

Designing the Informing Process with Streamers and Bystanders in Live Streaming

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Live streaming allows users to create, share and watch videos in real time.

Have you ever been live streamed?

bystander

streamer



Were you informed?

Existing papers: informing bystanders
(Faklaris et al., 2020; Park et al., 2023; Marky et al., 2022)

Our paper: informing bystanders & streamers



Research Questions

RQ1: What **needs, challenges and constraints** of informing do **streamers and bystanders** have when it comes to bystander privacy in live streaming?

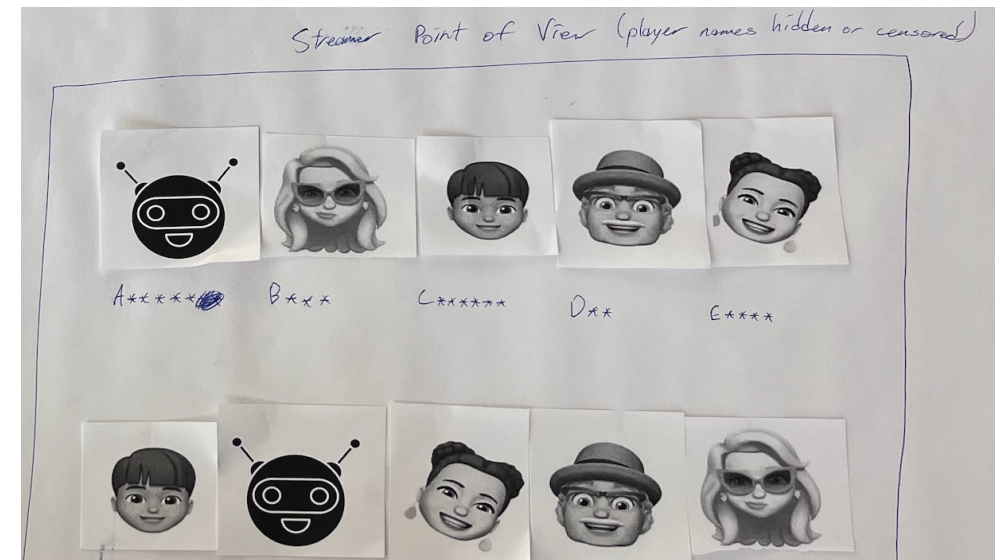
RQ2: What **design** do **streamers and bystanders** envision to address these needs, challenges and constraints?

Method

- Design ideation sessions with a total of 21 participants, including streamers and bystanders
 - Warm-up activity:
 - bystanders' privacy challenges
 - Design ideation activity: informing features
- Thematic analysis

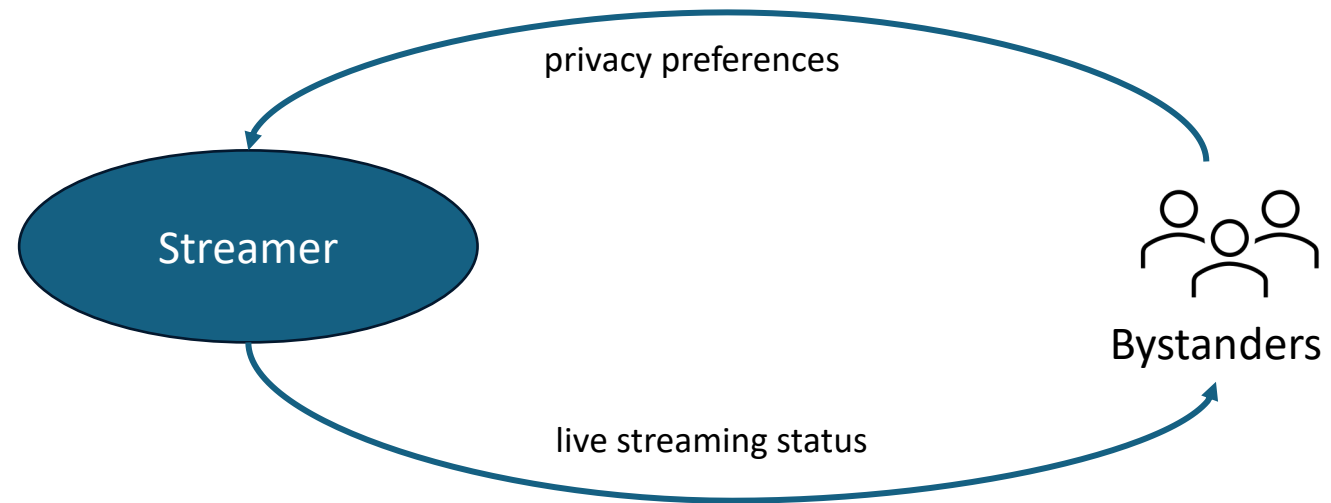


One of our design ideation sessions

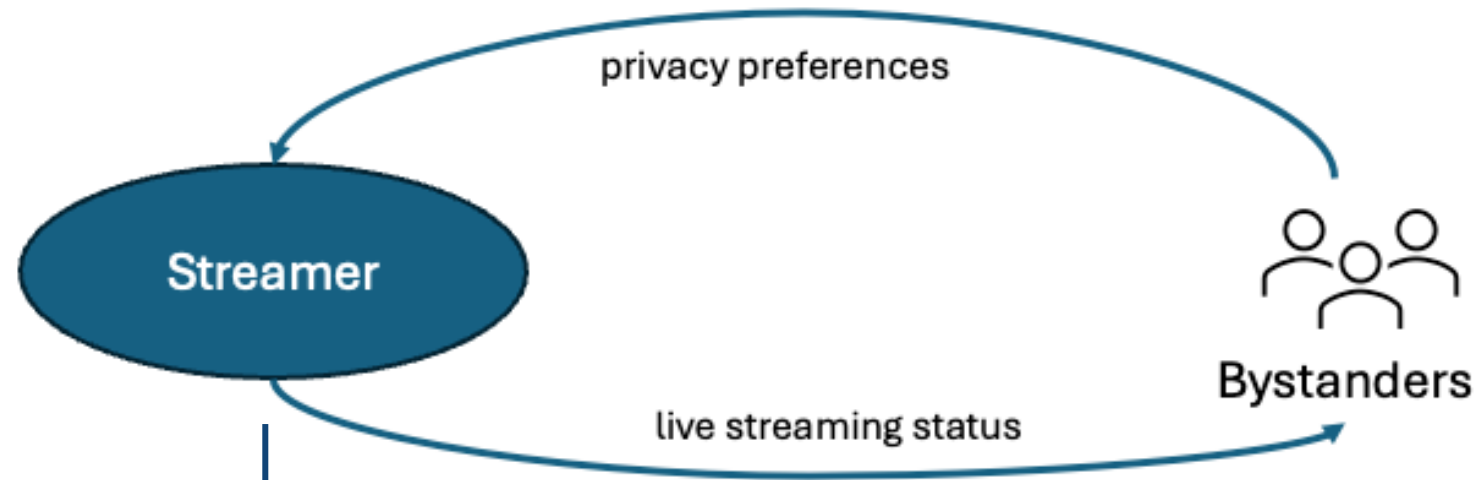


An example of the participant's original design

The Bilateral Communication Informing Loop

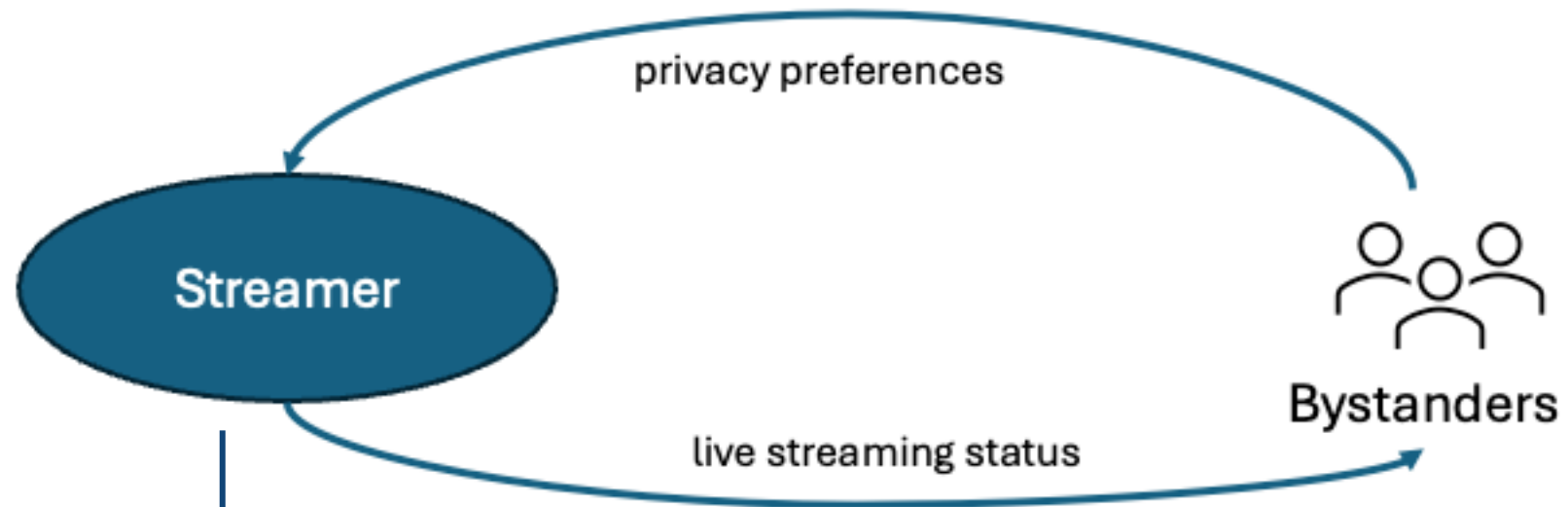


Challenges & Constrains in the Informing Loop



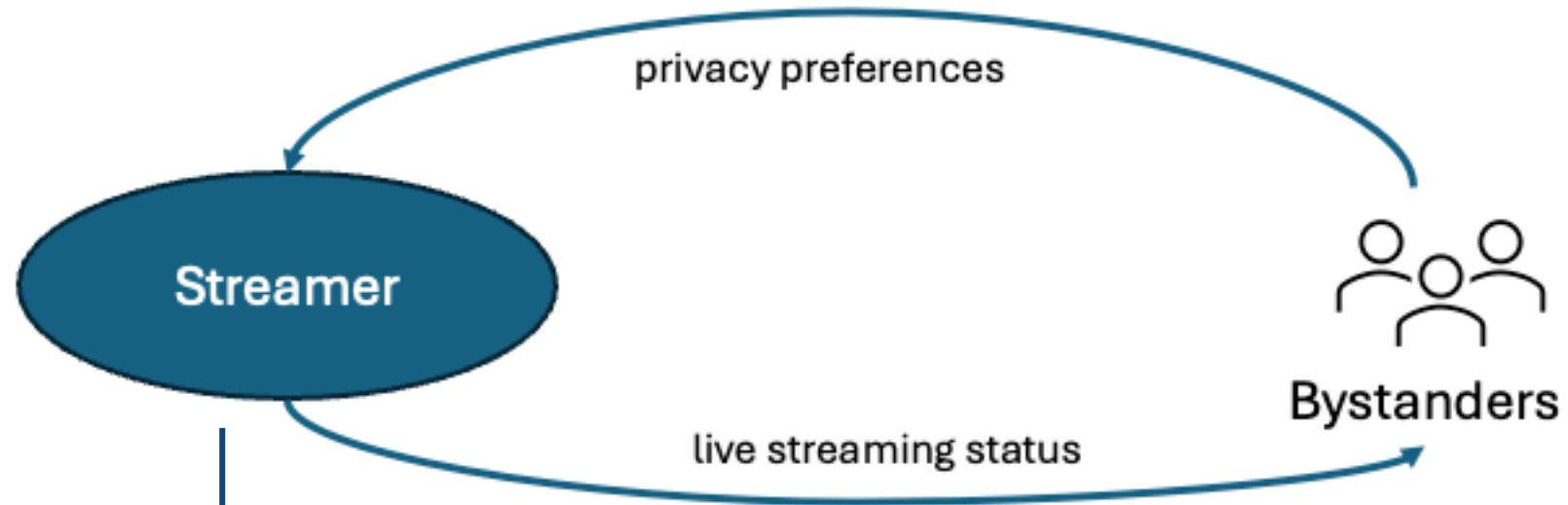
- Cognitive burden:
 - Real-time performance and interaction require streamers to focus on streaming activities
- No clear regulation
- Don't know how

Challenges & Constrains in the Informing Loop



- Cognitive burden
- No clear regulation:
 - Require streamers to inform bystanders, especially in public spaces
- Don't know how

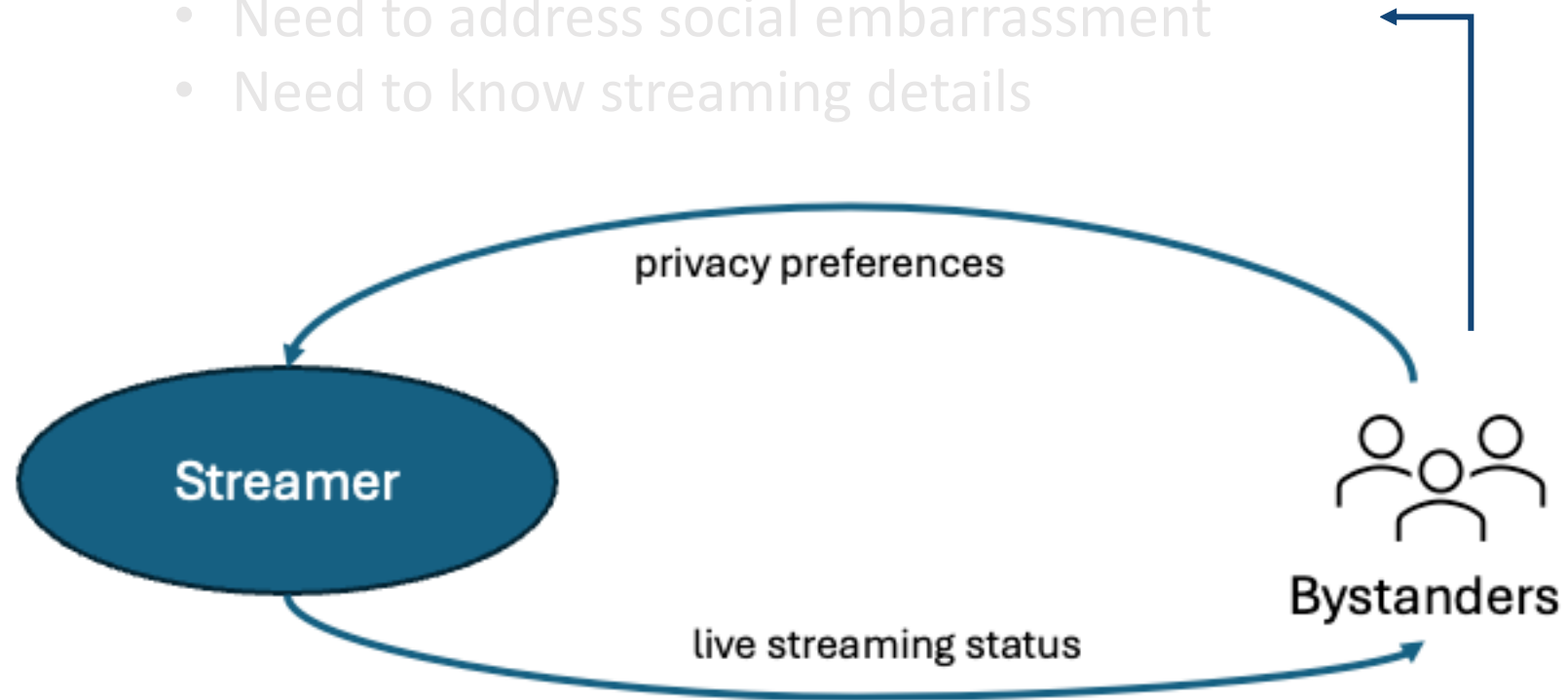
Challenges & Constrains in the Informing Loop



- Cognitive burden
- No clear regulation
- Don't know bystanders & how to contact unknown bystanders

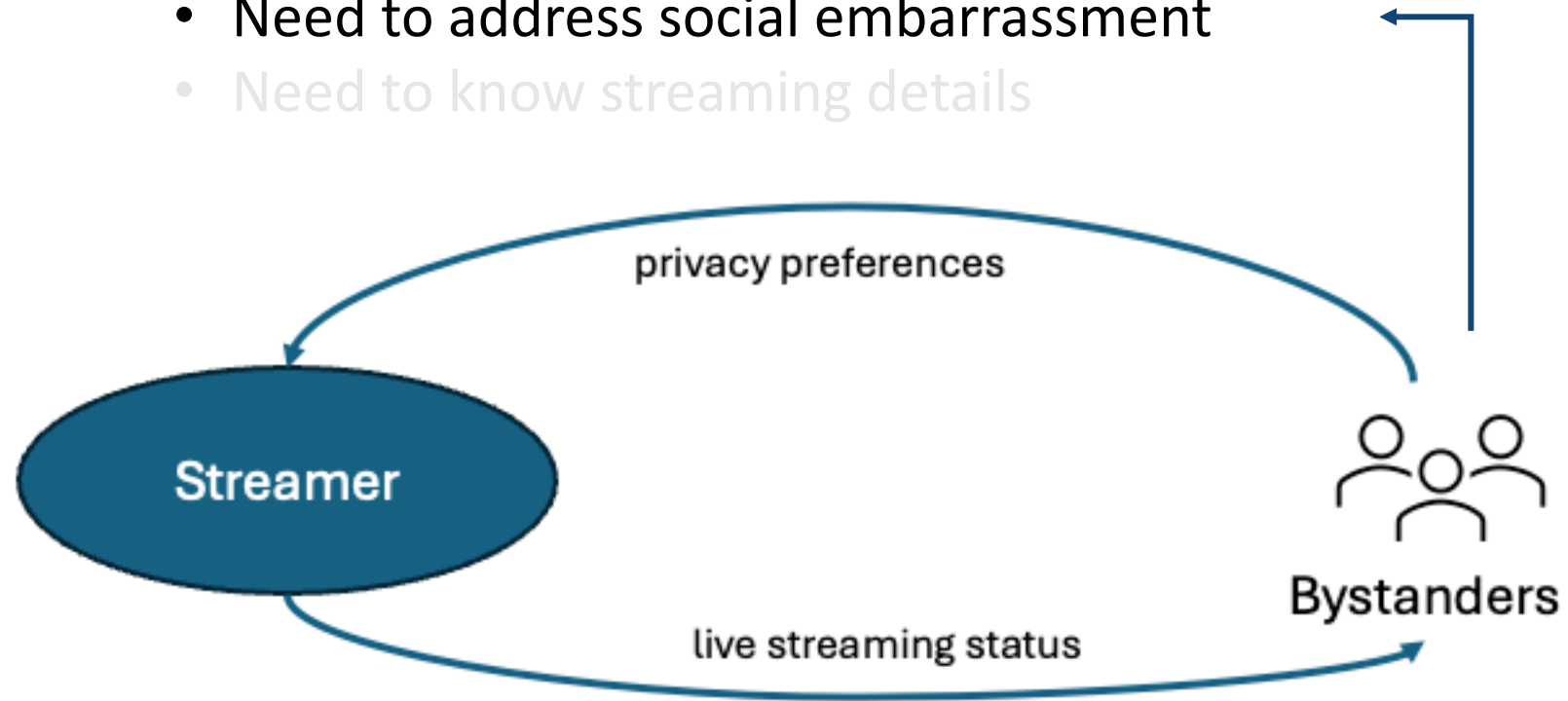
Needs in the Informing Loop

- Need ways to express consent
- Need to address social embarrassment
- Need to know streaming details



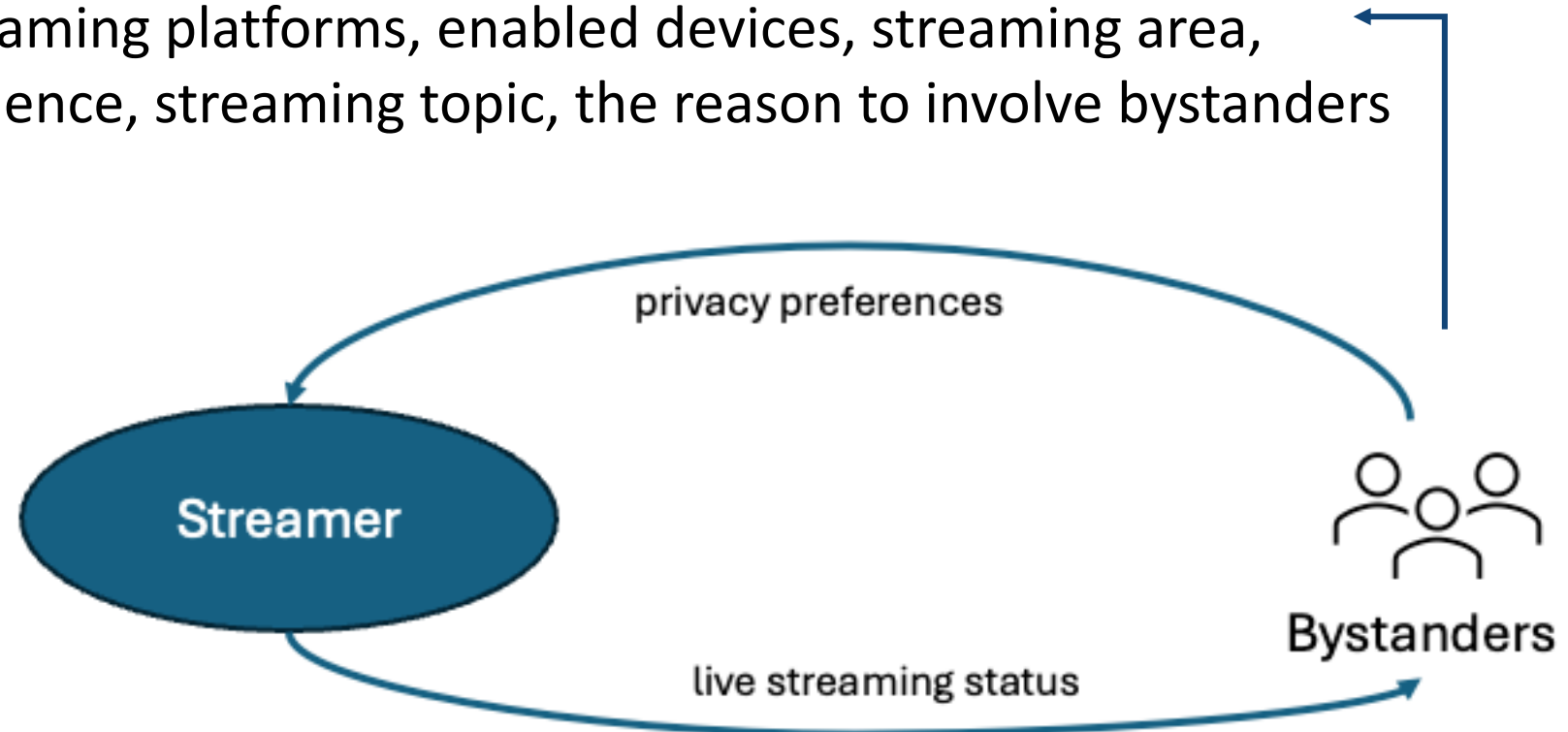
Needs in the Informing Loop

- Need ways to express consent
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Needs in the Informing Loop

- Need ways to express consent
- Need to address social embarrassment
- Need to know streaming details:
 - Streaming platforms, enabled devices, streaming area, audience, streaming topic, the reason to involve bystanders

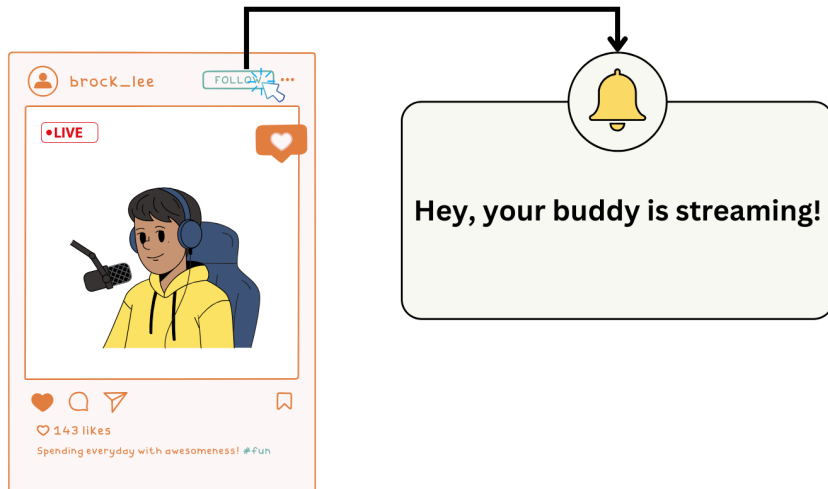




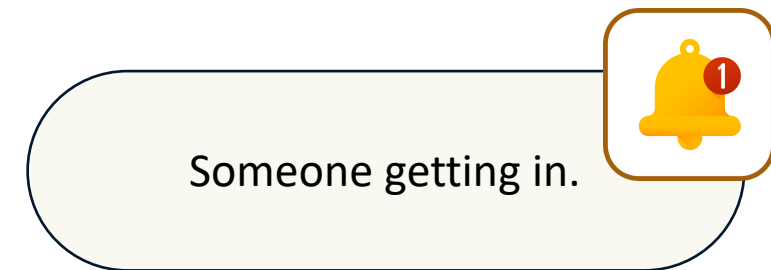
What are the streamers and bystanders **desired design solutions** regarding informing?

Platforms-Initiated Automatic Alerts

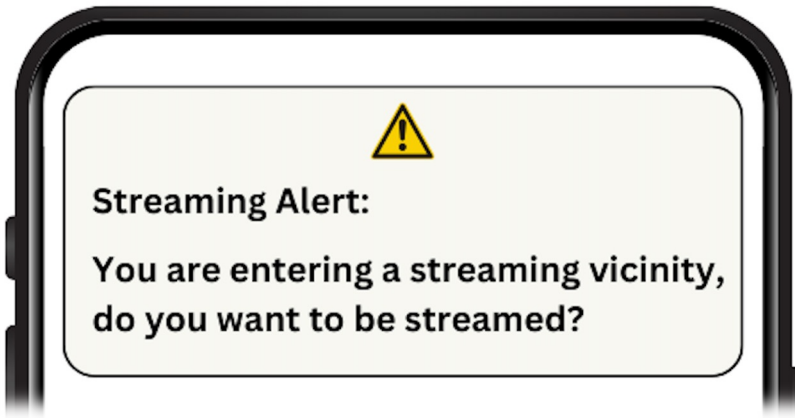
For bystanders:
Alerting bystanders before streaming



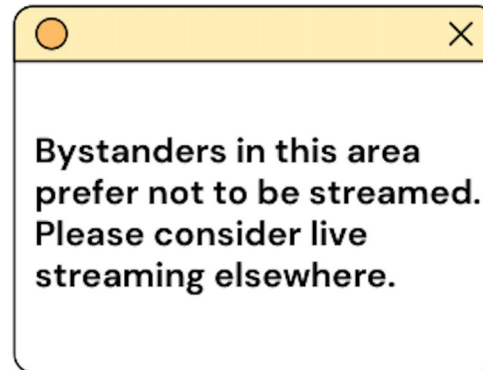
For streamers:
Alerting streamers of bystanders' involvement



Embedded Communication Channels to Inform

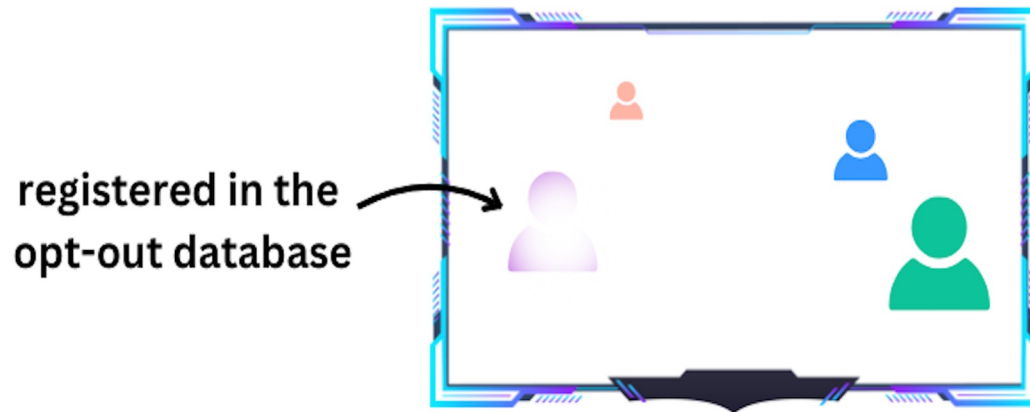


For bystanders & streamers:
One-on-one messaging

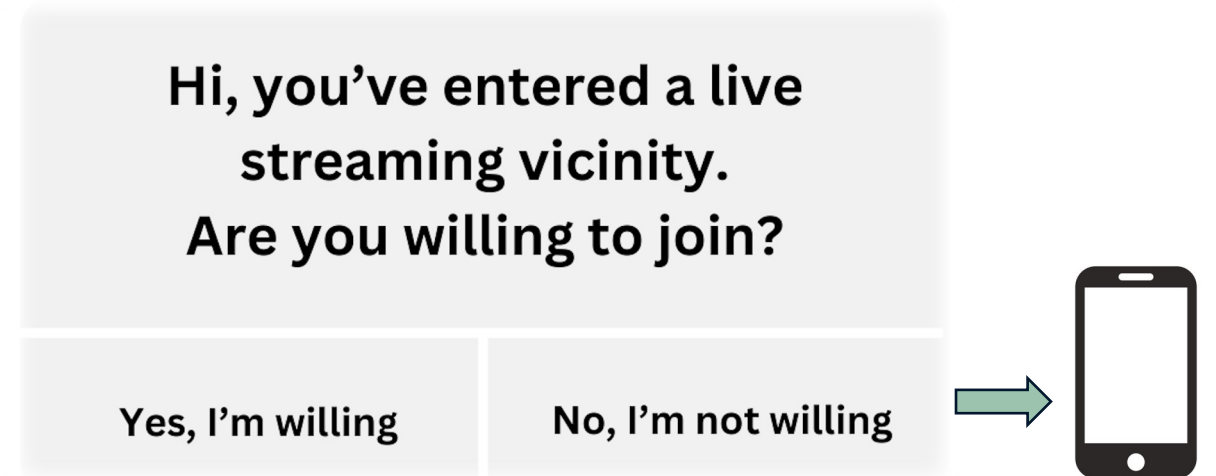


For bystanders:
One-to-many indicator

Embarrassment-Free Bystander Privacy Expression

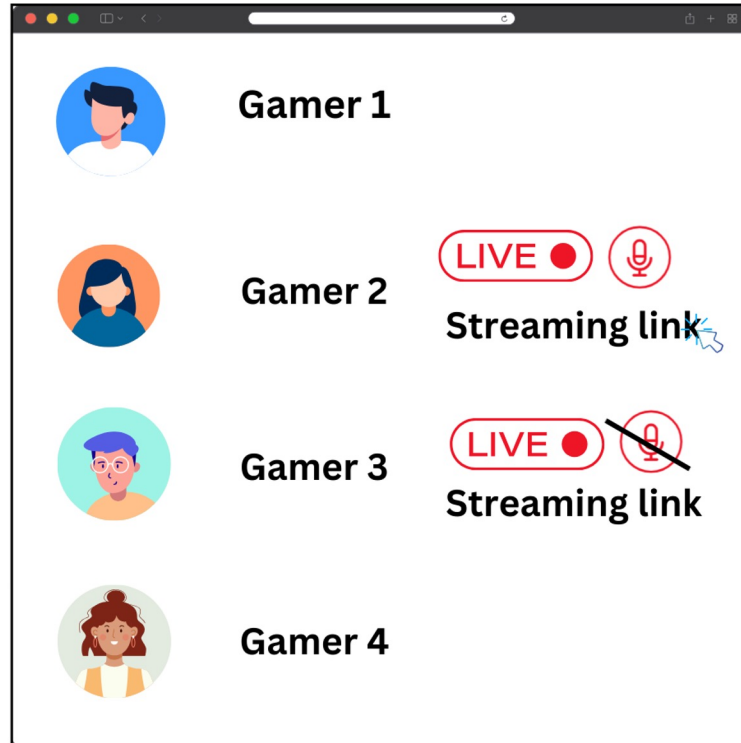


Bystanders' one-sided opt-out

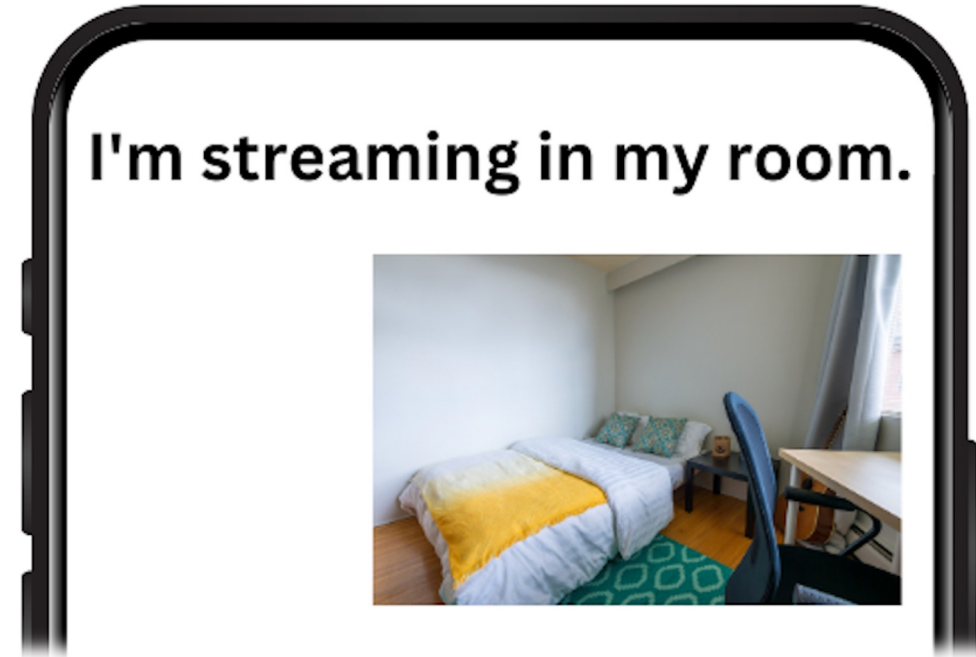


Sending the consent to the device, not to the streamer

Providing Details in Streamer's Informing



Streaming platform, audience size
streaming status, microphone status,



Streaming area where
bystanders may be captured



BIG TAKEAWAYS






The informing process should adapt to contextual factors.

e.g., public space: one-to-many

private space: one-on-one

streamer is busy: platform-initiated automatic alerts



The informing process should ensure **mutual transparency** by providing sufficient details for both streamers and bystanders:

e.g., for streamers:

communication channels to understand bystanders' preferences

for bystanders:

streaming links, icons, messages



The informing design should mediate the communication barriers between streamers and bystanders, especially through third parties.

e.g., opt-out database,
notify the device not the streamer



Broader Implications on Other Synchronous Information Disclosure Contexts



**On the job market this fall.
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