Prototype "Safe Screenshot Capture"

Jeremy Nguyen, https://www.cartoonstock.com/directory/s/selling_personal_data.asp

https://en.roth-cartoons.de/project/cartoon-caricature-privacy-data-protection/

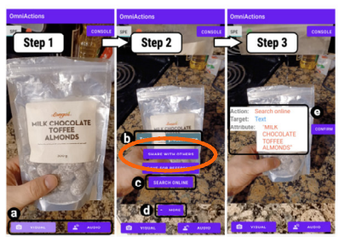


Figure 12: *OmniActions*'s user interface, wherein (a-e) a user could search for the product name on the bag of chocolate by selecting the follow-up actions suggested by the system.

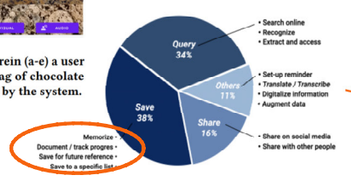


Figure 4: Frequencies of the 13 follow-up actions generated during the workshop (n = 170) that were grouped into 4 categories.

4. OmniActio... Source: J. N. Li, Y. Xu, T. Grossman, S. Santosa, und M. Li, **„OmniActions: Predicting Digital Actions in Response to Real-World Multimodal Sensory Inputs with LLMs"**, in Proceedings of the CHI Conference on Human Factors in Computing Systems, Honolulu HI USA: ACM, Mai 2024, S. 1–22. doi: 10.1145/3613904.3642068.

"People often exchange parts of their privacy for advantages in the use of technologies."

2. How Acceptabl... Source: V. Distler, C. Lallemand, und V. Koenig, **„How Acceptable Is This? How User Experience Factors Can Broaden our Understanding of The Acceptance of Privacy Trade-offs"**, Computers in Human Behavior, Bd. 106, S. 106227, Mai 2020, doi: 10.1016/j.chb.2019.106227

Motivation

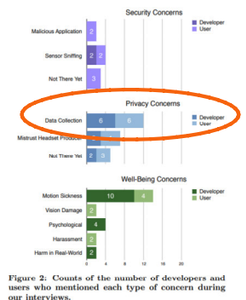
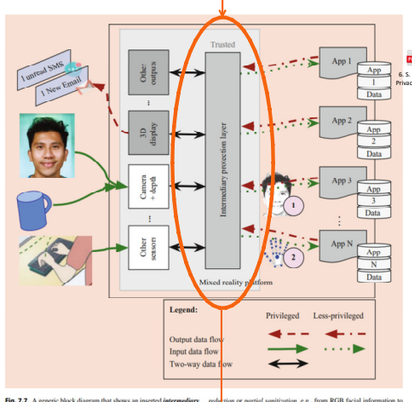


Figure 2: Counts of the number of developers and users who mentioned each type of concern during our interviews.

1. Ethics Emerging-... Source: D. Adams, A. Bah, und C. Barwulor, **„Ethics Emerging: the Story of Privacy and Security Perceptions in Virtual Reality"**.

Kodex for XR Apps

- ***Do no Harm,***
- ***Secure the Experience,***
- ***Be Transparent About Data Collection,***
- ***Ask for Permission,***
- ***Keep the Nausea Away,***
- ***Diversity of Representation,***
- ***Social Spaces, Accessibility for All,***
- ***User-Centric User Design and Experience***
- ***Proactive Innovation.***



6. 5. 157-Privacy an... Source: J. A. D. Guzman, K. Thilakarathna, und A. Seneviratne, **„Privacy and Security Issues and Solutions for Mixed Reality Applications"**, in Springer Handbook of Augmented Reality, A. Y. C. Nee und S. K. Ong, Hrsg., in Springer Handbooks , Cham: Springer International Publishing, 2023, S. 157–183. doi: 10.1007/978-3-030-67822-7_7

Fig. 7.7 A generic block diagram that shows an inserted ***intermediary protection*** layer between the applications and device resources. Example strategies for input protection are also shown: (1) *information reduction* or *partial sanitization*, e.g., from RGB facial information to facial outline only, or (2) skeletal information instead of raw hand video capture

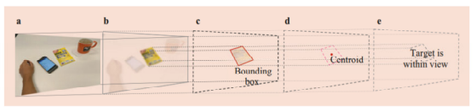
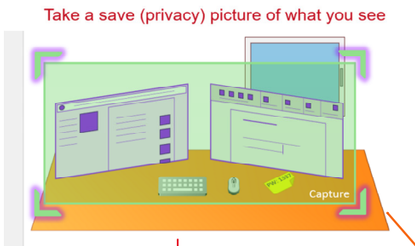
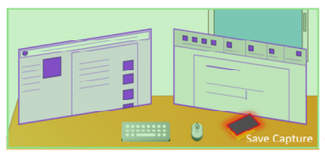


Fig. 7.8 Diminishing information: (**a**) the raw visual capture; (**b**) the target is cropped out but still with complete visual information of the target; (**c**) only the bounding box of the target is exposed; (**d**) only the centroid of the target is exposed; and (**e**) only the binary presence, whether the target is within view or not, is exposed

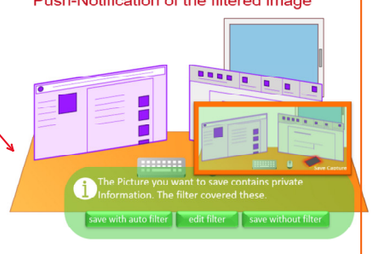
Take a save (privacy) picture of what you see



Filter covers private information



Push-Notification of the filtered image



Idea

Save Screenshot Capture in AR

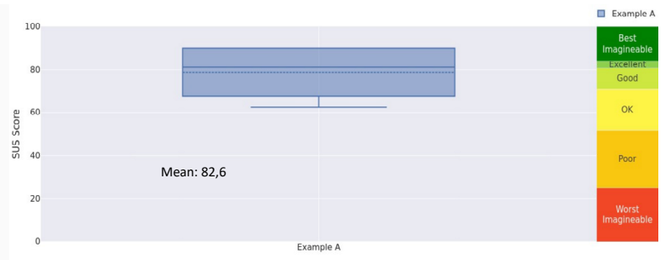
Implementation Overview

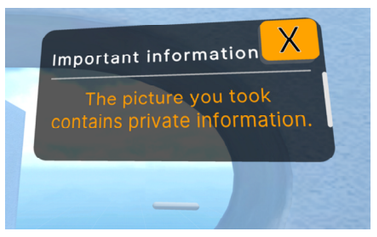
Build with Unity + XR Interaction Toolkit

Mock Screenshot Capture App

Get Feedback in Tests

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I think that I would like to use this system frequently.	25%	50%			25%
I found the system unnecessarily complex.	50%		25%		25%
I thought the system was easy to use.	25%	25%	25%		25%
I think that I would need the support of a technical person to be able to use this system.	75%				25%
I found the various functions in this system were well integrated.	75%				25%
I thought there was too much inconsistency in this system.	75%				25%
I would imagine that most people would learn to use this system very quickly.	25%	50%			25%
I found the system very cumbersome to use.	50%		25%		25%
I felt very confident using the system.	75%				25%
I needed to learn a lot of things before I could get going with this system.	25%	75%			





Do you think you would be more aware of private information in photos you take?
- P1: -
- P2: no, because I would rely on the software
- P3: propbably yes but only for the direct moment after using the system. in the future i will propably use the awareness again
- P4: Yes definitely

How do you feel about the notification at first?
- P1: Did not notice it
- P2: (positive)
- P3: it actually was outside of my view just in the upper corner of my view, therefore hard to read
- P4: Was appearing in my peripheral vision. Need to appear in front of my face

Additional Improvement Feedback
- stick the Notification and Screenshot Window togehter
- Add a Controller overview at the Start

Mock Scenario

You walk into the office and notice that your colleagues have left it in a mess.

Take Screenshots of the untidy room, in order to send them the evidence.

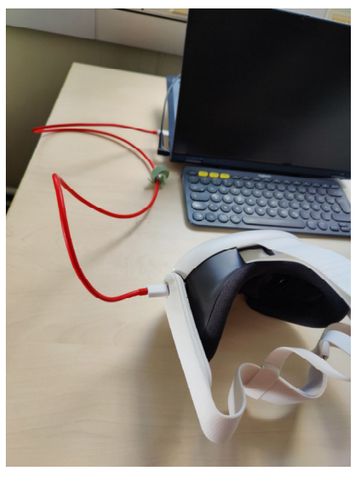
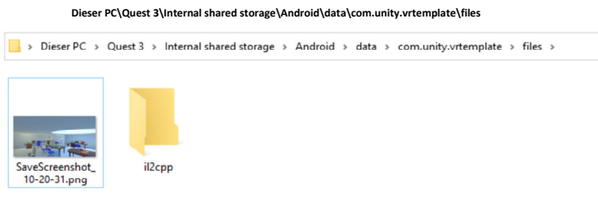
Application SaveScreenCapture Demo

Take save Screenshot

Edit Filter - Covers

Access the Data (Prototype)

Connecting the HMD to the Computer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