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COMMENTARY

Adopting smart glasses responsibly: potential benefits, ethical, and privacy concerns with Ray-Ban stories

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Abstract

The adoption of innovative wearable technologies is potentially increasing as a new trend. Jumping into the augmented reality (AR) and Metaverse, Facebook (now known as Meta) launched smart glasses partnering with Ray-Ban sunglasses brand's parent company EssilorLuxottica. Ray-Ban stories has several technical features for entertainment and socializing; more importantly, these features can be adopted in the future for more advanced wearable. However, these smart glasses also came with many ethical and privacy concerns along with their potential benefits. Furthermore, the unbridled deployment of these smart glasses brought several challenging questions for public social interaction when we will have more such devices in our lives. This short article has discussed the Ray-Ban stories' ethical and privacy issues for social interaction and public places.

Keywords Ray-Ban stories · Facebook smart glasses · Meta · Privacy issues

After 7 years of Google Glass and 5 years of Snap Spectacles, Facebook (now Meta) launched smart glasses with iconic eyewear Ray-Ban maker EssilorLuxottica, jumping into the augmented reality race. This partnership is a seminal event as it is the beginning of the alliance that could play a significant role in developing augmented reality (AR) devices for decades to come. Of course, these are just "smart glasses," not specifically AR smart glasses (ARSGs), but this partnership represents the first steps into what could become the future of ARSGs with two of the world's biggest companies involved. Whether you want to live a hands-free life or are just in love with stylish glasses, Ray-Ban stories is one of the latest tech innovations indeed. Instead of fumbling with the smartphone, these smart glasses can keep the user present in whatever moments the camera needs to capture.

The specs come with a 5MP camera on each side (as in Fig. 1), three microphones, speakers, Bluetooth, and Wi-Fi capabilities. Further, with a new software update, Ray-Ban stories could send texts messages and make voice calls over Messenger using the built-in voice assistant. Also, it can now read out Messenger's messages.

By launching these smart glasses, Facebook (Meta) aims to usher in a new advanced era when people feel more comfortable sharing their lives digitally through wearable on their faces.

This great potential also comes with numerous privacy issues. Research is at a nascent stage regarding privacy issues related to augmented reality smart glasses [1] and understanding why people would want to adopt them. However, let us first talk about the potential of this device. These glasses will allow for capturing photos and videos, which can then be subsequently shared on Facebook's View app to allow the user to listen to music and take calls. Along with the physical button, there is an optional virtual assistant; these glasses allow capturing photos and videos using voice commands, presenting a hands-free interaction. With a charging time of one hour, these glasses provide a battery time of around 6 h. Unfortunately, the glasses need a Facebook account for use, as with Oculus virtual reality headsets. This requirement for login on Facebook's virtual reality headset raises potential privacy and security issues [7]. The glasses appear to be aimed at leisure, enjoyment, sharing traveling experiences, so these smart glasses have no current industrial [4] or educational use.

According to Facebook, their product designers have considered user privacy issues when designing products [3]

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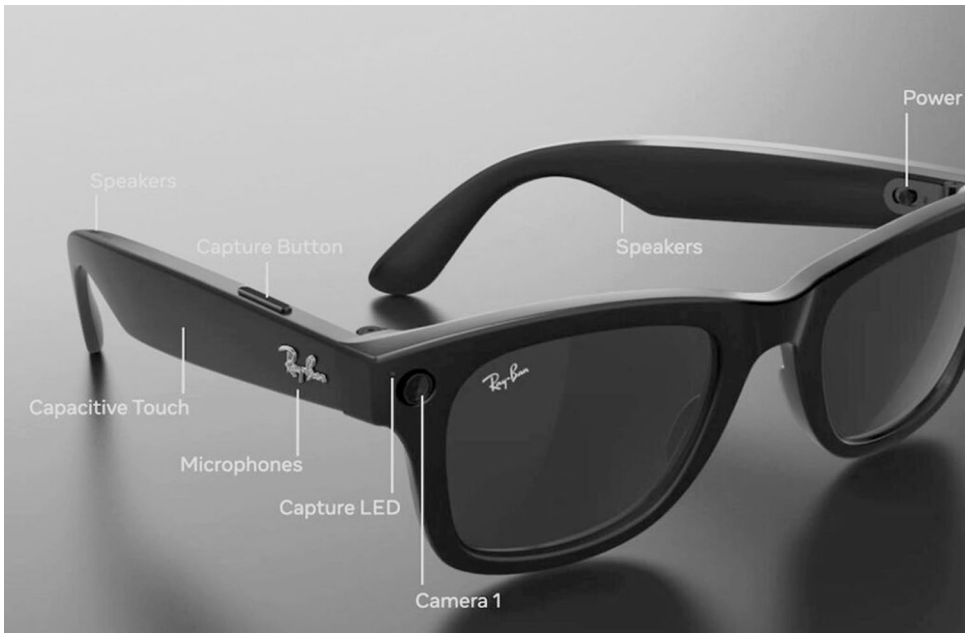

Fig. 1 Components of the Ray-Ban stories, camera, speakers, buttons, LED & microphones

and enabling the functionalities as per the commitments of Responsible Innovation Principles of Facebook. Keeping Ray-Ban Stories away from the advertising revenue, Facebook says, "Ray-Ban stories smart glasses and Facebook View are ads-free experiences, so you won't see ads when using the glasses or app. And we don't use the content of your photos and videos for personalized ads. But, of course, if you share content to any other app, that app's terms will apply". Privacy concerns are not about protecting the users' privacy but the privacy of the environment and the people nearby. When you record people without their consent, they do not tend to love it. Facebook has defended the Ray-Ban stories against privacy concerns by raising a hand for pressing capturing button, white LED light to signal recording in public, and need of voice command to capture content. In addition, if another person tries to pair glasses with his account, the system will trash the previously captured content. According to the company, these steps have been taken to keep users behaving responsibly [8].

The point of a gesture like raising a hand to press the capturing button, issuing voice commands (as touchless interaction [9]), and indicating white LED light compared to more than smartphones offer to indicate [5] they are recording as privacy protection of the surroundings, which is misleading. Unless you are a technical person, a tiny LED light in glasses is not enough to signal to bystanders that capturing is ON. Ireland's Data Privacy Commissioner (DPC) about General Data Protection Regulation (GDPR) questioned LED light as "an effective means" of privacy protection [5].

By comparison, Ray-Ban stories with capturing capability of the smartphone; a smartphone is a device everyone knows can record. Users need a specific way to hold the phone when recording but Ray-Ban stories smart glasses are similar to ordinary glasses and indistinguishable for a common human passing by as explained in Fig. 2. We cannot know if someone is recording, when or where they are recording, or what will happen to the collected data. This data in the form of photos and videos will be shared with the social network in the form of memories or used in a personal capacity, causing a privacy breach. It looks straightforward to use these glasses for nefarious means. By considering all of these design issues, nothing would stop users from breaching the privacy of others. For a user, wearing these smart glasses in close proximity to individuals without prior knowledge of the product can be confusing. When comparing its design with Google glasses, Hololens, Magicleap, BT series, and other available AR headsets, all were distinguishable due to specific designs and ways of interaction [2]. All other smart glasses and AR headsets come with large temples to fit all sensors, chips, and batteries required.

Ray-ban stories, if successful, could play a similar role to the Oculus Go, which led to the development of Oculus Quest. The similarities are ever-present as the Oculus GO was a 3DOF device that was arguably not an actual Virtual reality headset but demonstrated the market for an inexpensive mobile Virtual reality headset that gave Facebook the confidence to develop the concept further. This partnership could lead to the creation of AR glasses in collaboration with EssilorLuxottica, which could change the way we interact with the virtual world in the future. Smart glasses are paving to the end of hardware [6], where our traditional computing platforms of desktops have become laptops and, to an extent, now have become smartphones. Ray-ban stories have the potential to bridge our final journey to AR glasses

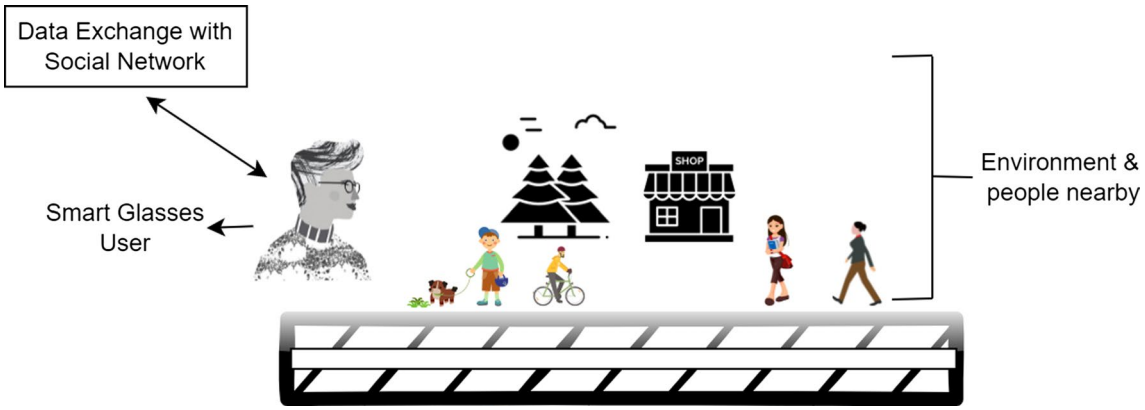

Fig. 2 Data exchange with social network and explanation of environment and third party (people nearby)'s privacy

that real-world users will and want to wear as a future of computing. This step should be welcomed, but privacy issues cannot be ignored, and we must be constantly vigilant.

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