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Big Brother is in Your Pocket – but wait! – Big Brother IS Your Shirt!

Colophon

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Big Brother is in Your Pocket – but wait! – Big Brother IS Your Shirt!

New Technology, New Means of Tracking and Surveillance are Upon Us.[1]

Paul Garrin

Just made a call on your mobile phone? Or maybe it's sitting in your pocket, quietly chit chatting with the network, sending its Global Positioning System (GPS) location back to your account database where all your movements can be recorded and tracked. Mobile phones constantly communicate with the nearest 'cell' (a short range radio transmitter) which connects your phone, via radio frequencies, to the phone network. Even if you switch it off, it's never really off unless the battery is removed and the power is fully discharged. Cell phones are the least anonymous and potentially most invasive 'self-enabled' surveillance method that unwitting and unsuspecting consumers embrace and totally rely upon.

1 Original version written October, 2007; Revised October 2014, dated references to US wireless spectrum removed

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Paul Garrin | Media Artist

Paul Garrin is a media artist based in New York. He collaborated with Nam June Paik from 1982 to 1996, producing literally hundreds of works that fill Paik's video installations in museums and private collections. His works encompass a full spectrum of analog and digital media from video to the Internet, exploring media and the social impact of technology on society, and issues of media access, free speech, and public/private space. Studying fine arts at the Cooper Union School of Art in New York, Garrin has participated and been invited to Biennales and residency programs around the world.

There is no chance of anonymity nor privacy with these tiny 'Big Brothers' in our pockets. Mobile phones may even be used to conduct real-time audio and video surveillance, controlled surreptitiously over the network unbeknownst to the user.

Just used an automated teller machine (ATM) to take out some cash? Or used your credit card to make a purchase online or in a shop? Every time you use your mobile phone, execute a credit card transaction, use the internet, each and every step of the way your movements are tracked and recorded.

This is not news to most, but what may be over the horizon, beyond 'warrantless wiretapping,' 'black bag jobs,' 'data mining,' and 'private sector cooperation' looms a more insidious and threatening for of surveillance that could literally immerse us in the not so distant future. This new wave that brings us a new twist to the 'Digital Panopticon' comes at the dawn of the transition to the new Internet Protocol (IP) numbering system known as IP version 6 (Ipv6) and the growing propagation of fixed and mobile wireless broadband access.

The internet that we've all become accustomed to has a relatively finite number of possible IP addresses. Under the present Internet Protocol version 4 (IPv4) addresses take the 'dotted quad' format many may recognize, i.e. 192.168.11.0 that defines a 32 bit address. In IPv4, the total number of possible addresses is less than the total of 255x255x255x255 (4,228,250,625), since some of the space is reserved for special purposes. At present, the IPv4 space is all but exhausted. In contrast to the limited IPv4 address scheme, the IPv6 address space is magnitudes larger than IPv4. IPv6 uses a 128 bit address that uses so-called 'hexidecimal' notation. IPv6 addresses look something like this: 3ffe: 1900:4545:3:200:f8ff:fe21:67cf. Hexidecimal uses the characters 0-9, A-F to express large numbers with fewer characters.

IPv6 space contains 2^{128}=340,282,366,920,938,463,463,374,607,431, 768,211,456 total theoretically assignable addresses. To understand just how large that number is, recognize that the surface area of the earth is usually considered being about 196,950,000 square miles. There are 5280x5280 square feet in a square mile, and 12x12 square inches in a square foot. Multiplying 196,950,000x5280x5280x12x12, we find that the approximate

surface area of the earth is 790,653,726,720,000,000 square inches.

If you divide 340,282,366,920,938,463,463,374,607,431,768,211,456 (the upper bound on the number of IPv6 addresses) by 790,653,726,720,000,000 (the approximate surface area of the earth in square inches) that implies you can assign over $3.7x10^{xx}21$ addresses per square inch of the earth's surface![2]

Now, with that many addresses possible, combined with smaller and smaller microprocessors (MIT has developed a paint-on parallel computer using nanotechnology) it is conceivable that every product we buy, even every button on our shirts, could have a unique address and be active on a wireless network. The very fabric the clothes on your back are made from could have a unique ID that is always recognized by the network, and could track literally your every move. Associating the device to its owner (creating a forensic chain of evidence) starts at the moment it is purchased using a credit card linking the transaction to your name. If you purchase using cash or credit card at a physical shop, there is likely a surveillance video time-stamped in sync with your purchase. All this fed into the 'Total Information Awareness' database and culminates in the total disintegration of any possibility for anonymity, privacy, and for US Citizens, of any Fourth Amendment Rights once this invisible, marketed as helpful and benign technology takes root and is embraced by all. This sort of ubiquitous connectivity has become known as 'the Internet of things.' The Internet of Things could be useful in limited ways, however its potential for abuse amounts to a 'Velvet Totalitarianism' that pales in comparison to the surveillance state that author George Orwell cautioned against in his classic book *1984*.

What can we do?

There is no credible assurance that knowledge of the unique identity of user and hardware will be protected and safe. There is no credible assurance that personal data will not be disclosed without due process, or not recorded and stored potentially to track and surveil individuals.

It's virtually a given that every internet-connected device has become a uniquely identified object with a continuous, live audit trail from the

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Source: http://cc.uoregon.edu/cnews/spring2001/whatsipv6.html

point of manufacture, through purchase, to the real time position. The condition of the milk carton, the refrigerator that it's in, hat, glasses, shoes, shampoo, computer, cell phone, you name it, can be tracked in real time and have all of its data and activities recorded in a database that may be abused by the collector, governments, or hacked.

However, there remain some areas where our consumer awareness and informed habits can help reduce the adverse effects of the digital panopticon and the corporate-government abuses of our privacy and liberty.

First, do not buy anything you know of or suspect to have any 'smart' features built in to them. If you do, learn how to limit, disable or dismantle such 'smart' features. For every measure there is a countermeasure. Low-tech ultimately beats high-tech. Learn how to use tools such as TOR, VPN, proxy services, encryption, and how to prevent, detect, and avoid malware infections on your devices. Learn how to write code; encourage your children to write code. Create and use technologies with the philosophy 'security by design, privacy by default.' If it doesn't exist, innovate or invent it.

Although the corporations who support and participate in data mining and the psychological manipulation of consumers own and control most of the media we all use and are subjected to every day, it is possible to cultivate an oasis in the digital wasteland. By forming economic blocks that invest in alternative media infrastructure it is possible to create a 'Digital Commons' that serves and benefits its stakeholders for the greater good. With such there is no need to continue feeding the corporate beast that violates and consumes us.

Be smart, be aware, and don't give Big Brother a helping hand, your money, or the value of your work...and certainly don't give Big Brother the shirt on your back! ∞