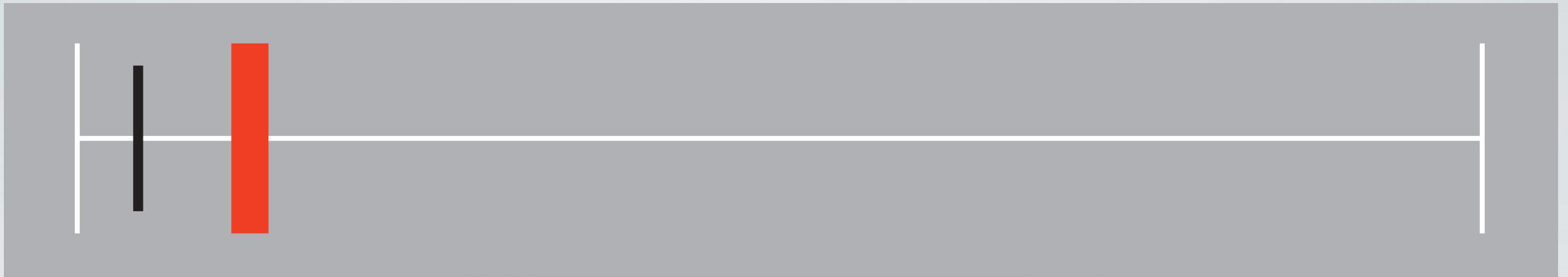


Matt Jones, Simon Robinson, Jennifer Pearson, Manjiri Joshi, Dani Raju, Charity Chao Mbogo, Sharon Wangari, Anirudha Joshi, Edward Cutrell and Richard Harper. 2017. Beyond “yesterday’s tomorrow”: future- focused mobile interaction design by and for emergent users. *Personal Ubiquitous Computing*.

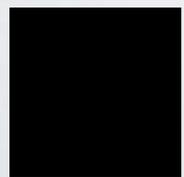
CROSS SITE TRIAL

Site	Highest Educational Attainment			Touchscreen Experience				Mobile Phone Ownership			
	Primary	Secondary	University	None	< 1 year	1-2 years	3+ years	None	Basic	Feature-phone	Smart-phone
UK	0%	31%	69%	0%	6%	0%	94%	0%	0%	0%	100%
South Africa	63%	37%	0%	88%	6%	6%	0%	31%	31%	38%	0%
India	69%	31%	0%	50%	38%	12%	0%	0%	38%	43%	19%

TASKS



target region



user cursor

PROCEDURE

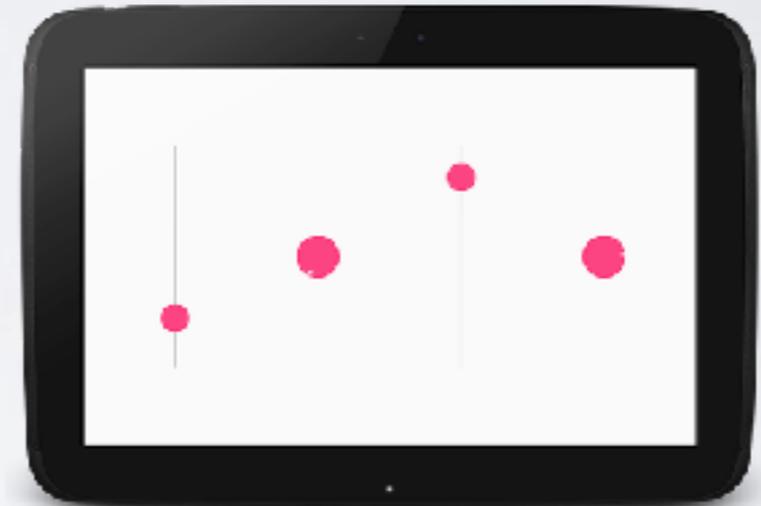


RESULTS

- Subjective Ratings (UK, India, South Africa)



5.3 / 10



7.1 / 10

RESULTS

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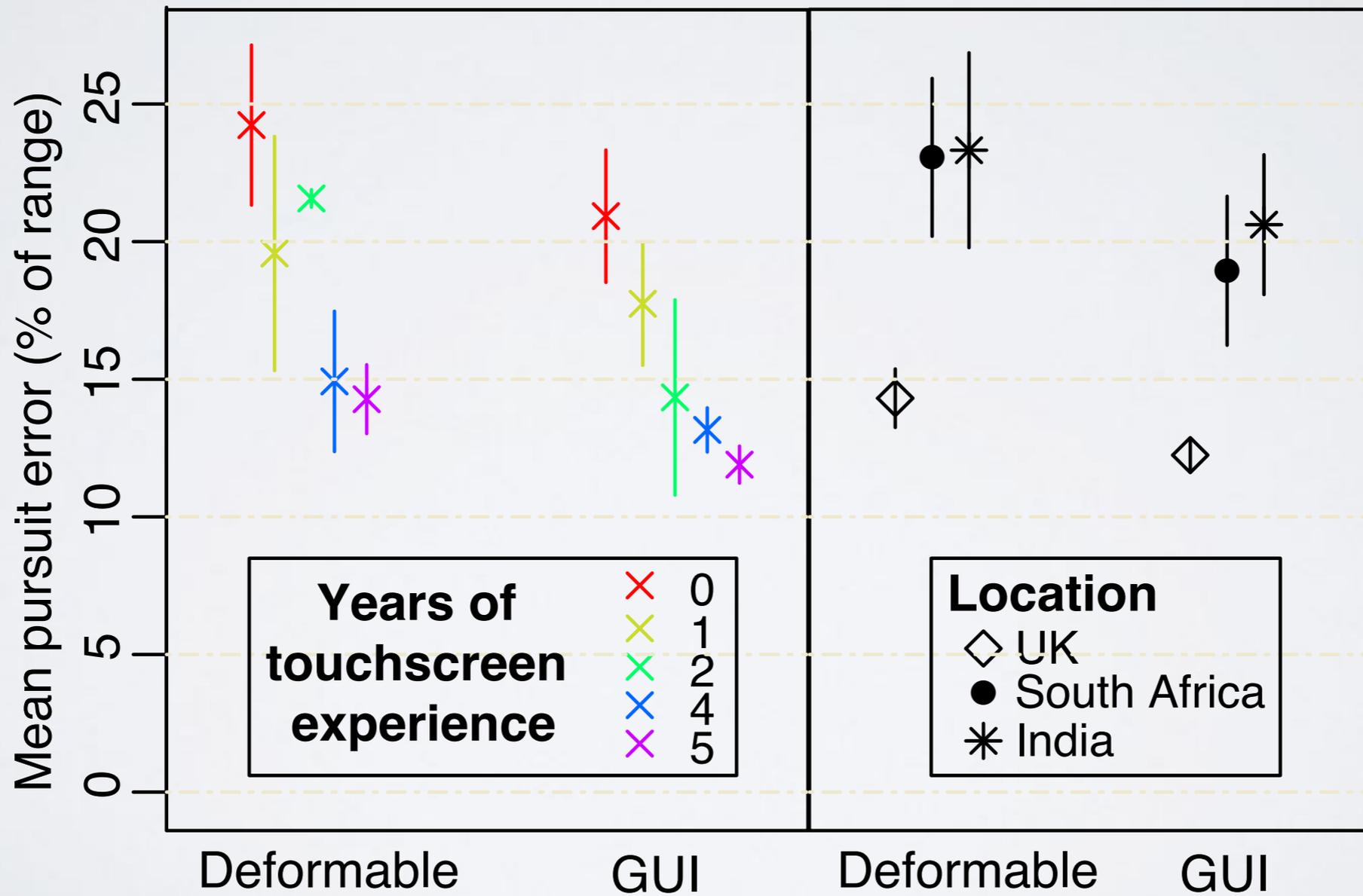
5.3 / 10



7.1 / 10

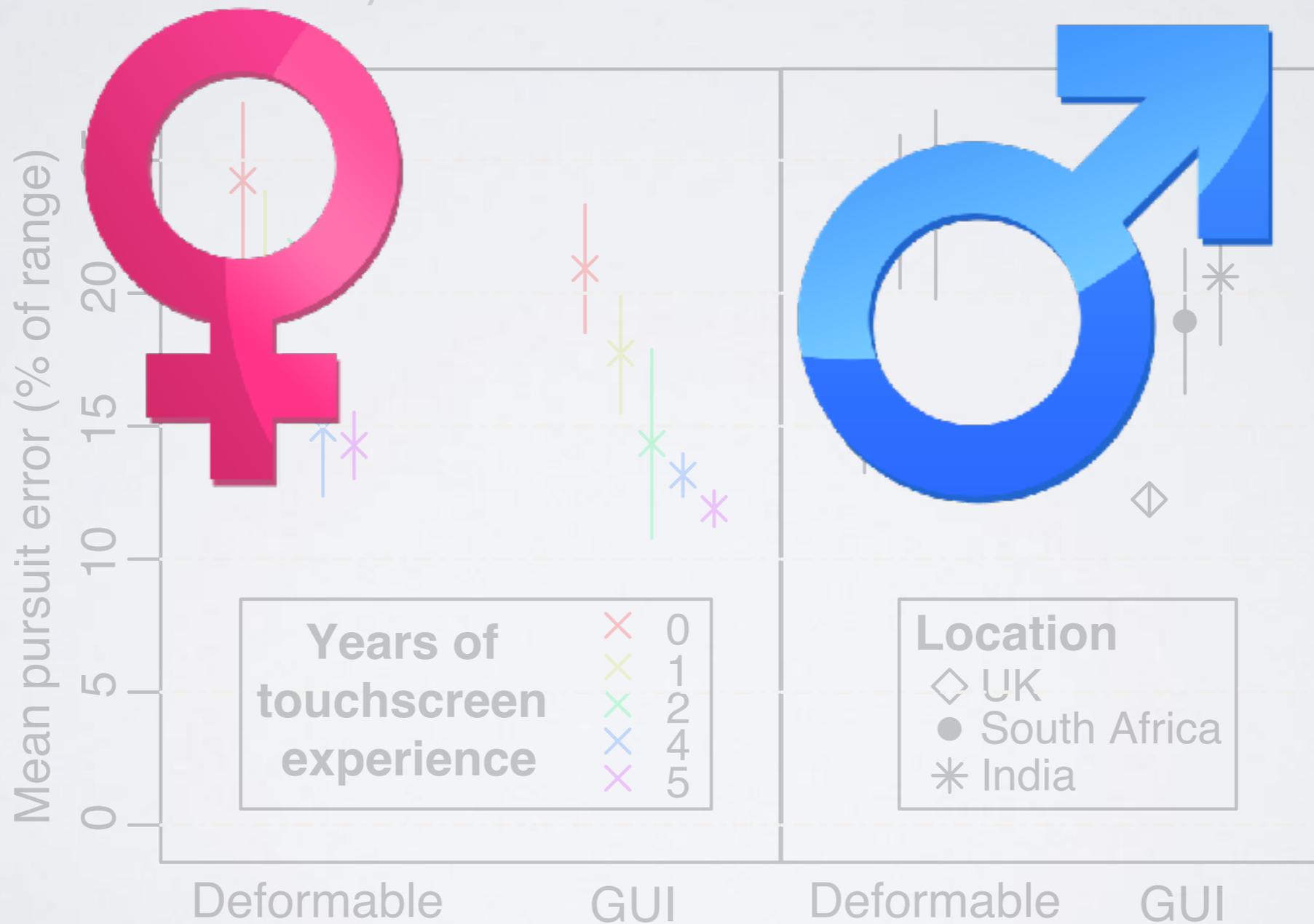
RESULTS

- Pursuit Accuracy



RESULTS

- Pursuit Accuracy



SUMMARY

A photograph of a densely packed informal settlement, likely a slum. The scene is characterized by a central concrete staircase that winds through the narrow, cluttered spaces between small, makeshift dwellings. Numerous items of laundry, including white and blue clothes, are hanging from lines strung across the area, partially obscuring the buildings. The structures appear to be made of various materials, including corrugated metal and wood. The overall atmosphere is one of a busy, crowded, and resource-poor environment.

- Emergent users
- Challenging environments
- Have a unique perspective

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