

Thesis Experiment #1

Interviewee Profile

Age: 24

Nationality: Colombian

Gender: Female

Native Language: Spanish

Interview Language: Spanish

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: Very little, because I don't get used to using them in daily activities, but rather as very specific things.

R: Muy poco, porque no me acostumbro a utilizarlos en actividades diarias, sino como cosas muy específicas.

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: Yes, Google Home

R: Sí, Google Home.

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: Not having to think so much about the indication that I am going to give it, but rather that in the way that is normally spoken he can understand me and look for what I need

R: No tener que pensar tanto en la indicación que le voy a dar, sino que de la forma que se habla normalmente me pueda entender y buscar lo que necesito

Do you have a preference for text-based or image-based interactions? Why?

R: I prefer textual interactions because I feel like it's easier to explain something in detail.

R: Prefiero las interacciones textuales porque siento que es más fácil explicar detalladamente algo

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: Usually I give very long instructions, I have to do a second, more precise search.

R: Normalmente doy instrucciones muy largas, normalmente me toca hacer una segunda búsqueda más precisa.

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: Once I wanted the device to tell me what the weather would be like the next day, "Weather Bogotá Tomorrow", it started to respond and halfway through the response it went silent, and played a song on Spotify.

R: Una vez quise que el dispositivo me dijera cómo estaría el clima al otro día, "Clima Bogotá Mañana", empezó a responder y a la mitad de la respuesta se silenció, y reprodujo una canción en Spotify.

7-Jan-2024

Development

1st Command

Modality: Images

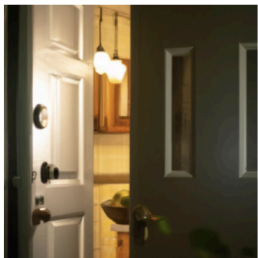
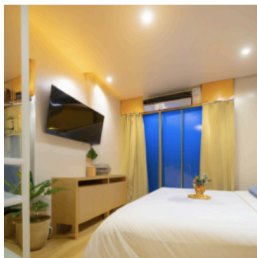

Command: Create a relaxing ambiance when I arrive home.

Expectation: The temperature is the same, the light is warm (#F7CB52), the TV turns off and the radio plays pop music.

Expectation: Que la temperatura se mantenga, que la luz sea cálida, que la TV se apague y que la radio tenga música pop.

Disambiguation Options

Can you help me to know what is relaxing ambience



☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 4

Comment: It could show many more details of the space so that the changes in the environment are more evident.

Comment: Podría mostrar muchos más detalles del espacio para que sea más evidente el cambio de ambiente.

System's Result

In order to comply with user instruction, the following changes need to be made. The front door lock state should be changed to unblock to allow easy access. The kitchen should be comfortably cool, so the thermostat in the kitchen needs to be adjusted to a lower temperature. The kitchen lamp color should be set to a mellow white for a relaxing ambiance.

Score: 4

Comment: The result does not take into account any sound and it is important for a relaxing environment. The other aspects are well described and include things I didn't have in mind.

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Comment: En la descripción no toma en cuenta nada de sonido y es importante para un ambiente relajado. Los otros aspectos están bien descritos e incluye cosas que no tuve en mente.

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2nd Command

Modality: Images



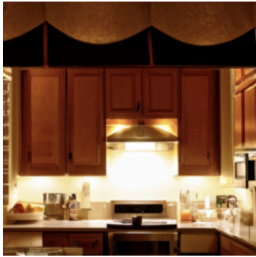
Command: Make the kitchen cozy

Expectation: Temperature of 17C and white light.

Expectation: Una temperatura en 17C y la luz que sea blanca.

Disambiguation Options

Can you help me to know what is cozy kitchen



☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 5

Comment: It's an environment pretty close to what I initially thought, even much more modern and more pleasant. The image manages to convey the temperature.

Comment: Es un ambiente bastante cercano a lo que pensé inicialmente, incluso mucho más moderno y hace que sea más agradable. La imagen logra transmitir la temperatura.

System's Result

To make the kitchen cozy, we need to adjust the light in the kitchen. The KitchenLamp's state is already on, but we might want to change the color to give a warm, cozy feeling. As no specific color was mentioned, let's change it to a warm hue like yellow or amber.

Score: 3

Comment: It took into account the light and did not take into account the temperature, which I consider to be important when working in the kitchen.

Comment: tuvo en cuenta la luz y no tuvo en cuenta la temperatura lo cual considero que es importante a la hora de trabajar en la cocina.

7-Jan-2024

3rd Command

Modality: Text

Command: Set romantic lights in the kitchen

Expectation: neon-like pink lights (#F41AB4) with medium intensity.

Expectation: Luces rosadas tipo neón e intensidad media.

Disambiguation Options

Can you help me to know what is romantic lights

Dimmed warm white lights at 30% intensity

Soft pink lights at 50% brightness

Alternating dim red and white lights

☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 5

Comment: Being a textual option it is much closer to what I can imagine, it is better described.

Comment: siendo una opción textual se acerca mucho más a lo que puedo imaginarme, se describe mejor.

System's Result

The user wants to set romantic lights in the kitchen, which is defined as soft pink lights at 50% brightness. The only device in the kitchen that can perform this function is the KitchenLamp. It has two properties that can be modified to achieve this effect: color and brightness. Therefore, these properties should be changed to comply with the user's request.

Score: 5

Comment:

Comment: N/A

7-Jan-2024

4th Command

Modality: Text

Command: Turn on the lights if a child enter the house

Expectation: Through the motion sensor and the camera, the child can be recognized with the speed of movement and the size of the face. For me a child is from 3 to 12 years old.

Expectation: A través del sensor de movimiento y la cámara se puede reconocer al niño con la rapidez del movimiento y el tamaño de la cara. Para mí un niño es de 3 a 12 años.

Disambiguation Options

```
Response: {  
  "definitions": ["Activate lights when a person under 13 years enters the house.", "Turn on lights if a voice with a pitch above 215 Hz is detected indoors.", "Illuminate the house if movement less than 4 feet high is identified inside."]  
}
```

Selected Option: 1

Score: 4

Comment: It's close to the age limit I thought, but it could have taken other aspects into account.

Comment: se asemeja al límite de edad que pensé, pero pudo tener en cuenta otros aspectos.

System's Result

As per the user's instruction, the lights should be turned on when a child enters the house. To implement this, the system should connect the Entrance Movement Sensor to the KitchenLamp. When the sensor detects movement, the AI should check the Entrance Camera to determine the age of the person. If the person is under 13 years old, the system should turn on the KitchenLamp.

Score: 5

Comment: It is well described what I thought to know if it was a child.

Comment: Está bien descrito lo que pensé que debería tener en cuenta para saber si era un niño.

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: In general terms, good, but sometimes it needed additional rectification to get to what I was thinking.

R: En líneas generales bien, pero a veces necesitaba una rectificación adicional para llegar a lo que yo estaba pensando.

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: Ineffective that it does not vary perception, vibrating temperature is 21C, comfortable temperature is 21C, etc.

R: Inefectivo que no variable la percepción, temperatura vibrante 21C, temperatura comoda 21C, etc.

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Yes, I feel that with images you can capture some aspects about what you are thinking.

R: Sí, Siento que con imágenes se puede plasmar en algunos aspectos lo que uno está pensando.

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Yes, but not for all cases, I think that there are images that fail to capture everything that is being thought.

R: Sí, pero no para todos los casos, porque pienso que hay imágenes que no logran plasmar todo lo que se está pensando.

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R: The images do not provide many details that may be useful, the text does.

R: Las imágenes no brindan muchos detalles que pueden llegar a ser útiles, el texto sí.

7-Jan-2024

Which modality do you believe would be more effective in different scenarios or contexts?

R: I would say text, because it can be more descriptive, so it can express more details.

R: Creería que en texto porque puede ser más descriptivo, así que puede tomar más detalles.

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Images should come with a description, the best of both worlds.

R: Las imágenes deberían ir con una descripción, lo mejor de dos mundos.

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: A problematic scenario is when some things cannot be represented in the image options, such as the sound, it is not possible to see it through the image.

R: Un escenario problemático es que no se puedan representar cosas en las opciones de imágenes, como por ejemplo el sonido, no es posible verlo a través de la imagen.

Thesis Experiment #2

Interviewee Profile

Age: 27

Nationality: Colombian

Gender: Male

Native Language: Spanish

Interview Language: English

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: I only have Smart TV and the phone assistant, however none of them control my house. I have seen these devices in other houses but I have never used them directly.

R:

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: Sometimes I use Siri. It's rarely that I use it, I usually use it when I'm driving or I need to answer a message.

R:

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: I expect smart home systems not to use my information for unlawful/unethical purposes. I want them to respond fast and according to my preferences and thoughts. For me it is difficult to use my voice, I'd prefer to give the instructions by text.

R:

Do you have a preference for text-based or image-based interactions? Why?

R: I am a visual person, I prefer image-based interactions. Even better if the images are from the real context, not approximated.

R:

15-Jan-2024

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I try to be very specific with my instruction, because I realized that whenever I use specific commands the response is more accurate.

R:

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: I don't remember any situation.

R:

15-Jan-2024

Development

1st Command

Modality: Text

Command: Create a relaxing ambiance when I arrive home.

Expectation: Temperature in all rooms should be between 17C and 19C. Also, the lights should be bright around 75%, Youtube videos on the TV with music.

Expectation:

Disambiguation Options

Can you help me to know what is relaxing ambiance

Dimming lights to 50%, playing soft jazz music at 20% volume.

Setting thermostat to 22°C, diffusing lavender aroma, turning on white noise at 15% volume.

Activating indoor waterfall, turning on warm LED lights, playing nature sounds at 25% volume.

☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4.5

Comment: I like the first and second option, even though I did not think about selecting the 3rd option, it is good, I'd like to have the possibility of selecting multiple options.

Comment:

System's Result

To create a relaxing ambiance, the lights in the house need to be dimmed to 50%. However, only the kitchen lamp is available in the environment for adjustment. Also, soft jazz music should play at 20% volume. The device available for this is the Bedroom Speaker.

Score: 4

Comment: I agree with the first part, maybe, I'd prefer more options to listen to music, from the TV for example because I am a visual person.

Comment:

15-Jan-2024

2nd Command

Modality: Images

Command: Make the kitchen cozy

Expectation: 17C because it is for cooking, I'd like yellow lights (burnt yellow) with 70% brightness.

Expectation:

Disambiguation Options

Can you help me to know what is cozy kitchen



☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4

Comment: The lights are accurate, however in an image I do not know if it is possible to know the temperature with an image.

Comment:

System's Result

To make the kitchen cozy, we need to ensure the KitchenLamp is on with a warm light setting. It implies the 'state' of the lamp should be true and the 'color' should match the provided color 'FFFFFF'. No changes are needed for the lamp as it already meets the requirements. For a warm kitchen, the thermostat's temperature should be increased from the current value of 19.

Score: 2

Comment: The color is not the same as the one shown in the image. The temperature of the room should be increased according to the system, however for me the kitchen can get pretty warm.

Comment:

15-Jan-2024

3rd Command

Modality: Images



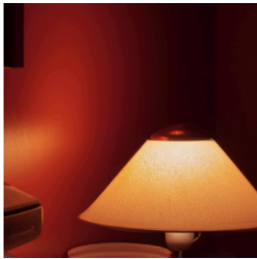
Command: Set romantic lights in the kitchen

Expectation: For me cozy is romantic, so I expect yellow lights (burn) with 50% brightness.

Expectation:

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option:

Score: 3.8

Comment: Just the third image has a kitchen in the frame. The other two are just places.

Comment:

System's Result

The user wants to set up a romantic light in the kitchen. This requires changing the properties of the KitchenLamp. The color needs to be changed to amber and the state should be dimmed for it to give a warm, romantic glow.

Score: 4.7

Comment: It's almost exactly what I thought.

Comment:

15-Jan-2024

4th Command

Modality: Text

Command: Turn on the lights if a child enters the house

Expectation: If a person from 0 to 12 enters the house the lights of the kitchen remain turned on in full brightness.

Expectation:

Disambiguation Options

Can you help me to know what is child enters the house

Activate lights when a person below 18 enters the house

Switch on lights when a small-sized person comes in

Turn on lights if the facial recognition identifies a child entering

☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 3.5

Comment: Because none of them is close to what I thought. Maybe, the third one, however it does not provide a result to solve the ambiguity.

Comment:

System's Result

The user instruction is to turn on the lights if a child enters the house. This implies that the Entrance Camera, which has facial recognition capabilities, detects a child. When this happens, all lights in the house should be turned on. The only light in the house according to the provided environment is the KitchenLamp. Therefore, the change should be made to the KitchenLamp to turn on if it is not already on.

Score: 4.8

Comment: It's what I expected with the command, however, it never asked me what a child is for me. If I suppose it knows what a child is for me, the result is pretty good.

Comment:

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: Most of the cases were so close to my initial interpretation, even in the cases where the option pictures could be a little confusing

R:

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: One of the particular aspects that I consider effective is the response time and the intuitiveness to select any option

R:

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Yes, I did, but sometimes I think that it's necessary to mix modalities in the options or describe the images.

R:

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Yes, I would because I could improve and customize my smart home system with my preferences and the system could understand me better.

R:

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R: Sorry, I don't get the question

R:

15-Jan-2024

Which modality do you believe would be more effective in different scenarios or contexts?

R: Even though I consider myself a visual reception person, I felt more comfortable with the text modality because it was more specific and, in my opinion, it was clearer what the system was going to do.

R:

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Yes, the possibility for selecting more than one option, because sometimes the options aren't different, they are complements among them

R:

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: I have nothing in mind.

R:

Thesis Experiment #3

Interviewee Profile

Age: 25

Nationality: Colombian

Gender: Female

Native Language: Spanish

Interview Language: English

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: I know there are systems in place to use in a home but I do not know them and I do not use them.

R:

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: No I haven't.

R:

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: I expect it to understand commands but I know there can be space for mistakes, maybe because of pronunciation or different languages. But I think it is expected that it starts to have more accuracy as I use it and it identifies my patterns.

R:

Do you have a preference for text-based or image-based interactions? Why?

R: I prefer image-based interactions because of my career as a Photographer, I think I connect more easily with it, even though I use both, text and image, I prefer apps like Instagram or Pinterest.

R:

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I usually try to use key words if what I am trying to search is something more complex, so I can get more specific results and the time I spend looking something up will be shorter.

R:

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: I have my phone settings in spanish and english and I sometimes find that it doesn't recognize easily the way I say some words in english.

R:

16-Jan-2024

Development

1st Command

Modality: Images


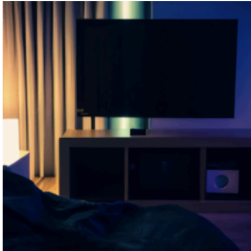
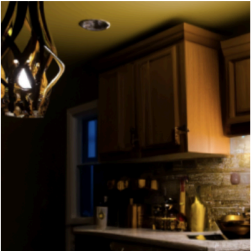
Command: Create a relaxing ambiance when I arrive home.

Expectation: I expect the temperature to be at 19 degrees so it feels warm when I come in, I would like the lights to be **warm** and the speaker to be playing a jazz playlist with the volume at 25%

Expectation:

Disambiguation Options

Can you help me to know what is relaxing ambiance



☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4

Comment: I like this because it is the type of warm lighting I prefer at night.

Comment:

System's Result

The user instructed to create a relaxing ambiance when he arrives home. This specifically means a warm, dimly lit kitchen with the lamp casting a soft white glow. Based on the devices available in the environment, the KitchenLamp and the Kitchen Thermostat can be used to create this ambiance. The KitchenLamp color can be changed to a warm white color and the Kitchen Thermostat can be set to a warm temperature.

Score: 3

Comment: I think a relaxing ambiance is a warm dimly lit kitchen with the Thermostat set to a warm temperature but it also applies to the living room where I would probably be spending more time at night. It would be a good idea to be able to select more than one option so I can elaborate what I like most about each one.

16-Jan-2024

2nd Command

Modality: Text

Command: Make the kitchen cozy

Expectation: I expect it to be a cool temperature like 13 degrees but a somewhat warm lighting.

Expectation:


Disambiguation Options

Can you help me to know what is cozy kitchen

Set kitchen lights to warm yellow, temperature to 22°C, and play soft jazz at volume 3.

Decorate kitchen with red and brown accents, adjust temperature to 24°C.

Set kitchen lights to dim, play soft classical music at volume 2, and engage the coffee maker.

 None of them

AI-the generated content could not be right

Selected Option: 3

Score: 5

Comment: I like this setting because I prefer dimmed lights, and the music at a lower volume and coffee make for a cozy evening.

Comment:

System's Result

In order to make the kitchen cozy, I need to dim the lights, play soft classical music, and engage the coffee maker. However, in the given environment, there is no coffee maker or speaker in the kitchen. The only device I can change in the kitchen is the KitchenLamp. I will set the KitchenLamp's state to true and change its color to a warm tone to make it dim.

Score: 4

Comment: I didn't score it 5 because it offered music and coffee but then told me it doesn't have it, but I do like the lights to be dimmed and warm.

Comment:

16-Jan-2024

3rd Command

Modality: Images

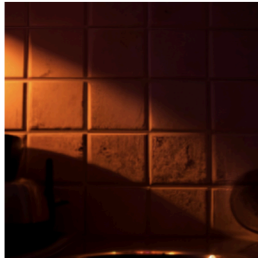
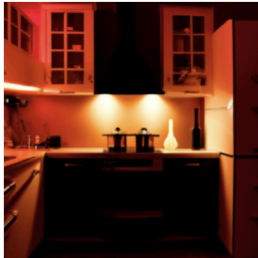
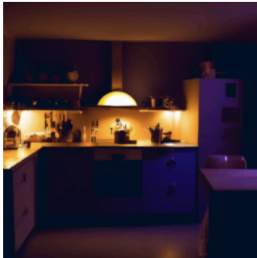
Command: Set romantic lights in the kitchen

Expectation: I expect it to be a warmer lighting setting but dimmed to a 75% approximately.

Expectation:

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option: None of them

Score: 3

Comment: Even though I associate warm lighting with a romantic setting, I think the lights that are shown in the pictures are too harsh and too orange, I think it would be better if it were a little bit more cool and dimmed.

Comment:

System's Result

The user wants to set romantic lights in the kitchen. This involves changing the color and potentially the brightness of the light in the kitchen. The only device in the kitchen capable of this is the 'KitchenLamp'. Hence, we would need to adjust the 'color' property of this device to a soft, warm hue typically associated with a romantic atmosphere. Based on standard practice, a warm pink or red color can be considered romantic. However, the current JSON data structure does not provide a property to adjust the brightness of the light.

Score: 2

Comment: I like that the color of the light can be changed to a warm pink but I personally think the property of brightness of the light is important for the ambience of the space to feel different than the usual 100% brightness, for some situations it could be too harsh.

Comment:

4th Command

Modality: Images

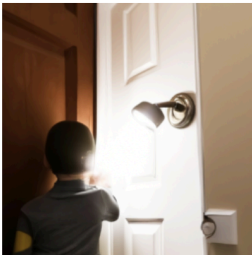
Command: Turn on the lights if a child enter the house

Expectation: I think it would be important for the lights to turn on when a child enters the house, I consider a child between 100 cm and 135cm

Expectation:

Disambiguation Options

Can you help me to know what is child



☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 4

Comment: I think the options are pretty close to a representation of a child, the third one is more close to the limit of the height of a person I would consider important for the lights to turn on, because maybe if they are taller they are capable of turning on the lights by themselves without help. But it is important to recognize that a child is not just this height but smaller.

Comment:

System's Result

The user wants the kitchen lamp to turn on with full brightness when a child enters the house. The motion sensor at the entrance will detect the child's movement. On detecting movement, the 'KitchenLamp' device needs to be set to 'on' state and its brightness should be set to full ('100').

Score: 3

Comment: The action is accurate but it doesn't specify the importance of the height of the person so it doesn't always turn on.

Comment:

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: I think the system's response was good on average but it wasn't specific enough with some of the commands.

R:

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: I found ineffective that it offered me to turn on the coffee machine and the speaker but then told me that it doesn't have those appliances. And I found effective that it understands some scenarios that have more difficulty like a romantic setting because this is more up to personal interpretation, or the height of a child based if the kid can reach the door handle.

R:

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Yes

R:

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: I don't interact with a smart home system so I can't say.

R:

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R: ?

R:

16-Jan-2024

Which modality do you believe would be more effective in different scenarios or contexts?

R: I think images are more effective because for some people it's easier to understand something if shown visual examples than text that could be interpreted in different ways, based on personal experiences.

R:

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: An improvement could be that you could pick two options to interpret the prompt better.

R:

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: I think the modality of images is beneficial to translate ideas for people who have a hard time understanding a concept or an idea of another person, or materialize in a way their own idea. And it would be problematic for blind or visually impaired people, because there isn't an option of audio description.

R:

Thesis Experiment #4

Interviewee Profile

Age: 29

Nationality: Colombian

Gender: Female

Native Language: Spanish

Interview Language: Spanish

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: I know that it allows you to add multiple smart home features, so that they are automatic upon voice command. I have used Alexa to play music.

R: Sé que permite conectar varias funcionalidades del hogar, para que sean automáticas al comando de voz. He usado Alexa para reproducir música.

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: Alexa and Siri to search for things on Google and write messages on WhatsApp.

R: Alexa y Siri para buscar cosas en google y escribir mensajes en whatsapp

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: I expect it to understand simple commands without being so specific and that it handles several devices.

R: Que entienda con comandos sencillos y sin ser tan específicos y que maneje varios dispositivos.

Do you have a preference for text-based or image-based interactions? Why?

R: I prefer text, many times I skip images and go directly to the text, text is much more explicit, an image does not allow us to understand an instruction for example.

R: Prefiero texto, muchas veces omito las imágenes y me voy al texto, el texto es mucho más explícito, una imagen no permite entender una instrucción por ejemplo.

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Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I am specific with my instructions and speak to it as if it were a sentient being.

R: Soy específica con las instrucciones y le hablo como si fuese un ser sintiente.

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: I asked Alexa to play an artist and since the instruction was not specific, she redirected me by default to Amazon and played a playlist.

R: Le pedí que reprodujera un artista y como la instrucción no fue específica me envía por default a amazon y pone una lista de reproducción.

16-Jan-2024

Development

1st Command

Modality: Text

Command: Create a relaxing ambiance when I arrive home.

Expectation: 17C in kitchen and bedroom, dim light (50%) yellowish.

Expectation: 17C en cocina y habitación, luz tenue (50%) amarillenta.

Disambiguation Options

Can you help me to know what is relaxing ambiance

Dimmed warm lighting with soft jazz playing at low volume.

Moderate cool lighting with ambient sounds at medium volume.

Bright natural light with classical music playing at soft volume.

☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4.5

Comment: I like jazz and the type of light that option offers. I liked them all.

Comment: Me gusta el jazz y el tipo de luz que ofrece esa opción. Todas me gustaron.

System's Result

To create a relaxing ambiance as per the user's instructions, the lighting needs to be changed to a warm color and dimmed. The KitchenLamp seems to be the primary light source in this environment, so it should be adjusted. The brightness needs to be reduced, and the color needs to be changed to a warm color. As for the soft jazz playing at a low volume, the Bedroom Speaker can be used. The volume needs to be reduced to ensure it's relaxing and not disturbing. We will also make sure to play soft jazz music. There are no specific devices to set up a music source in the JSON provided, so we will have to assume that the Bedroom Speaker is capable of playing this type of music.

Score: 4.5

Comment: -

Comment: -

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2nd Command

Modality: Text

Command: Make the kitchen cozy

Expectation: Light at 80% white, 14C in the kitchen.

Expectation: Luz a 80% que sea blanca, 14C en la cocina.

Disambiguation Options

Can you help me to know what is cozy kitchen

Set the lighting to soft yellow, play smooth jazz at volume 5.

Heat the room to 22°C, prepare herbal tea.

Arrange plush seat cushions, display the homemade cookies.

☒ None of them

AI-the generated content could not be right

Selected Option:

Score: 3.5

Comment: In the first one, I like jazz, and I like making tea, but it didn't match what I thought.

Comment: En la primera el jazz me gusta, que prepare un té también, pero no atinó con lo que yo pensaba.

System's Result

To make the kitchen cozy, we can adjust the lighting and temperature. The KitchenLamp can be dimmed to create a warm environment and the color can be changed to a warmer tone. The Kitchen Thermostat can be adjusted to a more comfortable temperature.

Score: 3.5

Comment: I would like a cold tone of light to cook better, as well as the temperature.

Comment: Me gustaría un tono frío de luz para cocinar mejor, al igual con la temperatura.

16-Jan-2024

3rd Command

Modality: Images




Command: Set romantic lights in the kitchen

Expectation: To change the temperature to 20C and make the color between yellow and orange. I change the temperature because love is hot. I relate the color to the temperature. A cold environment is not romantic.

Expectation: Cambiar la temperatura a 20C y que el color sea entre amarillo y naranja. Cambio la temperatura porque el amor es caluroso. Relaciono el hecho del color con la temperatura, para calentar el ambiente. Un ambiente frío no es romántico.

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 4

Comment: The last one does not convey romance, it is scary.

Comment: La última no transmite romanticismo, da miedo.

System's Result

The user has requested to set romantic lights in the kitchen. This implies that we need to adjust the properties of the KitchenLamp. We will need to set the color to a soft hue, lower the brightness to a comfortable level to mimic the flickering of candlelight, and ensure the state of the lamp is true, i.e., it is turned on.

Score: 4.8

Comment: It's okay.

Comment: Está bien.

4th Command

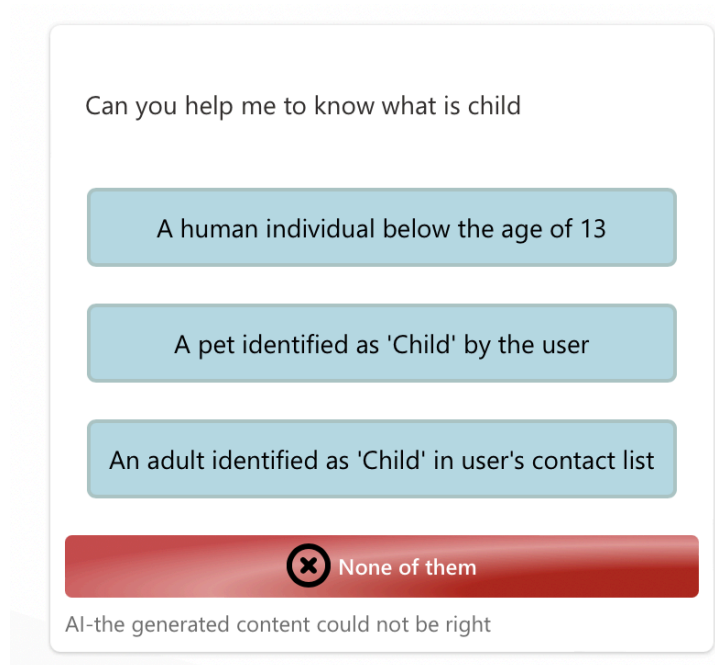
Modality: Images

Command: Turn on the lights if a child enter the house

Expectation: White light with 90% brightness, for people from 0 to 16 years old.

Expectation: Luz blanca con brillo al 90%, para las personas de 0 a 16 años.

Disambiguation Options




Can you help me to know what is child

A human individual below the age of 13

A pet identified as 'Child' by the user

An adult identified as 'Child' in user's contact list

 None of them

AI-the generated content could not be right

Selected Option:

Score: 4

Comment: In my case the first option would work and the second one would also work because I have a pet and I consider it a child.

Comment: En mi caso la primera funcionaría y la segunda también porque tengo mascota y la considero un niño.

System's Result

To fulfill the user instruction, we need to ensure that the lights turn on whenever a child enters the house. This can be achieved by modifying the state of the lamp device to 'true' whenever the entrance motion sensor detects movement and the entrance camera identifies an individual below the age of 13.

Score: 4

Comment: Because it lacks the light color.

Comment: Porque le faltó el color.

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: It adjusted the devices to my preferences, most of the responses were consistent with what I wanted in each environment, it had some inaccuracies but it worked.

R: Se ajustó a mis preferencias, la mayoría de respuestas eran acordes a lo que quería en cada ambiente, tenía sus imprecisiones pero funcionaba.

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: Mixing multiple devices even if they were not in the same room was effective. Some options were ineffective, because they were very crazy, like offering cookies.

R: Efectivo que mezclaba varios dispositivos incluso si no estaban en la misma habitación. Algunas opciones inefectivas, porque estaban muy descabelladas, como la de ofrecer galletas.

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Easy to use, just watch and select.

R: Fácil de usar, solo observar y seleccionar.

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Text, because there are things that cannot be interpreted with an image.

R: Texto, porque hay cosas que no pueden interpretarse con una imagen.

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R: ?

R: ?

Which modality do you believe would be more effective in different scenarios or contexts?

R: I think people are too lazy to read.

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R: Pienso que la gente es perezosa para leer.

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Nothing.

R: Ninguno.

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: In the case of temperature for example, the image is problematic, same as representing a child in an image. Text is clear.

R: En el caso de la temperatura por ejemplo, la imagen es problemática, igualmente con un niño en imágenes. La de texto no tiene pierde.

Thesis Experiment #5

Interviewee Profile

Age: 13

Nationality: Colombian

Gender: Male

Native Language: Spanish

Interview Language: Spanish

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: I'm aware but not that familiar, I've used Google Home to listen to music.

R: Estoy informado pero no tan familiarizado, he usado Google Home para escuchar música.

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: I have used Google to search for information on Google Search and YouTube.

R: He usado Google para realizar búsquedas de información en Google Search y Youtube.

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: I expect it to have a more detailed manual on how to use it, that based on my information it knows how to respond to my commands, in a more human way.

R: Que haya un manual más detallado de como usarlo, que basado en mi información sepa cómo dar respuesta a mis comandos, un poco más humanizados.

Do you have a preference for text-based or image-based interactions? Why?

R: I prefer the text because I can understand everything.

R: Prefiero el texto porque se puede entender todo.

17-Jan-2024

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I am specific enough for it to be accurate, and not to get crazy results.

R: Soy bastante específico para que sea preciso, y no saque resultados que nada que ver.

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: I have nothing in mind.

R: No se me ocurre nada.

17-Jan-2024

Development

1st Command

Modality: Text

Command: Create a relaxing ambiance when I arrive home.

Expectation: Play relaxing music (jazz) or my playlist, put on lights like a sunset, a waterfall image on the TV without sound or the cover of the music in the speaker and the temperature at 17C.

Expectation: Que ponga música relajante (jazz) o mi playlist, poner luces como un atardecer, una imagen de cascada en el TV sin sonido o la portada de la música y la temperatura a 17C.

Disambiguation Options

Can you help me to know what is relaxing ambiance

Soft yellow lighting, temperature at 72°F, and light jazz playing at 35% volume

Dimmed blue lighting, temperature at 68°F, and ambient nature sounds at 40% volume

Warm orange lighting, temperature at 70°F, and classical music playing at 30% volume

☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 3.5

Comment: I would like a lower temperature, however it showed jazz and soft light.

Comment: Quiero una menor temperatura, aún así puso jazz y la luz suave.

System's Result

To create a relaxing environment, we can manipulate the available devices. The KitchenLamp can be turned to a soft yellow. The Bedroom and Kitchen thermostats can be set to 72°F (approximately 22.2°C). The Bedroom Speaker can be used to play light jazz at 35% volume. The state of other devices (such as MyTV and House Lock) do not directly contribute to the relaxing ambiance and can be left unchanged.

Score: 3.9

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Comment: The temperature is very high, and the volume is a little low, 65 would be fine. Asking more questions to be precise would be nice.

Comment: La temperatura está muy alta, y el volumen un poco bajo, a 65 estaría bien. Que haga más preguntas para ser preciso estaría bien.

17-Jan-2024

2nd Command

Modality: Images




Command: Make the kitchen cozy

Expectation: Set the cold environment to 15C, and the light between white and yellow

Expectation: Ponga el ambiente frío 15C, y la luz entre blanca y amarilla

Disambiguation Options

Can you help me to know what is cozy kitchen



☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 3.5

Comment: Because it did it halfway, it didn't show any temperature.

Comment: Porque lo hizo a medias, no mostró nada de temperatura.

System's Result

To make the kitchen cozy, the KitchenLamp should cast a warm glow. This can be achieved by changing the color of the lamp to a warm tone and adjusting its brightness to create a welcoming atmosphere. The temperature in the kitchen should also be slightly raised to increase the coziness.

Score: 4

Comment: He did almost everything, except the temperature, at least he tried to understand it.

Comment: Lo hizo casi todo, menos la temperatura, al menos lo intentó entender.

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3rd Command

Modality: Images



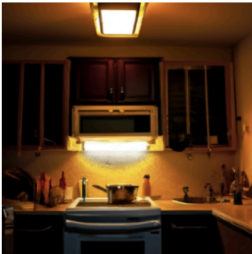
Command: Set romantic lights in the kitchen

Expectation: warm lightning.

Expectation: Una luz cálida.

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 5

Comment: The options are incredible for someone who doesn't know what romance is.

Comment: Las opciones estan increíbles para alguien que no sabe que es romance

System's Result

To create a romantic setting in the kitchen, we'll need to adjust the KitchenLamp. First, it needs to be on, which it already is according to the current state. To create the right ambience, we need to adjust the brightness to a lower level and change the color to a warm yellow.

Score: 5

Comment: It's what I wanted, it's what I had in mind.

Comment: Es lo que yo quiero, es lo que tenía en mente.

17-Jan-2024

4th Command

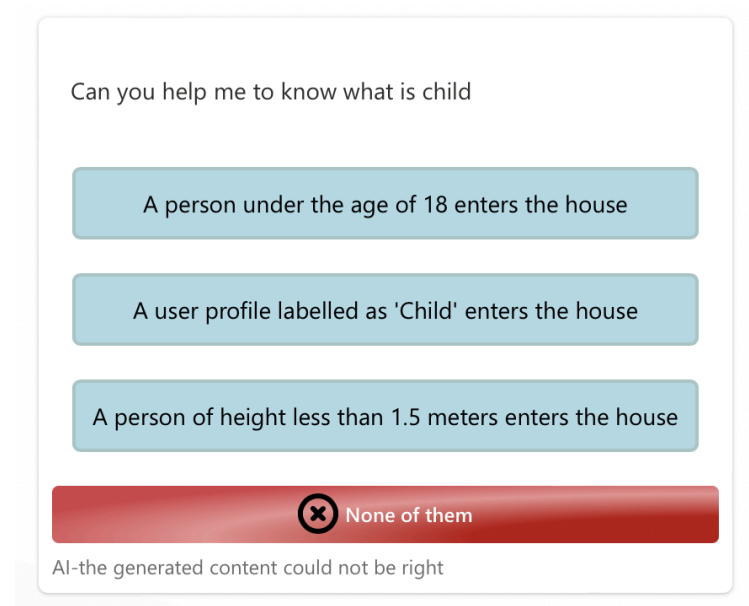
Modality: Text

Command: Turn on the lights if a child enter the house

Expectation: I expect the camera to catch a child (height less than 157 cm) and turn on the lights.

Expectation: Espero que la cámara capte que es un niño (estatura menor a 157 cm) y prenda las luces.

Disambiguation Options



Can you help me to know what is child

- A person under the age of 18 enters the house
- A user profile labelled as 'Child' enters the house
- A person of height less than 1.5 meters enters the house

☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 4.5

Comment: I don't consider someone who is 17 years old a child, and the third person's height is very low.

Comment: Porque a alguien de 17 no lo considero un niño y la estatura en la tercera es muy baja.

System's Result

The user wants to turn on the lights when a child enters the house. This requires two things: detection of a child entering the house and turning on the lights. The detection can be done by the 'Entrance Movement Sensor' and 'Entrance Camera'. We need to configure the sensor and the camera to identify a child and trigger an event. However, this capability depends on the technical specifications of the sensor and camera, which is not included in the provided environment. For the second part, it seems the only lighting device available in the house is 'KitchenLamp'. We need to make sure that its 'state' property is set to true when the child enters.

Score: 0

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Comment: It does not specify how it would detect that it is a child.

Comment: No especifica cómo detectará que es un niño.

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: Most of them were similar to what I wanted, in the last one it didn't offer a concrete solution. It should show more aesthetic things, specially the architecture, a better setting.

R: La mayoría fue parecido a lo que quería, en la última no ofreció una solución concreta. Debería mostrar cosas con mejor arquitectura, con una mejor ambientación.

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: I loved the questions to clarify ambiguities, the images were very effective, because I could see more or less what I wanted. The temperature was not very effective, because they were very high, the options did not vary.

R: Amé las preguntas para clarificar ambigüedades, las imágenes fueron muy efectivas, porque podía ver más o menos lo que quería. Poco efectivo la temperatura, porque eran muy altas, no variaron las opciones.

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: The text-based ones are not very intuitive, but the image-based ones are very intuitive.

R: No muy intuitivas las de texto, pero sí mucho las de imágenes.

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Images, because it is easier to use. However you should put numbers on the images to represent some properties, like temperature.

R: Imágenes, porque es más fácil de usar. Sin embargo deberían poner texto en las imágenes para representar algunas propiedades, como temperatura.

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R: _

R: _

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Which modality do you believe would be more effective in different scenarios or contexts?

R: Images because more information can be conveyed.

R: Imágenes porque se puede transmitir más información

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Put images that are pleasing to the eye and that do not alter perception, in some kitchens the light did not make it look romantic but rather one of terror/sadness.

R: Poner imágenes agradables a la vista y que no alteren la percepción, algunas cocinas la luz no la hacía ver romántica sino de terror/tristeza.

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: Text cannot convey things like light tones, images can show text or references, such as showing Freddy Mercury to associate him with rock.

R: El texto no puede transmitir cosas como tonos de luz, las imágenes pueden mostrar texto o referencias, como mostrar a Freddy Mercury para asociarlo con rock.

Thesis Experiment #6

Interviewee Profile

Age: 34

Nationality: Colombian

Gender: Female

Native Language: Spanish

Interview Language: Spanish

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: Yes, I am familiar, I have always had Alexa at work, I use it mostly to ask questions and play music.

R: Sí estoy familiarizada, en los trabajos siempre he tenido Alexa, la uso más que todo para preguntar y poner música.

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: Yes, Siri and Google, all the time, for searches.

R: Sí, Siri y Google, todo el tiempo, para búsquedas.

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: I expect it to help me avoid moving around and connect many things, to provide me with the most recent and accurate information. In terms of connectivity that helps me make things work, like the washing machine. It does exactly what I ask it to.

R: Que me ayude a evitar desplazarse y pueda conectar muchas cosas, que me de la información más reciente y acertada. En términos de conectividad que me ayude a hacer funcionar las cosas, como la lavadora. Que haga exactamente lo que le pido.

Do you have a preference for text-based or image-based interactions? Why?

R: I like Google Lens that from an image finds what I need.

R: Me gusta Google Lens que a partir de una imagen encuentra lo que necesito.

18-Jan-2024

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I talk to him like a person, I'm very specific but with key words. "Ok Google, search for crafting ideas".

R: Le hablo como a una persona, soy muy específica pero con palabras claves. "Ok Google, buscar ideas manualidades"

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: When looking for nail acrylic, look for acrylic in general.

R: Cuando busco acrilico para uñas, busca acrílico en general.

18-Jan-2024

Development

1st Command

Modality: Images

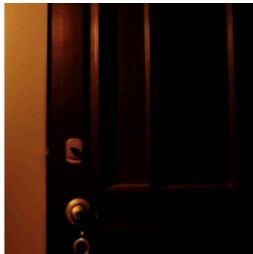


Command: Create a relaxing ambiance when I arrive home.

Expectation: I expect it to turn off the TV and dim the light (60%) in warm light.

Expectation: Espero que apague el televisor y que baje la luz (60%) en luz cálida.

Disambiguation Options

Can you help me to know what is relaxing ambiance



☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 5

Comment: Two of them are relaxing environments for me, and in the first one he got the light right.

Comment: Dos de ellas son ambientes relajantes para mí, y en la primera acertó con la luz.

System's Result

To create a relaxing ambiance, we need to adjust the kitchen lamp and the kitchen thermostat. The kitchen lamp needs to emit a soft, white glow. Therefore, we should set the color of the lamp to white, and adjust its brightness to a softer level, say 50%. The kitchen should also be warm, so we will increase the thermostat temperature to a more comfortable level, say 24 degrees.

Score: 4.5

Comment: It is creating the environment I need, only the temperature result is different. After I saw the options I changed my mind and I agree with the system.

Comment: Está creando el ambiente que necesito, solo que el resultado de la temperatura es diferente. Después de que vi las opciones me cambió la opinión y estoy de acuerdo con el sistema.

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2nd Command

Modality: Text

Command: Make the kitchen cozy

Expectation: Powerful white light (100% white) and a temperature of 13C.

Expectation: Luz blanca potente (blanca al 100%) y una temperatura de 13C.

Disambiguation Options

Can you help me to know what is cozy kitchen

Set kitchen lights to a warm, soft glow and play gentle jazz at low volume

Heat the kitchen to 22°C, with the scent of fresh-baked cookies

Arrange cushions on kitchen seats and set up a coffee machine for constant warmth



None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4

Comment: I like the temperature cooler than hot and it did not show me the option.

Comment: La temperatura me gusta más fría que caliente y no me mostró la opción.

System's Result

To make the kitchen cozy, the KitchenLamp should have its properties changed to create a warm, soft glow. This means adjusting the color to a warm hue and the brightness to a lower, softer level. As there are no speakers in the kitchen, unfortunately, I cannot comply with the instruction to play gentle jazz at a low volume.

Score: 1

Comment: I like the clear and very bright light, it didn't meet what I was thinking.

Comment: Me gusta la luz clara y muy brillante, no cumplió con lo que estaba pensando.

18-Jan-2024

3rd Command

Modality: Images

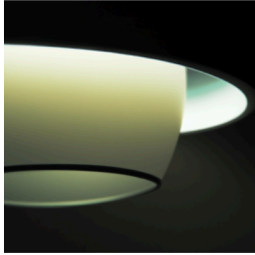


Command: Set romantic lights in the kitchen

Expectation: Warm and low brightness (60%).

Expectation: Que sea cálida y con poco brillo (60%).

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 5

Comment: They all go down some percentage of brightness and to me that's romantic.

Comment: Todas bajan un porcentaje de brillo y para mi eso es romántico.

System's Result

Only KitchenLamp in the kitchen needs to be adjusted to meet the user's instruction. Specifically, the brightness needs to be reduced to provide a dim light and the lighting effect needs to be set to pulsating to create a romantic atmosphere.

Score: 4

Comment: It complied with lowering the brightness, although it adds pulses to the light and did not comply with the color.

Comment: Cumplió con bajarle al brillo, aunque agrega pulsos a la luz y no cumplió con el color.

18-Jan-2024

4th Command

Modality: Text

Command: Turn on the lights if a child enter the house

Expectation: To turn on the bright white light at 100% when children under 15 years of age enter.

Expectation: Que encienda la luz blanca y brillante al 100% cuando entran niños menores de 15 años.

Disambiguation Options

Can you help me to know what is child

Individual under 18 years old

User profile labeled as 'child' in the system

User under 150 cm in height

☒ None of them

AI-the generated content could not be right

Selected Option: 1

Score: 4.5

Comment: Because they are good options and I didn't think of them.

Comment: Porque son buenos filtros y no los pensé.

System's Result

To turn on the lights when a child enters the house, two components are needed. First, the Entrance Movement Sensor which detects the movement of a person entering the house. Second, the Entrance Camera that can capture the image of the person for age detection. Since an 'Individual under 18 years old' is considered as a child, the AI must have the ability to detect the age of the person from the captured image. However, it seems the 'Entrance Camera' does not support age detection with the provided properties. For the sake of the user instruction, I will assume that it is possible. Once the 'Entrance Camera' detects a child, the 'KitchenLamp' needs to be turned on. But, the 'KitchenLamp' is already turned on as its 'state' property is 'true'.

Score: 4.5

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Comment: It is an objective answer but it is not accurate with the children age I thought at the beginning.

Comment: Es una respuesta objetiva pero no es precisa con la edad que pensaba al inicio.

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: The images were more aligned.

R: Más o menos, se alineaban más las imágenes.

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: The temperature was never right. Very effective the brightness of the light.

R: La temperatura nunca acertó, y muy efectivo el brillo de la luz.

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Yes, because images and text are the easier ways to get closer to an accurate answer.

R: Sí, porque son maneras más fáciles de acercarse a una respuesta precisa, con texto o con imágenes.

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Yes both modalities, because they are easy to understand and they make the answer more specific and according to my personal taste.

R: Sí las dos modalidades, porque son opciones fáciles de entender y hace que sea más específica la respuesta y acorde con mi gusto personal.

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R:

R: -

Which modality do you believe would be more effective in different scenarios or contexts?

R: IMages, because it makes you visualize what you really want, things like temperature are transmitted with the warmth of the image itself.

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R: La imagen, porque le hace visualizar a uno lo que en realidad quiere, se transmiten cosas como temperatura con la calidez de la imagen misma.

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Being able to specify parameters after choosing the image, to choose additional and/or specific attributes.

R: Que pueda especificar los parámetros después de elegir la imagen, para elegir atributos adicionales y/o específicos.

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: For activities with children, for example if I will be watching with adults I would remove the light completely, but with children I should leave a warm light with 30% brightness. If I do chores, the light should be 100% white. I find no problems, the two integrated would be perfect.

R: Para actividades con niños, por ejemplo si veré con adultos quitaría la luz por completo, pero con niños debo dejar una luz cálida con brillo del 30%. Sí haré tareas para que la luz sea 100% blanca. No encuentro problemas, los dos integrados serían perfectos.

Thesis Experiment #7

Interviewee Profile

Age: 28

Nationality: Colombian

Gender: Male

Native Language: Spanish

Interview Language: Spanish

Pre-Experiment Questions

Background Information:

How familiar are you with using smart home systems or devices?

R: I know the IoT part.

R: Relación y conozco la parte de IoT.

Have you previously used voice or text-based assistants (like Alexa, Siri, etc.)?

R: Yes, I have used Siri to tell me jokes.

R: Sí, he usado Siri para que me cuente chistes.

Expectations and Preferences:

What are your expectations from a smart home system in terms of ease of use, responsiveness, and accuracy?

R: That I don't have to do so many steps to be able to use it (too much configuration), the answer is expected to be consistent with the command I give it.

R: Que yo no tenga que hacer tantos pasos para poder usarlo (demasiada configuración), se espera que tenga coherencia la respuesta con el comando que le doy.

Do you have a preference for text-based or image-based interactions? Why?

R: Text, because I've never tried an image-based one, so that's what I know.

R: Texto, porque nunca he probado una basada en imágenes, entonces es lo que conozco.

19-Jan-2024

Conceptual Understanding:

How do you usually convey your needs or commands to a smart device?

R: I try to be specific with the searches, without excessive details, but I don't just say keywords or flat commands.

R: Trato de ser específico con las búsquedas, sin detalles en exceso, pero no digo solo palabras clave o comandos planos.

Can you provide an example of a situation where you found it challenging to communicate your intent to a smart home system?

R: Not in particular. I haven't interacted much with those kinds of systems beyond searches.

R: No en particular. No he interactado mucho con esa clase de sistemas más allá de búsquedas.

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Development

1st Command

Modality: Text

Command: Create a relaxing ambiance when I arrive home.

Expectation: To turn off the TV, turn off the speaker, lower the light brightness to (50%).

Expectation: Apagar el TV, apagar el speaker, bajar el brillo de la luz a (50%).

Disambiguation Options

Can you help me to know what is relaxing ambiance

Dimming lights to a soft blue, playing soft jazz at volume level 2.

Setting temperature to 72°F, diffusing lavender scent, turning on white noise machine.

Turning on the aquarium light, playing nature sounds at volume level 3, closing blinds 50%.

☒ None of them

AI-the generated content could not be right

Selected Option: None of them

Score: 1

Comment: In a relaxing environment I don't listen to music, it was far from what I initially thought.

Comment: En un ambiente relajante no escucho música, estuvo lejano a lo pensado inicialmente.

System's Result

To create a relaxing ambiance, the kitchen lamp's brightness and color can be adjusted to a soothing level and color, the TV in the bedroom can be turned off as it might be distracting, the bedroom speaker's volume can be lowered as high volume can be stressful, the house entrance can be locked for a sense of security, and both the bedroom and kitchen thermostats can be adjusted to a comfortable temperature.

Score: 4

Comment: I would put a 5 but I don't agree with changing the temperature. He made a change that I had not thought of, and that I consider positive, closing the entrance.

Comment: Pondría 5 pero no estoy de acuerdo con cambiar la temperatura. Hizo un cambio que no había pensado, y que considero positivo, el cerrar la entrada.

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2nd Command

Modality: Image




Command: Make the kitchen cozy

Expectation: Raise the temperature a little, leave the lights at 70% brightness.

Expectation: Subir un poco la temperatura, dejar las luces a 70% de brillo.

Disambiguation Options

Can you help me to know what is cozy kitchen



☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 4

Comment: It has several options, although it would be better if it included at least one more.

Comment: Tiene varias opciones, aunque sería mejor si incluyera al menos una más.

System's Result

To make the kitchen cozy, the KitchenLamp needs to be bathed in the 100% brightness of a white lamp. The KitchenLamp already has 100% brightness, so no changes are required for the KitchenLamp's brightness. However, the color of the KitchenLamp is currently not set to white. Therefore, the color of the KitchenLamp should be changed to white (represented by 'FFFFFF') to comply with the user's request for a cozy kitchen.

Score: 4

Comment: I think it is better to leave the light at 100, but the temperature was lacking.

Comment: Creo que si es mejor dejar la luz al 100, pero le faltó la temperatura.

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3rd Command

Modality: Images




Command: Set romantic lights in the kitchen

Expectation: Put on **yellow** lights with 50% brightness.

Expectation: Poner luces amarillas con brillo del 50%.

Disambiguation Options

Can you help me to know what is romantic lights



☒ None of them

AI-the generated content could not be right

Selected Option: 2

Score: 4

Comment: Maybe one more option would be better.

Comment: Quizá una opción más sería mejor.

System's Result

The user wants to set a romantic atmosphere in the kitchen. The only device in the kitchen that can help create such an atmosphere is the KitchenLamp. A romantic ambience can be achieved by adjusting the brightness and color of the lamp to produce a cool, tranquil light. A color that could provide such a feeling could be a soft blue, and the brightness should be reduced to create a more relaxed and romantic environment.

Score: 2

Comment: I agree that the brightness should be reduced, but the color was not right, and it affects quite a bit.

Comment: Estoy de acuerdo en que el brillo se debe reducir, pero el color no acertó, y afecta bastante.

19-Jan-2024

4th Command

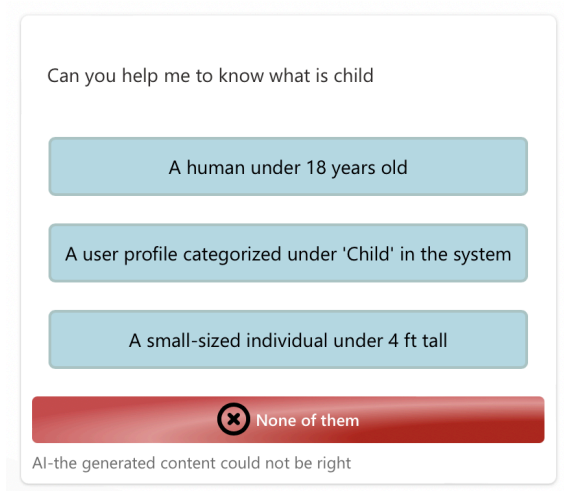
Modality: Text

Command: Turn on the lights if a child enter the house

Expectation: Turn on the lights with white at 100% intensity, only if you are less than 1.30m tall and/or a dog.

Expectation: Que encienda las luces con un blanco con 100% de intensidad, solo si mide menos de 1.30 y/o perros.

Disambiguation Options



Can you help me to know what is child

- A human under 18 years old
- A user profile categorized under 'Child' in the system
- A small-sized individual under 4 ft tall
- ☒ None of them

AI-the generated content could not be right

Selected Option: 3

Score: 5

Comment: Because I can't think of any more ideas to categorize a child.

Comment: Porque no se me ocurren más ideas para categorizar un niño.

System's Result

According to the user's instruction, the lights should be turned on when a child enters the house. The presence of a child can be detected by the 'Entrance Camera'. For now, we don't have a specific size detection feature in our system, an upgrade could include this feature. However, for the time being, in terms of lighting, the 'KitchenLamp' should be considered. Currently its state is true, meaning it's already on, no changes are needed.

Score: 5

Comment: It was honest in saying that it didn't know if it had the feature, and it was a response in line with what he expected.

Comment: Fue honesto en decir que no sabía si tenía el feature, y fue una respuesta acorde a lo que esperaba.

Post-Experiment Questions

Satisfaction and Alignment:

How well did the system's response (either text-based or image-based) align with your initial interpretation of the command?

R: Both aligned well, in cases where I didn't know how to express something, the images helped me choose. The text was also clear.

R: Ambas se alinearon bien, en los casos que yo no sabía cómo expresar algo, las imágenes me ayudaron a escoger. El texto también fue claro.

Were there any particular aspects of the response that you found particularly effective or ineffective?

R: It is very effective that there is a response of images and not just text. It is ineffective that the images are very small, and the number of images - at least 4.

R: Es muy efectivo que haya respuesta de imágenes y no solo texto. Inefectivo que las imágenes son muy pequeñas, y la cantidad de imágenes, al menos 4.

Ease of Use and Preference:

Did you find the provided modality (text or images) intuitive and easy to use?

R: Yes, because for me it was clear where to click and the options.

R: Sí, porque para mi era claro donde darle click y las opciones.

Given the choice, would you prefer to use the modality you tested in your daily interactions with a smart home system? Why or why not?

R: Yes, I would like to use both, because it will give the system more information about what I specifically want, and that will give a more accurate response.

R: Sí me gustaría usar ambas, porque le dará al sistema más información de lo que yo quiero en específico, y eso dará una respuesta más precisa.

Comparative Perception (if they have prior experience with the other modality):

How does your experience with this modality compare to your previous experiences with the other modality (text or images)?

R:

R: -

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Which modality do you believe would be more effective in different scenarios or contexts?

R: Images, because an image conveys more information, sometimes it is more difficult to explain something in writing than visually.

R: Las imágenes, porque una imagen transmite más información, a veces es más difícil explicar algo escrito que visualmente.

Suggestions and Improvements:

Are there any changes or improvements you would suggest for the modality you interacted with?

R: Expand the number of images, allowing you to select a maximum of two images.

R: Ampliar el número de imágenes, permitir seleccionar máximo dos imágenes.

Can you think of any specific scenarios where this modality would be particularly beneficial or problematic?

R: I can't think of any.

R: No se me ocurre ninguno.