“Spot the Surveillance”: A Virtual Reality Experience for Learning About Police Surveillance Technologies

Intro

Spot the Surveillance is an open-source educational Virtual Reality (VR) tool to help people recognize and understand the types of surveillance technology that police deploy in their communities.

The user is placed into a 360-degree street scene in San Francisco, where a police encounter is frozen in time. The user looks around for surveillance equipment, such as a body-worn camera or automated license plate readers. As each device is located, the user is informed on how the technology is used via text and narration.

The experience is intended to expose users to street-level surveillance, and to spark questions around the types of surveillance from law enforcement they might notice in their communities.

Estimated Time of Lesson

Intro: 15 minutes.
VR experience: Varies depending on headsets/student ratio, but usually a 3-9 minute experience for an individual user.
Discussion: 15 minutes

Accessibility

The experience is created with accessibility in mind. While the instructor will need a controller to load the experience, the user does not. The experience is gaze-based for people with mobility challenges; the user opens and closes windows using a circular cursor at the center of their field of vision. The user controls the cursor by moving their head.
Audio is also used to assist low-vision users. To accommodate different mobility needs, users are also able to participate by opening the experience in their desktop (using their mouse) or phone’s browser (holding the device). For users who may feel overwhelmed by stimuli, the experience is still and has limited sound. The audio narration can be muted, if users prefer to read the text on the cards.

**Language**

Spot the Surveillance is currently available in English and Spanish, however the majority of background materials are only available in English.

**Ratio (how many people to instructor/to headset)**

In person:

Smaller classes: The VR experience takes about 10 minutes, so you will want to have a ratio of headsets to students that fits your instruction period. For example, 6 students with 2 headsets would take approximately 30 minutes.

Larger classes: Conduct demos with a selection of students, while remaining students follow along on their mobile devices or computer browser.

Homework: Alternatively, if your school has a VR lab (as many university libraries now do), you may assign Spot the Surveillance as homework to complete before or after class.

Trying the experience on a separate network, such as at home:

If using a headset, learners can navigate to the experience through WebVR. They can also access the experience through their desktop browser, using their mouse. The experience is less immersive using a phone. Audio does not often work on phone browsers.

**Materials**

**Virtual Reality (VR) Headset(s)**

- Spot the Surveillance can work across many VR systems, however the Oculus Go or similar device is often ideal for a group environment. Depending on the class size, we recommend bringing at least two headsets.
If the device you are using does not come with built-in headphones, you should bring a pair of headphones per device. The Oculus headsets have audio built-in. Google Cardboard or similar phone-based viewers may also be distributed, however, these often work better with Android devices than iOS. Additionally, audio may not work.

**Wi-Fi connection**
- Spot the Surveillance is a web-based activity and requires an Internet connection. This can be connected to Wi-Fi or to a hotspot hosted on a phone.

**Loading the Website**
- A description of Spot the Surveillance can be found here:  
  [English](https://www.eff.org/pages/spot-surveillance-vr-experience-keeping-eye-big-brother)  
  [Spanish](https://www.eff.org/es/pages/descubra-la-vigilancia-una-experiencia-de-realidad-virtual-para-no-perder-de-vista-al-gran)

- The Spot the Surveillance experience can be found at the following links:  
  [English – Web VR Experience](https://www.eff.org/spot-the-surveillance/)  
  [Spanish – Web VR Experience](https://eff.org/spot-vr-es)

**Face masks/cleaner**
- For hygiene, we recommend distributing VR masks. The masks that use ear hooks are preferable to masks that adhere to the headset.
- If masks are unavailable, follow the manufacturer’s manual for sanitizing the device.

**Chair**
- For the user’s safety, you may want to seat them in a chair (such as a rolling office chair) so that they’re in stable when viewing the experience.

**(Optional) One pagers**
- English -  
- Spanish -  
Recommended Reading for the Instructor

EFF reading materials (Street-Level Surveillance)
- automated license plate readers (ALPRS)
- body-worn cameras
- cell-site simulators/IMSI catchers
- drones/unmanned aerial vehicles
- surveillance cameras
- face recognition
- tattoo recognition
- iris recognition
- gunshot detection

McSweeney’s Issue 54: The End of Trust:
- “Should Law Enforcement Use Surveillance?” By Hamid Khan, Ken Montenegro, and Myke Cole (page 81–94)
- “It Takes a Village:” By Camille Fassett (Page 220–232)

News stories that might serve as a jumping off point for discussion:

United States:
- San Francisco bans facial recognition
- Somerville bans facial recognition
- Major police surveillance maker hits pause on surveillance
- California audits license plate readers

International:
- Human Rights Watch Reverse-Engineers Mass Surveillance App Used by Police in Xinjiang

You can find newer stories on the Street Level Surveillance related content on EFF’s Deeplinks.

Gotchas and Other Problems You Might Hit
As with other VR experiences, the instructor will want to ensure that the battery for the headset and controllers are fully charged.
The headset might malfunction — sometimes the experience doesn’t load correctly. We recommend that instructors try out the experience themselves first and get familiar with how to set the experience as a new start for others.

Some students may react badly to VR — the process of putting on a headset and looking through the viewer may cause nausea, unease, and anxiety for some.

**Learning Objectives**

Learners will:

+ Encounter examples of the following technologies:
  + Body-worn cameras (BWC)
  + Automated License Plate Readers (ALPRs) – Fixed and Mobile
  + Pan-Tilt-Zoom (PTZ) Cameras and Camera Networks
  + Mobile Biometric Devices and Face Recognition
  + Unmanned Aerial Vehicles (UAVs/drones)
  + Gunshot detection technology
+ Gain general knowledge about what each technology looks like, what it does, what kind of data it collects, and how it is used by police.
+ Learn where to look for the technology in real-life scenarios.

**Lesson Content**

The instructor can begin by asking about students’ prior experience in VR: “Have you tried a VR experience before?”

The instructor then can go into the specifics of how to navigate in the experience, like using the controllers initially to open the WebVR service before entering the experience, how the cursor works, the gaze-based nature, and clicking “get started” to be put in the street scene:

“When you put on the headset, you’ll see a circle in the middle of the screen. That’s the cursor. Point that at the Get Started button to enter the scene.”

After the student confirms that they are in the experience, the instructor can give the goals: “Once you’re in the scene, you’re on a street corner looking for surveillance devices. There are seven to find.”

Suggested Homework, if it’s a group that will meet again: “Come to class next week with examples of what surveillance equipment you observed in the real world.”
Discussion questions:

Instructor: “Which technologies have you noticed before in the real world? Which ones were new to you?”
The instructor can give an opportunity for learners to share their experiences with street-level surveillance technologies. This might include consumer electronics, such as Amazon Ring, as well as police surveillance technologies more broadly.

Instructor: “Who is under surveillance in this scene?”
The instructor might hear an answer in the vein of: Everyone, but specifically, the individual encountering the police, the vehicles passing by, the other pedestrians, and you—the bystander. Even the police themselves are being captured on camera.

The instructor can ask further about people’s experiences with the technologies, such as by asking the following questions.

Instructor: “When might you be tracked by automated license plate readers?”
Instructor: “When might you be captured by body cameras?”
Instructor: “When might you be captured on footage by a drone?”

Questions and Answers

Common questions about the experience:

**Question: Where is the experience taking place?”**
Answer: “In San Francisco, in the Western Addition neighborhood.”

**Question: “Were all the objects in the scene physically present in the scene?”**
Answer: “No, a number, such as the drone, and ALPR cameras were digitally inserted in.”

**Question: “Are these technologies real?”**
Answer: “Yes. To learn more, check out the Street-Level Surveillance project on [https://eff.org](https://eff.org).”

**Question: “Where can I get more information?”**
Answer: Eff.org/spot

**Question: “Where can I go to play this myself?”**
Answer: eff.org/spot-vr
Question: “How long does it take?”
Answer: About five to ten minutes per person.

Question: “How did you build this?”
Answer: We used a language called A-frame. All the code is open source. You can learn more about our process at eff.org/spot

Question: “Can I use this in a classroom or to show other people?”
Answer: Yes, we’re working on a lesson plan for that soon!

Question: “How did you take this picture?”
Answer: Dave and Artemis at EFF sat in front of the police station with a 360 camera waiting for something to happen. (Actually, we were going to take the photo with nothing happening -- we just got lucky).

Question: “Are all of these devices actually there?”
Answer: No, we photoshopped most of them in so that we could use a single location. Some of the devices in this are banned in San Francisco (Face Recognition), but others do exist in other police jurisdictions.

In Game Questions

Question: “How do I turn off easy mode?”
Answer: You can’t once you’re in it. You will need to restart.

Question: “Where is the device I haven’t found?”
Answer: Look up! There’s a total of three on poles, and one more on a drone. Did you look at the police officers? They have two. There is also one on the police car.

Question: “How do I restart the experience?”
Answer: Press the “back” button on the controller, and reload the page in the browser. OR Look down at the big EFF logo. A screen will popup up that will allow you to restart. OR When you complete the experience and come to the “Congratulations!” card, there’s a restart button on that card.

Common advocacy-related questions:
**Question:** “How do I find out if these technologies are used where I live?”

Answer: In some cities and counties, this information can be easy to find. For example, the cities of Seattle, Oakland, and San Francisco each have laws or ordinances that require all surveillance technology to go through a public process. However, in most regions, you will need to do a lot of research. An easy place to start is to just run the terms for these technologies through your local government’s website. If you’re based in the US, you can also file public records requests to learn information. The Aaron Swartz Day Surveillance Project has templates that you can use. Some organizations have begun to compile information on particular surveillance technologies nationwide. For example:
- Bard College: Public Safety Drone Map
- EFF: Automated License Plate Reader Data and California ALPR Policies
- Georgetown: Perpetual Line-up (Face Recognition)
- Upturn: Body-worn Camera Scorecard

**Question:** “How do I get involved to stop police departments and local governments in the US from adopting these technologies?”

Answer: This may be a hard question for instructors to answer, particularly if they are from academic institutions or from organizations that do not engage or are prohibited from engaging in advocacy activities. However, community-minded activist groups might have appropriate resources for advocacy. If based in the US, reaching out to your local Electronic Frontier Alliance group might be appropriate for learning what anti-surveillance advocacy is happening in your state. You can join EFF’s About Face campaign to ban facial recognition in your city.

**Question:** “What do we know about how these technologies are being used outside the US?”

Answer: It varies dramatically, from country to country, and from region to region. Using China as an extreme example, local governments have razed and re-built entire neighborhoods in Western China to make street-level surveillance easier. Most heavily surveilled areas additionally rely on community members to physically surveil and police their own neighborhoods.