The Research and Survey of Use Case for WoT

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ABSTRACT

A lot of use cases are needed to discuss the function of WoT Technology. Then it is important to discuss how the customer use the IoT appliance. If the consumer can't have the image how to use it, the consumer doesn't use it. Therefore, I surveyed the behavior and the attitude of the consumer about IoT Appliance. The result is that they had heard the word of "IoT" in somewhere, but they couldn't explain it. Therefore, it is important to give the knowledge of IoT and the image how to use it.

1. INTRODUCTION

I am responsible for the research and the study of the Internet and the IoT at Internet Research Institute, Inc. Therefore, I am interested in WoT Working Group at W3C. I have been WoT Working Group for two years.

There are a lot of industries and sectors that the IoT has been used in. The IoT have been used in a lot of use cases. Each IoT are made of different ideas and concepts. The IoT is complicated. Therefore, it's important to do a survey and research use cases of the IoT. Because if not, no one can have any ideas of functions that should be implemented and can indicate needs for these functions.

There are two ways to investigate use cases of the IoT. One way is how to investigate from the industry side. Other way is how to investigate from the customer side. There are a lot of use cases of the industry side. But there are not much use cases of the consumer side. Therefore, it is important to investigate from the customer side.

2. IMPORTANCE OF THE USE CASE

There are many use cases in the world. And these use cases are complicated. But the same functions are usually used in these use cases. Many use cases should be gathered to discuss the function in the world. The function should be extracted from these use cases. The function that is extracted should be classified in. If extracting the function, the simple use case should be used. The simple use case includes a few functions, but the complicated user case includes many functions. It is difficult to extract all functions in the complicated use case. The function of the complicated use case should be added to the function that is extracted in simple use cases. This function should be associated with use cases. It is easy to understand these functions and how to use these functions. WoT Technology should be made by using functions that are extracted in use cases.

For example, the one of simple use cases is the use case that consists of one server and one client. A server is the IoT device. A client is a browser on the pc and the smartphone. If using WoT technology, it is important what functions are needed in the IoT device and the browser and how they work in the IoT device and the browser.

There are many functions and many requests to implement functions. But it is hard to implicate all functions at once. By extracting functions from use cases, main features and other can be classified. It is easy to give priority to implicate. Many functions have been implicated at WoT WG. They should be corresponded to functions that are extracted from use cases.

3. INVESTIGATION OF THE USE CASE OF THE CUSTOMER

We surveyed the behavior and the recognition of the consumer about IoT in 2017. At first, we surveyed the knowledge and the recognition of IoT. The Result was that consumers know the word of "IoT", but they didn't have the knowledge of IoT (Table-1 and Table-2). They had heard the word of "IoT" in somewhere. But they couldn't explain it. This is that they couldn't understand and image how to use it.

Next, we surveyed the behavior and the attitude of the consumer whether the consumer want to use the IoT appliance in some situations - to operate from inside house, from outside house and with voice. The result is that they basically didn't have the strong behavior and attitude (Table-3). This is that they couldn't recognize the difference between using and not using IoT. Because They didn't have any IoT appliance and any image how to use IoT. But They had the strong behavior and attitude by using the television, the digital recorder, the light and the air conditioner. The television and the digital recorder already had been connected to the internet. They could have the image how they use the television and the digital recorder on the internet. The light and the air conditioner are often used as the example of IoT. Therefore, they could have the image how to use it.

At the situation, they didn't have the strong behavior and attitude by operating from outside house. But they had the strong behavior and attitude that they wanted to operate from inside house and with voice. This is that they are interested in operating IoT with the voice. Because to operate with the voice often is often used as the example of IoT. they have the image by operating IoT appliance with the voice.

The result is that they had heard the word of "IoT" in somewhere, but they couldn't explain it. Therefore, it is important to give the knowledge of IoT and the image how to use it.

Table-1 Have you heard IoT"

Have you heard of IoT?	n	Freq. (%)
No	19	33.9
Yes	37	66.1
Total	56	100.0

Table-2 Can you explain IoT

Can you explain IoT?	n	Freq. (%)
Can not	34	60.7
Can	22	39.3
Total	56	100.0

4. CONCLUSION

WoT Technology is important technically. But There are many other protocols and standards. It is important to survey and research the usefulness and the advantage of WoT Technology and the difference from other protocols and standards. It is important to survey and research a lot of use cases to do it. There are many use cases. There are several ways to survey and research use cases. It is important to survey and research not only to the industry, but to the consumer. Unless surveying and researching to the consumer, no one can understand the behavior and attitude of the consumer, and no one uses the IoT appliance. This report is the investigation of the behavior and attitude of the consumer to use the IoT appliance. The result is that they had heard the word of "IoT" in somewhere, but they couldn't explain it. Therefore, it is important to give the knowledge of IoT and the image how to use it.

Therefore, we should discuss many functions with considering not only use cases of the industry, but use cases of the consumer.

My purpose is as follows

1. To research and survey use cases of the IoT with the industry and the consumer and to extract and classify functions for WoT Technology.
2. To clarify why functions are implemented by using use cases.
3. To clarify the usefulness and the advantage of WoT Technology by using use cases.
4. To create social solutions and business solutions by using WoT Technology.

Table-3 The behavior and the attitude of the consumer about IoT

	Appliance	To control form inside house(%)	To operate from outide house(%)	To operate with voice(%)
Bedroom	Light	67.9	33.9	66.1
	Air Conditioner	69.6	55.4	60.7
	Curtain (Blind)	46.4	30.4	46.4
	Shutter	37.5	32.1	39.3
	Window	39.3	26.8	42.9
	Lock of Window	44.6	28.6	41.1
Kitchen	Light	44.6	26.8	55.4
	Air Conditioner	50.0	37.5	55.4
	Curtain (Blind)	26.8	21.4	42.9
	Shutter	25.0	21.4	39.3
	Window	21.4	19.6	37.5
	Lock of Window	23.2	23.2	39.3
	Ventilation Fan	37.5	32.1	46.4
	Refrigertor	37.5	30.4	46.4
	Range	42.9	26.8	50.0
	Gas Stove	30.4	23.2	42.9
	Water Heater	44.6	28.6	48.2

	Appliance	To control form inside house(%)	To operate from outide house(%)	To operate with voice(%)
Living Room	Light	67.9	42.9	62.5
	Air Conditioner	66.1	58.9	64.3
	Curtain (Blind)	50.0	30.4	46.4
	Shutter	37.5	26.8	41.1
	Window	33.9	19.6	42.9
	Lock of Window	37.5	32.1	42.9
	Television	66.1	41.8	60.7
	Digital Recorder	62.5	48.2	60.7
Entrance	Light	66.1	51.8	55.4
	Air Conditioner	44.6	33.9	53.6
	Curtain (Blind)	26.8	19.6	42.9
	Shutter	26.8	21.4	39.3
	Window	25.0	21.4	37.5
	Lock of Window	26.8	25.0	37.5
	Lock of Door	58.9	51.8	50.0