ShutterUp Project Brief- Third Iteration

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Problem

Video surveillance is being increasingly used for various functions in the city. Combined with computer vision, the possibilities of cameras to gather data on the city are immense. They have great potential to improve city management but such camera-based systems are vulnerable to function creep and can contribute to growing the surveillance state, which systematically gathers data ultimately at cost of individual rights and freedom.

Some people worry about cameras as it is not clear what is their purpose, who operates them, and whether they are collecting data. Furthermore, data collected by cameras could be used for harmful purposes, that violate the rights of individuals. Although there are systemic regulatory mechanisms in place (like the GDPR) to ensure data privacy, the current system of checks and balances relies on a small group of professional experts responsible for oversight. What if they fail at this?

Considering the potentially huge impact of camera systems being repurposed or put to ill use for the citizens of Amsterdam, we need additional different checks and balances. Especially those that do not rely on a small class of legal and regulatory professionals.

We need to democratize oversight by involving a bigger group in checking the video surveillance system. And in order to do that, we need to enable them to play a role. But how do we do this? Considering constraints members of this group 1) would be limited in time and interest able to spend on this and 2) do not have the knowledge and/ or access to assess the internal workings of camera systems.

Solution

We can enable the larger group by providing them with reliable and easy to understand information. Therefore we propose adding physical shutters to cameras. Physical shutters are an intuitive - (cognitive low demanding) way to of understanding whether a camera is recording or not (and fit within constraint 1). Furthermore, they forego the need for access to the internal working of the system because they offer a fair visual guarantee that cameras are not being used (constraint 2).

Enabling cameras with shutters would allow discussion on when they can be open and allowed to record. Shutters would form a medium for privacy-interested persons to check for illegitimate ‘opening hours’ and raise concerns of excessive opening hours. They would be able to feed this back into the political process.

Just as interested lay-persons play a role in other domains, so can they here. For decades, a community of train enthusiasts check if the trains are running on time, and feedback their findings into reports that are widely cited by the press and accepted by railway officials. In the realm of software, the open-source code community helps spot bugs, and check source code. We imagine this could happen for sensors in the city as well.

After an overview of cameras in the city based on their functions, we suggest a shutter system for non-security related cameras (like cameras at the Johan Cruijff Arena used to monitor crowds during events, cameras at the bridges over canals to monitor bridge opening-closing, etc). This intervention would require cameras to close their shutters when observation is not necessary. Engagement with privacy interested citizens calls for this system to be simple and intuitive. Our hypothesis is that the use of a physical shutter promises a fair visual guarantee that cameras are not being used and an intuitive way of knowing.

Goals of the third iteration

1. Test the hypothesis by checking the effectiveness of physical shutters in creating a visual guarantee for the problem for privacy activists.

2. Design of a visual trustless intervention- shutter system (based on previous learnings) with shutter and mechanism for operation, signage.

3. Specifying a case where the shutter system will be a good solution, building a strong logic for opening and closing the shutters, and installing the shutter system in the live setting.

4. Assessing the data loss when the shutters are covered with the problem owners.

5. Creating a movie to document the prototype and its application, interaction.

Results of this iteration

1. Proof of validity of the hypothesis in creating the required intuitive visible guarantee.

2. A built prototype for a robust shutter system, capable of acting on a remotely programmable shutter schedule.

3. Report on functionality and suitability of the shutter system installed in a live setting

4. Understanding the tradeoff between privacy and data gathering in the test case

5. Using the movie as a communications piece to reach out to the broader group of privacy enthusiasts, experts, designers and policymakers.

Prototyping Brief

Based on the above, the goal for the prototype is to develop a functional, robust, and mechanically operable shutter for the chosen camera model. We aim to develop 3 prototypes to be placed at suitable locations on the Marine Terrein and run the pilot for a period of 1-2 months.

Tasks:

- Installation of three cameras on the Marine Terrein at a suitable location
- Mechanical design, production, and installation of shutters on the cameras (based on design developed by RSL):
    - **Prototype1 - camera equipped with shutter operated with remotely set time schedule**- to test the idea of a remotely operated shutter with an opening-closing time schedule
    - **Prototype2 - camera with shutter operated with remote time schedule coupled with overriding winding mechanism** that connects directly to firmware of camera assembly- the winding mechanism (a rewind box next to the camera which needs to be manually winded once a week or so to ensure the shutter continues to be open-close according to the remotely set schedule) adds a layer of physical limitation in the operation of the shutter at the physical hardware of the camera assembly as an experimental safeguard against any possible hacking of the remotely operable control system
    - **Prototype3 - camera with shutter with a large push button that closes the shutter for a set time** (Camera will have a remote time schedule and the

push button as a over-ride) for X-minutes- the idea is to test citizen control over the operation of the shutter opening-closing.

- Operation and maintenance of these cameras and shutters for 1-2 months
- Building a signage for the prototypes (to be placed on-site next to the prototypes)
- 2-3 sessions with groups of privacy activist/enthusiasts to incorporate their feedback on the prototype and its 3 variations
- Report on estimated data lost when the cameras were covered and documentation on hardware development of the shutter system