

The Internet of Things – five things you need to know

Published on 13 December 2021 Written by Phillip Huxter, Cyber Crime Investigator, Greater Manchester Police

What the Internet of Things is and why it's important for modern policing

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The Internet of Things (IoT) is everything connected to the internet, and devices that talk to us and each other.

1. The Internet of Things (IoT) collectively refers to any electronic smart device equipped with sensors and internet connectivity that can action, collect, store and share data. IoT devices are everywhere and can be almost anything, from light bulbs and energy monitors to door locks, kitchen appliances, pet cameras and smartphones.
2. According to a 2021 [statistics report](#), there are approximately four devices for each of the 7.9 billion humans on the planet. IoT data can be present on a device but is more often stored online in the Cloud, from which it can be more easily extracted.

Our challenge is to recognise IoT devices and to understand what data they collect, as well as how this data can be used for investigations.

3. IoT devices include wearable technology (wearables) such as watches, belts and even shoes. These devices typically capture location and personal health data, and have been used to identify the time of death of murder victims via the built-in heart rate monitor.

The [BBC reports](#) that IoT devices are also being used to facilitate domestic abuse.

Devices such as wearables, cameras and voice assistants can be used to watch, track and listen in on private conversations. IoT can facilitate unprecedented forms of coercive control and cyber stalking.

4. Cyber security concerns are raised by security updates not being applied and default passwords not being changed by the owner, making devices vulnerable to hackers. Even benign IoT devices can present serious vulnerabilities.

Examples include a hacked fish tank smart temperature monitor in a US casino, which gave unauthorised access to the casino network (including a high roller database), and hacked smart baby monitors, which were used to watch a child via the camera and to shout and talk via the built-in speaker.

5. IoT devices are essentially digital witnesses. Smart doorbells, such as Ring doorbells, feature a high-quality camera with night vision that auto-captures audio and video when activated.

These devices have successfully provided evidence of a person confessing to a murder and a person assaulting his children, positive identifications of a burglar, and alibis of people who have been falsely accused. When trying to access recordings, some doorbells require a paid subscription for storage, while others do not.

- This article was peer reviewed by Temporary Detective Sergeant Jugdeep Atwal, Metropolitan Police Service

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