Drone Privacy

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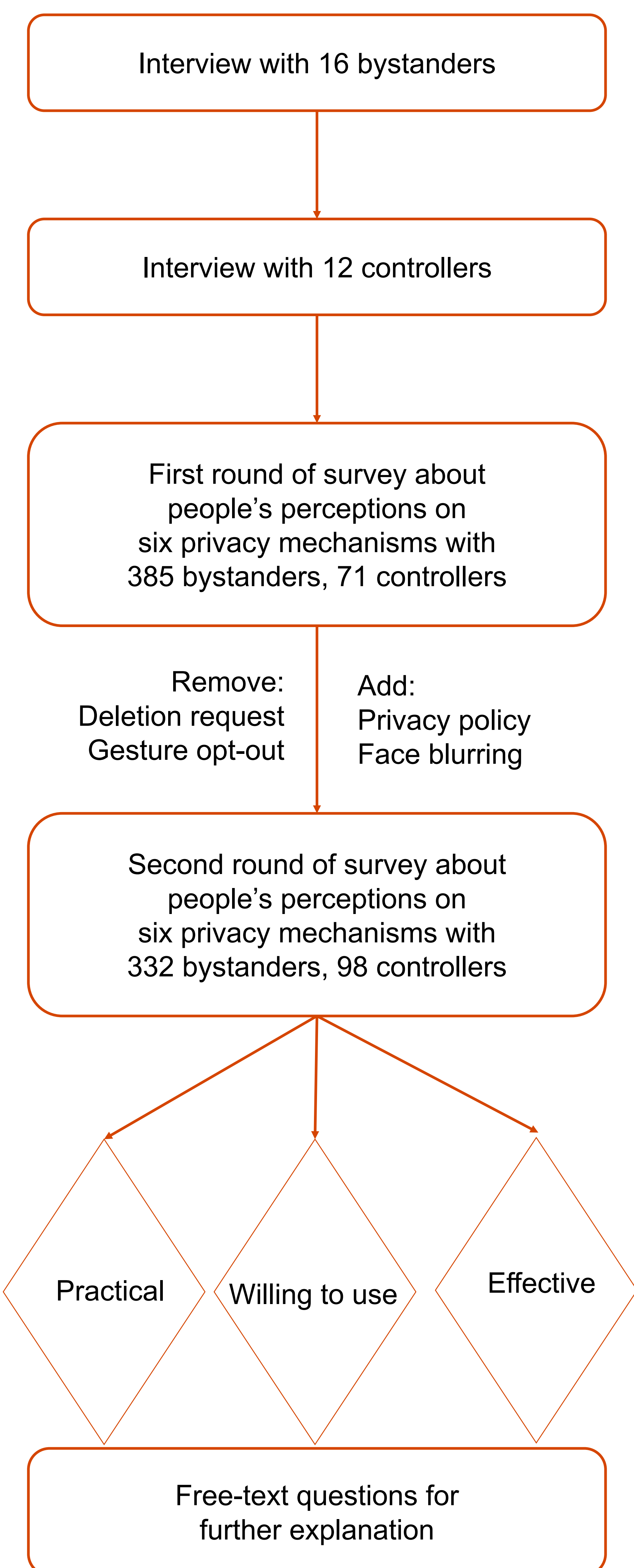Bystanders have various privacy concerns about drones [1]

Drone controllers felt privacy issues of drones exaggerated [2]

We surveyed people's perceptions of various privacy mechanisms for drones [3]
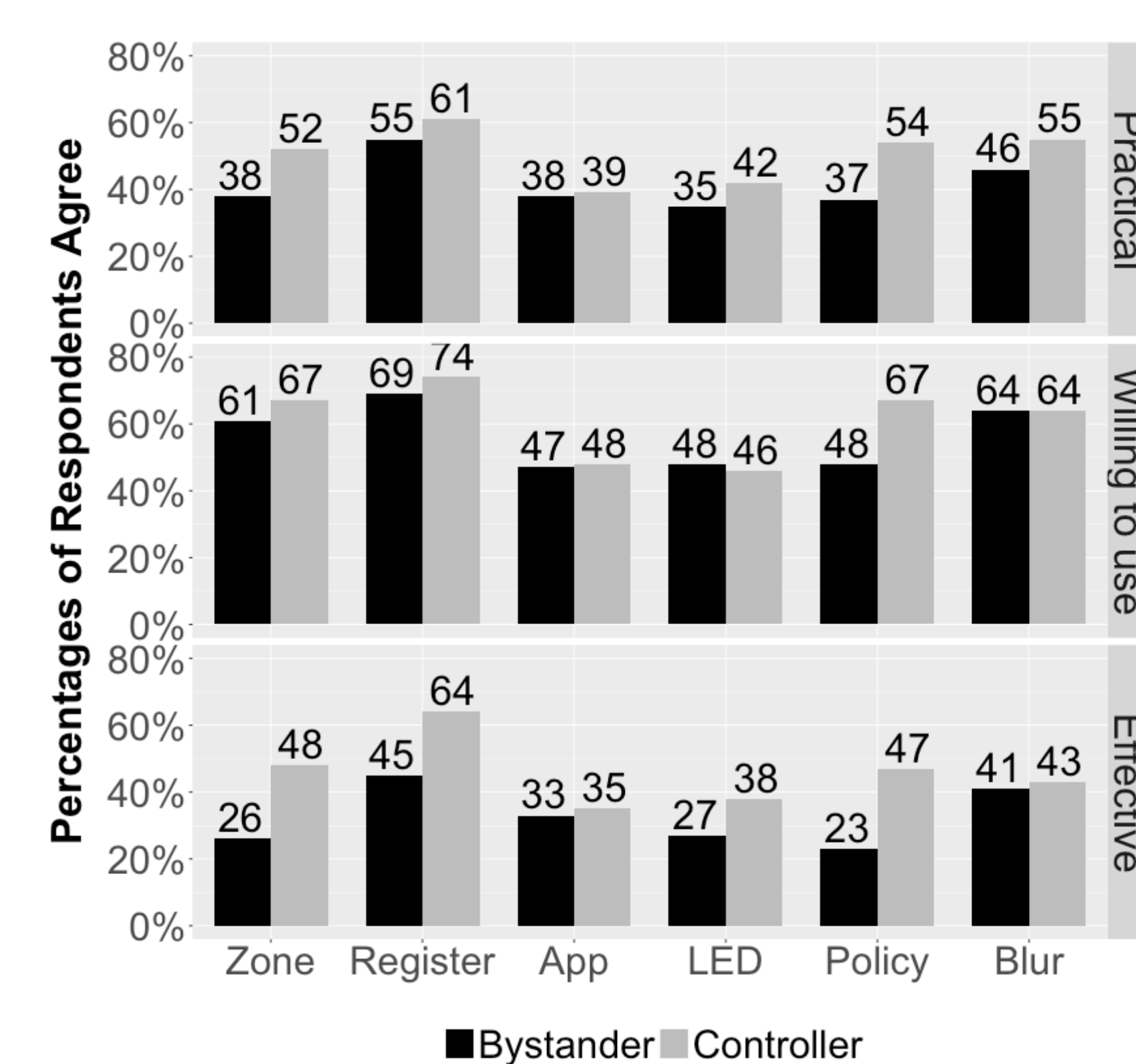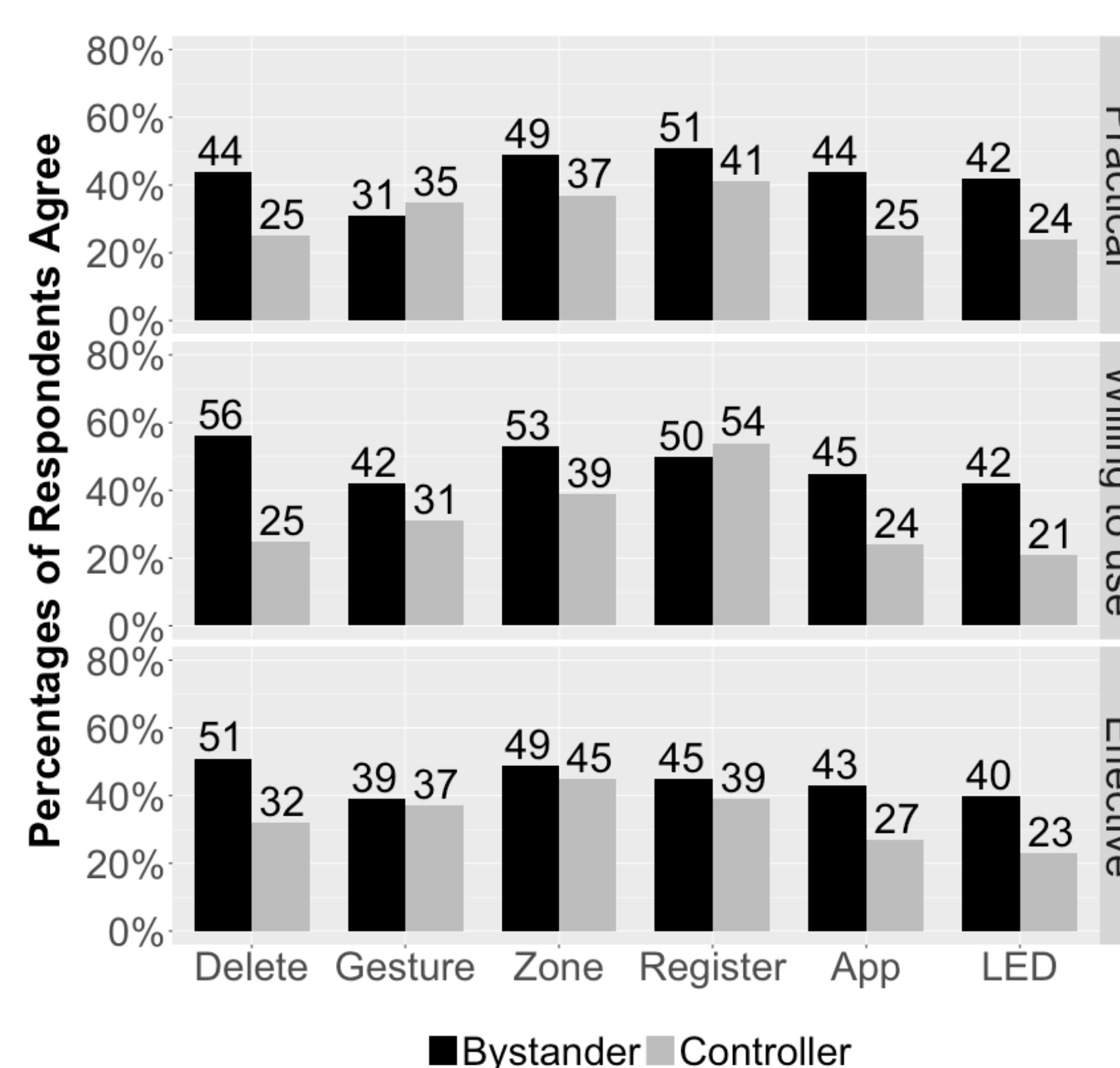
We found drone owner registration, no-fly-zone, and automatic face blurring promising [3]

Method

Interview with 16 bystanders

Interview with 12 controllers

First round of survey about people's perceptions on six privacy mechanisms with 385 bystanders, 71 controllers

Remove:
Deletion request
Gesture opt-out

Add:
Privacy policy
Face blurring

Second round of survey about people's perceptions on six privacy mechanisms with 332 bystanders, 98 controllers

Practical   Willing to use   Effective

Free-text questions for further explanation

Results

Example Mechanisms	Perceived Pros	Perceived Cons
Drone owner registration (Register)	+ Practical in tracking down controllers (both) + Similar mechanism in other domains (both) + Discourage irresponsible use (bystander) + Mechanism already in use (controller)	-Not directly protect privacy (both) -Privacy issue for controllers (controller)
No-fly-zone (Zone)	+ Simple and requires little effort (both) + Add control over controller (bystander) + Similar to no call list (both)	-No law enforcement (both) -Practical issues due to proximity (both) -Large amount of data (controller)
Automatic face blurring (Blur)	+ Effective hiding people's identity (both) + Make people fell more secure (bystander)	-Conflict with drones' original purpose (both) -Inaccurate facial recognition (controller) -Can be turned off (both)

Policy Implications

Improve controller-bystander trust

Enforce voluntary mechanisms

Reduce efforts to use privacy mechanisms

Consider privacy of controllers and bystanders

[1] Y. Wang, H. Xia, Yaxing Yao, Y. Huang. Flying Eyes and Hidden Controllers: A Qualitative Study of People's Privacy Perceptions of Civilian Drones in the US. PETS 2016.

[2] Y. Yao, H. Xia, Y. Huang, Y. Wang. Free to Fly in Public Spaces: Drone Controllers' Privacy Perceptions and Practices. CHI2017.

[3] Y. Yao, H. Xia, Y. Huang, Y. Wang. Privacy Mechanisms for Drones: Perceptions of Drone Controllers and Bystanders in the U.S. CHI2017.

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