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**Ethics of Internet of Things**

Internet ethics is a comprehensive term. It refers to the analysis of the role that the internet plays in what philosophers call the development of the good life - the kind of life that we want for ourselves, for society over all, the kinds of people we want to be.

One of the most interesting ethical questions revolves around privacy online. Increasingly we find that people are concerned that their data is being collected and stored and used in a variety of ways that they are not really aware of, that they don't want to have used against them, or in ways that they don't anticipate and according to Human design worksheet making the people emotional since it is causing lot of stress thinking about privacy.

We allow big data now to impact the decisions we make about who goes to prison, who gets bail, who gets a job, who gets insurance, what kind of major’s people might go into in college where it impacts the decision making aspect under human design worksheet on how we align our actions with the intentions. And it is fascinating to see a kind of maturing of the field and big data proponents and analysts themselves finding out that they have a much greater responsibility than they had initially realized. But only with big data alone we will miss the various aspects of human thinking. Therefore, to make the application ethically sounded we should include the thick data along with big data [4].

Emily Gorcenski, in her TED talk stresses that there are no ethical framework or legal structure buildup for mishaps caused due IOT devices. She explains how harm happens due to Edge case or bugs which is one of the many ways. She also briefs incidents as examples where major decisions were made with big data and how it impacts the common. She briefed on real life incidents where in 2017: A man was charged with the murder of his wife based on Fitbit motion tracking and how in 2016, police used data from a smart water meter in a murder investigation and that police also filed a warrant for Amazon echo data in the same investigation. She stresses that our devices can bear witness against us without any assurance of accuracy or quality which becomes the antonym for utilitarian approach under ethical framework since its causing majority of harm here [2].

Privacy is a notion that is associated with four main elements: information, communication, body, and territory. Information privacy is related to various types of personal data collected and processed by an organization, such as ﬁnancial and medical information, while the privacy of communication is concerned with protecting data sent between two communicating nodes using any communication medium. Body privacy is concerned with people’s physical safety alongside any outside damage, whereas territorial privacy is concerned with building limits on physical space such as home, workplace and public places [2].

In the IoT context, protecting people privacy has become a very difﬁcult task to achieve. This is because the data collection process is more passive, pervasive, and less intrusive, which leads to users less aware of being tracked. The potential risk of losing control over personal information is deﬁned as a privacy threat and it requires the proper attention under human design worksheet. This threat is usually one of the key concerns of users and has an important effect on the adoption level of any new technology because the data trust plays a major role in progress of any technology

The main ethical question is how do we control the privacy in passive data collection environment such as IoT devices? According to ethical thinking flowchart we should start the analysis with identifying the ethical issue.

Kashmir Hill and Surya Mattu shared their smart home experience in a TED talk where Kashmir's apartment was outfitted with 18 different internet-connected devices and a special router was built to track how often the devices contact their servers and see what they were reporting back. She expressed her sense of shock when she figured that the Amazon Echo gifted by her husband reported its server every 3 minutes whether it was used or not. She mentioned that she wanted to learn what kind of data the devices are capturing and sending to its manufactures. She also stressed how her sleeping and brushing activities were captured. A clear example given was VIZIO, a television company which paid 2.2-million-dollar settlement because it was collecting second by second data on what the viewers were watching on TV and selling it to data brokers and advertisers eventually it effects the user trust which plays a crucial role in any application usage.. She emphasizes how companies should rethink the design of these devices keeping our privacy in mind as not all of us are willing to be a part of "market research"[1].

The article, engaging with ethics in Internet of Things, stated that ethics by design may be celebrated majorly but is acted upon little. This clearly shows the lack of engagement where firms and developers show that they are not willing to engage in ethics as it might slow down the innovation or that they might not reach their business milestones in this fast pacing technology world [3].

It also talks about giving three different positions for individuals within the social melieu of technology development which are Disengaged, pragmatic and Idealist. By keeping these roles, the ethics are not only followed in data processing alone but also through negotiations within social space [3].

EmilyGorcenski, in her TED talk emphasized the takeaways to be acted upon as engineers:

1) Explain your concerns to the higher authority [2]

2)Prepare to say No. In context, refuse unethical orders [2].

3)Have frank discussion with co-workers on the implications of customer data [2].

4)Set your limits before it is too late [2].

According to the ethical thinking flowchart we should do the right thing even when we do not have the proper rules and restrictions which is the main perspective of ethical dimension

References:

1)KASHMIR HILL & SURYA MUTTU,”what your smart devices know about you”,2018, <https://www.ted.com/talks/kashmir_hill_and_surya_mattu_what_your_smart_devices_know_and_share_about_you>

2)EMILY GORCENSKI,”The Ethics of the Internet of Things”, 2017, <https://www.youtube.com/watch?v=xLL7Fo_em2E>

3)Funda Ustek-Splida, Alison Powell, Selena Nemorin, ”Engaging with ethics in Internet of Things: Imaginaries in the social milieu of technology developers,2019, <https://journals.sagepub.com/doi/full/10.1177/2053951719879468>

4)TRICIA WANG, ”The human insights missing from big data,2016, <https://www.ted.com/talks/tricia_wang_the_human_insights_missing_from_big_data#t-960197>