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### *Introduction*

The title of this paper is a tribute to George Orwell's book 1984. His fantastic dystopia appeared by many to be unrealistic and the possibility of it occurring in real life to be near zero. Big Brother always watching you, watching the streets, and watching inside buildings was a silly idea to fathom. However, sixty-one years after its publication the question is not whether it will happen, but instead will it not happen to the extent of 1984? Cameras are everywhere: on top of buildings, inside stores, outside homes, and perhaps most recently on top of traffic lights. When outside a person might wonder if they are ever *not* being watched.

### *History of CCTV*

CCTV stands for closed-circuit television and is defined as “a television system in which signals are transmitted from a television camera to the receivers by cables or telephone links forming a closed circuit, as used in security systems, etc.”<sup>1</sup> It is mostly used in security systems which are what will be discussed here, though it may be used to monitor a manufacturing process to ensure that the machines are working properly.

The first CCTV system was installed in 1942 in Siemens at Test Stand VII in Peenemunde, Germany, to observe the launch of V2-rockets. In September 1968, Olean, New York, became the first city in the United States to install cameras for the purpose of fighting crime. Later in 1987 the town center of King's Lynn in the United Kingdom installed a CCTV system<sup>2</sup> and today the UK is widely believed to have the most cameras per population with 1.5 million cameras in public spaces.<sup>3</sup> An often quoted number is 4.5 million cameras, but many believe that number to be a large overestimate since the method of obtaining that number was questionable.

### *CCTV in the UK*

According to the 1.5 million camera figure and the 61,838,154 people living in the UK as of 2009, there is approximately one camera for every forty-one people.<sup>4</sup> These cameras are all created and maintained by NEP – Roll to Record, a division of NEP broadcasting.<sup>5</sup> Despite having so many cameras, there is much debate as to whether or not the cameras do in fact deter crime. A study performed by the Home Office group in Britain analyzed eighteen different areas with five from the US and the rest from around the UK. These areas had a control group and an experimental group with cameras set up. Nine of the studies had a desirable effect with all of them coming from the UK and the other nine studies showed no desirable effect which meant either more crime occurred or there was little to no change in crime.<sup>6</sup> Chief Inspector Mick Neville from the UK claims that “only 3 per cent of crimes were solved by CCTV.”<sup>7</sup> To help increase CCTV's power in fighting crime, in 2009 a UK based website launched which allowed members to view cameras placed in stores to prevent shoplifting and other crimes.<sup>8</sup> Members must pay a fee to join and must be a resident of the EU. They are rewarded up to £1,000 for catching shoplifters and notifying the proper authorities. The site and its services have met

opposition from civil liberties campaigners claiming the idea “is ‘distasteful’ and asks private citizens to spy on each other.”

### *Uses*

The most popular (and most debated) use of CCTV cameras is both in public and in the workplace. This week there were at least two local news stories on new cameras being installed in public for preventing crime and helping catch criminals. The news reporters interviewed people and, not surprisingly, there were mixed reactions. Some people praised the installation of the cameras saying that they feel safer while in public, but others felt it was an extreme breach of privacy. As for the workplace, it is legal to install cameras to monitor workers as long as there is no expectation of privacy. “The open workplace, where employees are engaged in daily work activities, is generally considered one of those ‘public places’ for which no employee has a reasonable expectation of privacy.”<sup>9</sup> For obvious reasons cameras are not allowed in places where privacy is expected such as bathrooms and changing rooms. However, laws do vary over the use of surveillance cameras from state to state so what is legal in one state may be illegal in another. It should be noted that any surveillance cameras used will likely only record events via video and not audio. Recorded conversations are generally illegal as “federal laws prevent the indiscriminate, undisclosed taping of conversations.” The parties involved in the recording must know that they are being recorded and must agree to it either directly or indirectly. Directly as in by signing a document giving the recorder rights to record audio, or indirectly by continuing a conversation while recording is going on.

Cameras are sometimes used in industries to monitor industrial processes. They are useful when placed in areas where it is difficult for humans to monitor either because it is too costly to hire humans to monitor the area or because the area is too dangerous for humans. Many chemical plants and nuclear plants contain cameras. In some cases the “law...requires the installation of...CCTV cameras for industrial processes that take place inside reactors or inside the facilities that produce nuclear fuel.”<sup>10</sup> The use of these cameras should not pose any threat to privacy since the intent of their installation was to monitor industrial processes and not people in the workplace.

More recently cameras are being used to monitor traffic. They can be used for a variety of reasons such as enforcing bus lanes use, red light violations, and speed limits. Those using the latest technology automatically recognize license plates and can search a database to find the car owner’s information. It is generally easy for local governments to install these cameras since there are few laws against their use. The harder part is in legally prosecuting violators of traffic laws. Someone other than the vehicle’s owner may have been driving the car when they violated the law. Some states automatically fine the vehicle’s owner while other “U.S. jurisdictions release the owner from liability if he signs a form identifying the actual driver and that individual pays the fine.”<sup>11</sup> These cameras are supposed to increase safety by promoting awareness of traffic laws, but some people doubt their benefits. A few studies performed independently in different areas with red light cameras showed no increase in safety and in some cases a decrease in safety. One study performed by the Ontario Ministry of Transportation in December of 2003 showed that “red light running treatments have: Contributed to a 4.9 per cent increase in fatal and injury rear-end collisions; and...Contributed to a 49.9 per cent increase in property damage only rear-end collisions. The rear-end collision results are similar to findings in other red light

camera studies.”<sup>12</sup> Many people argue that traffic cameras are only used to generate revenue for local governments.

### *Development*

Widespread use of CCTV systems started in the 1960s with basic black and white cameras that were connected to a monitor by a coaxial cable. Each camera had to have its own monitor. This required a lot of room to store the monitors, a lot of wiring to connect them all together, and a lot of money to install an entire system. Later in the 1960s, CCTV switch boxes were developed. These allowed the operator to switch the view on the monitor to another camera. In the 1970s multiplexers arrived that allowed multiple cameras to be viewed on a monitor at one time. The 1970s also saw the VCR and solid state cameras. Video footage could be recorded, but VCR recorders were problematic. The image quality was poor, one could not review and record events at the same time, and it was difficult to find a specific event on a long line of tape.

The mid 1990s saw a big change in CCTV. The digital video recorder (DVR) was invented which eliminated the need for VCR tape and recorded with a much higher resolution. One could review recorded events and continue recording at the same time. New technology created DVRs that could transmit data via the internet which allowed remote users across the internet to control the cameras. These cameras are known as IP cameras, named after the Internet Protocol.<sup>13</sup>

### *IP cameras*

There is a newer type of camera that uses an internet connection to access and check it. They are known as internet protocol cameras (IP cameras). These cameras are most often used by Local Area Networks to transmit the video feed. However, the video feed can also be sent to the internet so that anyone with an internet connection or anyone with a 3G phone can access the camera.

These cameras can be very helpful in aiding authorities and personal users. The resolution on the cameras is much higher than standard DVRs, thus providing clearer images. These cameras can pan, tilt, zoom, and they have two-way audio so the user may communicate with whatever they are looking at.<sup>14</sup> Since one can check this type of camera from home, it is a great convenience for users to always keep watch.

A significant disadvantage these cameras have is that criminals can hack into the cameras and view all of a facility's security measures and personnel. Criminals could plan their raid to get past all security and come out with what they were after.

IP cameras bring us closer to the world that David Brin suggests in “The Transparent Society.”<sup>15</sup> In his example of City Number Two, “...each and every citizen of this metropolis can lift his or her wristwatch/TV and call up images from any camera in town.” If IP cameras were installed and fully functional across a city, then everyone would be able to go to their phone and survey the city. What happens to privacy? When one goes out to their door, they could possibly have everyone watching their every move. The number of stalkers could increase since it would be so easy to stalk someone. This would discourage people from going outside for fear of being watched. The fear should be instilled in the criminal's mind and not in the minds of the good people of society.

### *Privacy*

When it comes to privacy and CCTV, it is hard to draw the line on what is invasion of privacy and what is not. In his article, Ryberg compares an old lady with CCTV:

The life of Mrs Aremac. Mrs Aremac is an old lady living in her third-floor apartment in the center of town. Due to her age, her legs no longer allow her to take part in public life. Luckily, her sight is still intact. Every morning Mrs Aremac is assisted to an armchair placed in the bay window looking out onto the street. From there she has a good view of street life, compensating a little for a life she is no longer able to participate in. In the evening she is assisted to bed, after a day made more bearable than if she had remained in bed.<sup>16</sup>

One may be asked the question: Is Mrs. Aremac acting wrong in any way in her life? Likely the answer would be no, she is not acting wrong in any way. This brings up the question: If Mrs. Aremac is not acting wrong, then why would a CCTV camera placed at the third floor of a building to monitor daily life be a moral problem?

A problem arising from CCTVs is that the person being watched cannot see the person that is watching him. If the person being watched is unable to see who is watching him, then he will be unable to accommodate his behavior to what he wishes to be seen as. This makes the person being watched believe he is free from scrutiny when he is not. A second problem is the fear of being watched. Once a person sees a hidden camera, they get the uncomfortable feeling of “maybe I am being watched right now.” A third issue that bothers people is the motive of the observer. Being followed by a small girl or by a person in a dark coat and sunglasses yields different reactions. However even with all of these factors, it is hard to draw the line of where it is violating privacy and where it is not. Therefore it is viewed that since Mrs. Aremac isn’t violating privacy, then CCTVs aren’t violating privacy as well. Then the question still remains, what is invasion of privacy when it comes to CCTV?

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