Internet of Things, Brief Technology Overview

The benefits of internet of things technology are obvious, a cross every industry applying these technologies could revolutionize how they operate, be it through means of automation or machine learning. For example, a baby monitoring system taking advantage of internet of things technology may bring peace of mind to new parents during the night, knowing that their baby’s is safely asleep, use of the internet through a video or audio function may also help connect distant family members with the new member of their family. The dangers of such technologies from an ethical or security standpoint however may prove quite worrying.

The ability of systems to function independently from humans while connected to the vastness of the internet can only be considered a good idea when there is it is built on foundation of security and privacy standards. For example, A health device while connected to the internet could be a target for a cyberattack, which could obviously have serious consequences for the user. Patching known security flaws in such devices may also prove difficult. Although it is the connection to a network that makes these devices useful, it is very difficult to deliver patches using this in a safe and reliable way. Once these devices leave the factory the flaws or oversights made by the production team may prove detrimental down the road as computing technology improves and these mistakes become more obvious.

Data collection is the other pitfall of internet of things technology. In a world where already, we offer up so much of our personal data to search engines and social media companies and we have a computer which can monitor what we say are where we go already in our pockets, the idea of having another device gathering our data may not be that attractive of a concept. Users data is a gold mine in todays market with big tech company’s making vast sums of money selling it to third party company’s and advertisers. Its this same data that proves to be a device using i.o.t technology biggest asset, as this data through modeling and statistics can feed machine learning or AI, which has the potential to improve the functionality and potential use for this device greatly.

So, we have an asset in our data that can be sold for huge sums of money or can be used to improve technology, the decision is controlled completely by the manufacturer, the trust therefore needed in these manufactures by the public is great. Using recent history as a marker, the money which can be generated from this data may prove to be too attractive to companies moving into the internet of things space.

Ethics and security in a baby monitoring device

As our first iteration of this device for our minor project will not be connected to the internet, A lot of this concerns are not valid until we add on this function. But during our meetings ethics and security concerns have come up many times. Although focused on this first proof of concept design, we are looking ahead to what a future iteration of this device may look like and what problems we may encounter.

Examining our chosen project idea with the issue’s outlined in the above paragraphs in mind there are some definite areas which may cause us alarm.

* In the survey in which we gathered information from our market of possible users, a lot of parents said they would find a live camera a useful feature of a baby monitoring device. While its benefits are obvious, we as a team discussed the risks from an ethical and security standpoint and decided that we would not be able to implement a camera on our project safely.
* We have discussed having real time alerts and information on how the baby slept being sent to the parent’s phone via email and text. This data may prove very powerful in improving the device further and provide information to the parents on possible settings and configurations which could improve the effectiveness of the device. However, like any device connected to the internet, moving this information across of network may prove to be a security risk. This is something we will have to example in detail before implementing this functionality.

In conclusion the greater the amount of research and discussion we complete as a team the clearer it becomes that while internet of things technology is a very exciting and an inevitable evolution for computing it throws up a huge number of ethical questions. How these technologies are used is based completely on the moral compass of the companies that are creating them. Going through the various stages of developing our idea we have raised and concerns and going forward we will be trying to address this issue and create a project which is balanced from and ethical and security standpoint. Our hope is that the company’s moving into this expanding space will do the same.

Sources:

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