Survey

Consent for Participation in a Research

Study Title: A study of user preferences for violation repair in WoT systems

Investigator: XXX

Student Researchers: XXX XXX XXX

We are researchers at XXX University and are conducting a study on violation repair strategy in Web of Things (WoT) system. This research aims to explore user preferences for different violation repair options when a violation occurs in a WoT environment where smart devices are deployed. We need you to answer a total of 16 questions in different scenario settings.

People over the age of 18 and with cognitive abilities are eligible to participate, which takes about a few minutes.

There are no risks associated with participating in this survey. You can gain a deeper understanding of some common sense of life through this survey.

Any reporting and presentation of the results of this study will not reveal any information about the participants.

Your age

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Your career type

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| ○ Engineering |  |
| ○ Science |  |
| ○ Social sciences |  |
| ○ Medical science |  |
| ○ Agronomy |  |
| ○ Education |  |
| ○ Student |  |
| ○ Others |  |

Your education level

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| ○ College degree and below |
| ○ Undergraduate degree |
| ○ Master degree |
| ○ PhD degree and above |

Next we will give you descriptions of the two simple environments, including some of their location information and deployed devices. Each environment will have eight questions for you to answer, and each of the question includes:

Environment description: indoor and outdoor environment, home appliance status, events;

Violation: events or states in the current environment that may cause violation;

Repair options: Several options for resolving violations in the current environment.

You need to select the repair options according to your own ideas to indicate which option is more consistent with your mental expectations.

Laboratory: a very large room with windows to the outside, reachable to the corridor, and at the end of the corridor is the tearoom.

Devices: air conditioners, humidifiers, dehumidifiers, refrigerators, water dispenser, microwave oven, air purifiers.

There are eight questions below. Please select the repair action you expect to perform for the given violation according to your intention.

1. Environment description: the temperature inside the laboratory is high and the temperature outside is moderate. The system opened the windows in an attempt to cool down, but it rained.Environment description: The temperature inside the laboratory is high and the temperature outside is moderate. The system opened the windows in an attempt to cool down, but it rains.  
   Violation: Opening windows on rainy days may cause indoor items to get damp.

Cause: It's raining outside.

Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Environment description: The weather is sunny and the indoor and outdoor humidity is low. The laboratory window is open and the user turns on the humidifier.  
   Violation: Opening windows will greatly reduce the effectiveness of the humidifier.

Cause: The user turns on the humidifier.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: In summer, it was raining outside. The user in home felt that turning on the air conditioner was a bit dry, so he opens the window.  
   Violation: Windows should not be opened when the air conditioner is on.

Cause: The user opens the window.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: on a sunny day, the air quality in the laboratory was poor, so the system turned on the air purifier. The user opens the window.

Violation: opening windows will make the air purifier less effective.

Cause: The user opens the window

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: The indoor humidity is low, and the user never turns off the humidifier after turning it on.  
   Violation event: If the humidifier is not turned off, the ambient humidity will be too high.

Cause: The user never turns off the humidifier for a long time.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: The user opened the water dispenser to receive water, but forgot to turn it off after receiving the water. The water dispenser remained open for 3 minutes.  
   Violation: Leaving the water dispenser on for a long time is a waste of water.

Cause: The water dispenser has been running for 3 minutes.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: Outdoor air quality is better, but humidity is higher because it just rained . The indoor air quality is poor and the user opened the window for ventilation ten minutes ago.  
   Violation: When the outdoor humidity is high, keeping the windows open for a long time will cause the indoors to get damp.

Cause: The window was open for 10 minutes.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: It was holiday soon, and most of the people in the laboratory had left, except for a few people who were still there. But all the air conditioners in the lab were on for half an hour and the outdoor temperature is low.  
   Violation: When there are few people, turning on a lot of air conditioners wastes electricity.

Cause: All air conditioners in the lab were on for half an hour.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Smart Home: have a living room and a study room that are reachable to each other and both have windows.

Devices: air conditioners, humidifiers, stereos, refrigerators, water dispenser, light, electric fan, warm air blower.

There are five questions below. Please fill in the brackets in front of each action in the order in which you expect the actions to be performed.

1. Environment description: The user opens the door and leaves the study room to go to the living room. The air conditioner and door in the room are not turned off.  
   Violation: Air conditioner and doors should not be opened at the same time.

Cause: The user leaves the study room.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: On a sunny day, the curtains in the study room are drawn and the lights are turned on. The user opens the curtains.  
   Violation: When the curtains are open, if the outdoor brightness is high, there is no need to turn on the lights indoors.

Cause: The user opens the curtains.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: On a sunny day, the user walks into the study room. The lights were not turned on and the curtains were not opened.  
   violation: It should be ensured that users have sufficient brightness when they are in the study room.

Cause: the user enters the study room.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: In cold weather, the outdoor air quality is good, the indoor air quality is average, and the user opens the windows.  
   Violation: No equipment should have cooling effect at low temperatures .

Cause: The user opens the windows.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: The indoor temperature is higher.The user turned on the air conditioner in the living room and entered the study room and did not come out for a long time.

Violation: Turning on the air conditioner in a place where no one is around will waste electricity. The environment where the user is located is relatively hot.

Cause: The user entered the study room.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: At night, there is no one in the study, but the lights and curtains have been open for the past ten minutes.

Violation: This environment may leak user privacy.

Cause: the lights and curtains have been open for the past ten minutes.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: In the cold winter, the indoor temperature is higher than the outdoor temperature, but the indoor air quality is poor. The user opened the window 3 minutes ago.

Violation: Keeping windows open for long periods of time in winter will cause the indoor temperature to drop sharply.

Cause: The window was open for three minutes.

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. Environment description: The user went on a trip and closed all indoor equipment, doors and windows, resulting in poor air quality, which has lasted for three days..

Violation: Prolonged periods of low indoor air quality can affect the health of those who enter.

Cause: Doors, windows and equipment closed for three days

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| Expected Resolution:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Reason:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |