

The Assessment of Ethical Issues Within Ubiquitous Computing in Belgium

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ABSTRACT

Ubiquitous computing is the future of technology as the list of ubiquitous compatible devices is growing. The ambient nature of this technology generates high usage in notably populated countries and popular cities such as Belgium. The present article assesses the ethical issues of ubiquitous technology in Belgium. The use of ubiquitous technologies here is prevalent and coinciding this is various ethical issues. One of the many ethical theories common here is cultural relativism. A major issue here is the mishandling of data leading to private data being utilised unethically. This is an occurring incident that has happened in Belgium recently and other accounts of issues within Europe and outside of Europe have been identified. New European Union laws have been implemented to help eliminate any further misconduct but large multi-national companies are not providing clarity on their use thus, leading to the misuse of data. Although, the data being provided to these companies is solely down to the decision of the user.

KEYWORDS

Belgium, Cultural Relativism, Data, Ethical, Europe, Facebook, Information, Intelligence, Internet of Things, Mishandling, Pervasive Computing, Privacy, Smart, Smartphones, Ubiquitous, Utilitarianism

INTRODUCTION

The evolution of computers in the last decade has been huge and people in society use computers through the obvious approaches such as PC's and laptops but more and more avenues have been explored to utilise the benefit and influence that these digital companions have (New Scientist, 2013). Ubiquitous computing is the idea of having computers around humans and embedded into society from the moment a human starts their day and, in some instances, it may apply when humans are asleep through various sleep tracking apps (Knobloch, 2018). Many people can misunderstand ubiquitous computing and see it as another form of desktop computing because it has "computing" in the title but it is a very different form of computing. It can happen on any device at any time, in any place (Rouse, 2016).

The devices that it occurs in the most are wireless embedded network devices that are incorporated into daily life such as smartphones, wearable technology, bank cards and even some home appliances. The term ubiquitous computing can also be interpreted as pervasive computing or the internet of things. One of the many goals of pervasive computing is to make devices smarter and implement technology to devices that are non-technological (Rouse, 2016). These "smart" devices can be undetected by humans and these technologies may be taking personal information from them. For instance, wearable technology such as fitness trackers, they retrieve personal data such as heart rate and other human details. Although humans agree to the withdrawal of information through the established app, some

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terms and conditions of some companies may lead to misuse of your personal data. Examples of devices that apply to ubiquitous and pervasive computing is an Apple watch or the Amazon Echo.

Background

An example of pervasive computing is getting a traditional appliance such as a watch and turning it smart (New Scientist, 2013). Implementing computers into things around humans and society that allow new interactions and experience can be attractive, but this attraction can overlook and mask what is really going on. Ethical issues can appear anywhere in computing and this is no exception when ubiquitous computing is applied. Ubiquitous computing can be highly dependable on culture and in Belgium's case, cultural relativism is a problem. For major cities such as London, Paris or Brussels, ubiquitous computing is prevalent. These locations have a larger population, consequently leading to a larger usage of technology. Although, this larger population can have its downfalls as there are more opinions and altercations with the technology being applied, some of the population have an urge to opt out of this technological environment as some feel that it may be ethically wrong for companies to apply ubiquitous computing techniques as they feel it can impede privacy (Hilty, 2014). Most of the population agree to ubiquitous computing methods as these popular cities are culturally 'modern'. Furthermore, perspective on ubiquitous technology is socially accepted and implemented (New Scientist, 2013). Much of the population suffer from cultural relativism which defines societies moral views and beliefs.

Societies that have an ethical attitude of cultural relativism fail to estimate the quality and value of their data (The Economist, 2017). This can be a huge problem in data security as the population is negligent in the transfer of their data. Ubiquitous computing consumes data more than any other type of technology because on its ambient nature (Becci Da La Riviere, 2018). Many cases of unethical actions through ubiquitous technology throughout European and Non-European countries are related to the mishandling of data. The cause of this mishandling of data is argued upon. In an article from (Gibbs, 2017), Facebook places blame on the users who provide the data which relates to cultural relativism whereas, in the case of the Belgacom hack, an egotistic approach from other countries is regarded to be the problem.

EVALUATION

Ubiquitous Computing Outside of Europe

As stated in the introduction, ubiquitous computing is fundamentally implementing computational capability into everyday objects around us (Yogesh, 2018). This can mean devices that are used in daily life can be 'smart' to incompetent technology users. Recently, reports of leaked documents from the Central Intelligence Agency (CIA) state that the American agency can have the ability to hack into TV's and utilise the smart functions. The hack is only applicable to smart Samsung TV's (Calore, 2017). The leaked document exposes hacking tools and software that was developed by the CIA in cooperation with British Intelligence. The document revealed a feature called 'Fake Off Mode' which was inserted Samsung televisions. If this mode was triggered, it would give the user the illusion that the device is turned off. This would allow the operatives to gain access to audio or potentially video depending on the TV's capabilities, to retrieve data from the room that the television is located in (Calore, 2017).

The era of ubiquitous computing can really question the privacy of human lives. The majority of objects around everyday living could potentially be accessible by hackers which creates a discharge of worry for individuals (Scutti, 2017). Antti Oulasvirta, leader of the Helsinki Privacy experiment which was conducted at Aalto University, Finland found from research that the ubiquitous surveillance techniques are related to a human equivalent, neighbours. Oulasvirta's believes that this technology infringement is no different to a neighbour (Scutti, 2017). Although, the only discrepancies are that

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