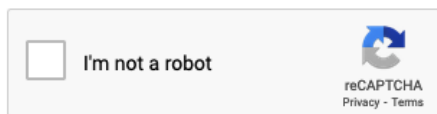


Designing Emotionally Expressive Behaviors for an Appearance-Constrained Robot

Start of Block: Captcha

Please verify that you are a human.



What is your Prolific ID?

Please note that this response should auto-fill with the correct ID.

End of Block: Captcha

Start of Block: Opening Statement and Informed Consent Form

Opening Statement

Dear Participant,

Welcome and thank you for choosing to be part of our research study.

Our objective is to understand how light, sound, and motion can make a faceless robot appear emotional. By watching videos of the robot and providing your feedback, you'll help us understand emotional communication by robots. Your contributions may be published in a scientific journal. This survey is expected to take about 25 minutes.

As a participant, you will:

- Watch videos of the robot in various situations.
- Evaluate the emotional expressions you perceive.
- Receive compensation upon survey completion.

Participant's Rights

- Your participation is voluntary, and you have the right to withdraw at any point.
- Even if you withdraw from the study, you will have 7 days to complete the survey in case that you change your mind (provided that there are still spots left in the survey quota).
- Compensation will be provided through Prolific.
- If you have any questions, please contact F.CorteVargas@student.tudelft.nl.

Data Management

- No personally identifiable information will be collected to ensure your anonymity.
You can only participate in this survey once to maintain data integrity.
- Data will be securely and anonymously stored by Delft University of Technology, Leiden University, and 4TU.ResearchData, in the Netherlands.
- You will be asked to fill out an Informed Consent Form on the following page.

This study is led by:

- Fernando Corte Vargas, M.Sc. student at TU Delft, supervised by:
- Dr.-Ir. Jens Kober, Associate Professor at TU Delft
- Dr.-Ir. Joost Broekens, Associate Professor at Leiden University
- M.Sc. Bernhard Hilpert, PhD candidate at Leiden University

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Page Break

Informed Consent Form

I have read and understood the opening statement of this study.

☐ Yes

☐ No

I voluntarily consent to participate in this study and understand that I can withdraw at any time without giving a reason.

☐ Yes

☐ No

If I don't consent to participate in this study or decide to withdraw, I understand that I have up to 7 days to change my mind and re-enter the study, provided that there are still spots available in the survey quota.

☐ Yes

☐ No

I understand that I will be compensated through Prolific within 3 business days after I complete the survey satisfactorily.

☐ Yes

☐ No

I understand that completing the survey satisfactorily means that I will take enough time to carefully answer all questions in this survey.

☐ Yes

☐ No

I understand that the study will conclude on July 1, 2024.

☐ Yes

☐ No

I understand that all collected data is non-personal and anonymous.

☐ Yes

☐ No

I understand that collected data will be used for publication of a research paper after the study concludes.

☐ Yes

☐ No

I agree that my anonymous responses, views, or other input can be anonymously quoted in a research paper.

☐ Yes

☐ No

I give permission for the anonymous data I provide to be archived in the institutional repositories of Delft University of Technology, Leiden University, and 4TU.ResearchData for future research and learning.

☐ Yes

☐ No

I understand that access to these repositories is limited to non-commercial, research purposes only.

☐ Yes

☐ No

End of Block: Opening Statement and Informed Consent Form

Start of Block: Commitment Request

We care about the quality of our data, which is why it's important that you spend enough time to think about your answers to the questions of this survey.

To make sure of this, we have set up a minimum time requirement for some questions in the survey. This means that in some questions of the survey, you won't be able to proceed to the next question until a certain amount of time has passed.

Do you commit to spending enough time to provide thoughtful answers to the questions in this survey?

☐ No, I will not

☐ Yes, I will

End of Block: Commitment Request

Start of Block: Demographics

What country are you from?

▼ Afghanistan ... Zimbabwe

What is your age?

End of Block: Demographics

Start of Block: Example Questions Block

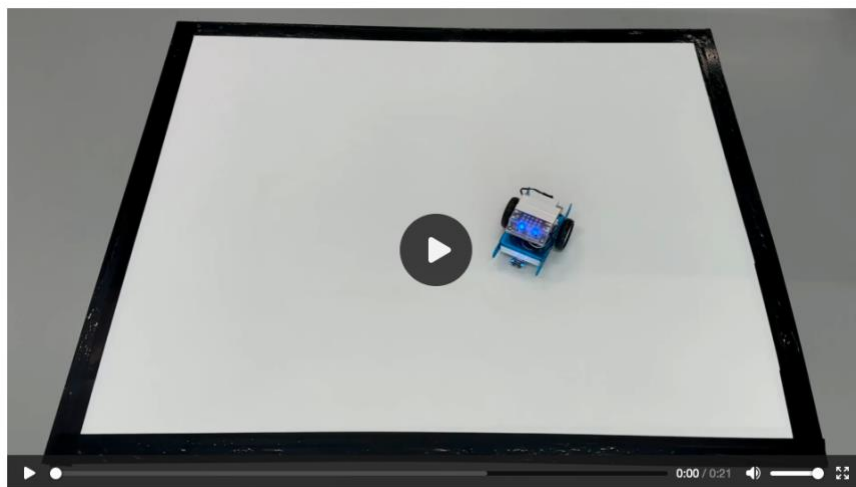
Video Snippets

Before you start the survey, we'd like to show you a few snippets of the videos that you might see in the survey. The purpose is to help you get an idea of how much the behaviors of the robot can vary across videos.

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.

After you finish watching the video, you can continue to the next part of the survey.



Page Break

Example

To help you understand the questions in the survey, we provide an example with detailed explanations. Please read carefully to familiarize yourself with the questions we will ask.

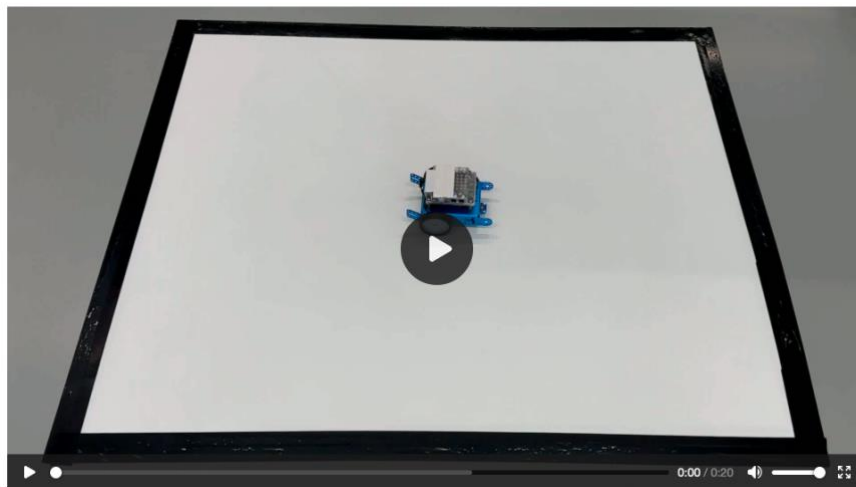
The upcoming survey questions will be identical to this one (without the detailed

explanations), **so please spend enough time to make sure you understand the questions before proceeding.**

Video

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.



Questions

The following questions will measure your perception of the emotions displayed by the robot you just watched. Please read the instructions and answer the questions carefully.

Emotion Intensity Rating

Please rate the intensity of the emotion(s) as shown in the behavior of the robot.

Remember to give a rating for each emotion. If you didn't see a specific emotion, select "N/A". Please make sure you answer each row, otherwise, you won't be able to move forward in the survey.

If you saw an emotion not mentioned, please mention it in the "Other" section and rate its intensity.

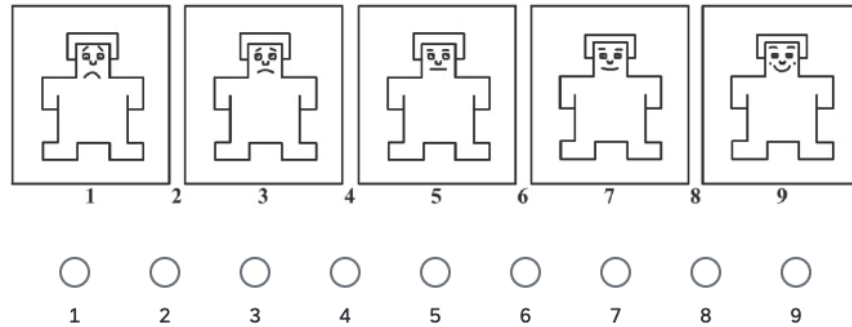
	N/A	Very Low	Low	Average	High	Very High
Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surprise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dimensional Rating

Next, you'll rate **Pleasure**, which refers to the unpleasantness or pleasantness the robot seems to express through its behavior.

Look at the row of images below, which range from very negative to very positive.

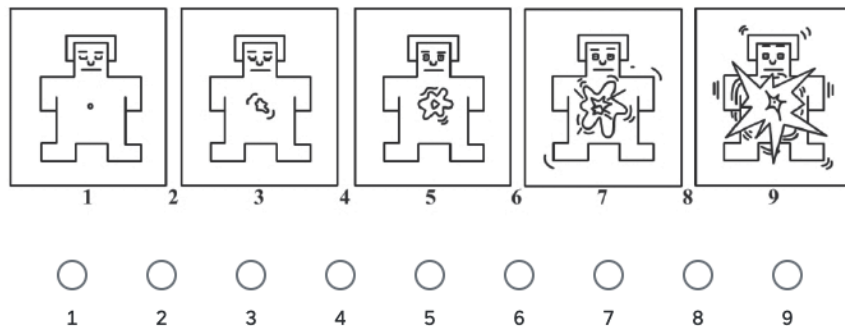
Use these images to choose a number to indicate how displeased or pleased the robot seemed to you.



Next, you'll rate **Arousal**, which indicates the alertness, awakens, and engagement the robot seems to express through its behavior.

Look at the images below, which range from very calm to very aroused.

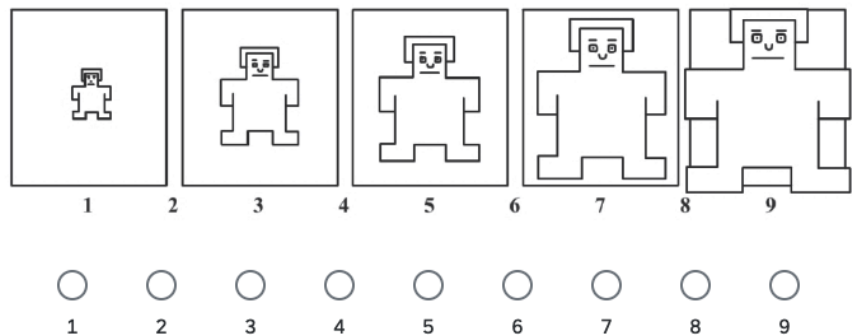
Use these images to select a number to indicate how calm or aroused the robot seemed to you.



Finally, you'll express through

Look at the

Use them to



is to

seemed to

Appraisal Rating

Next, you will be asked to share your thoughts or analysis about what might cause the robot's emotional reactions in the video.

Please consider how the situation might affect (or has affected) its goals, desires, or overall well-being.

Below we provide a few examples:

- The robot looks like it's confused, maybe because it is figuring out what to do next. That is why it is moving slowly with dim lights.
- Maybe something unexpected happened to the robot, which leaves it seeming frustrated or afraid, moving fast and beeping loudly.
- The robot seems like it is maybe enjoying a peaceful moment, which leaves it relaxed and content, swaying gently and making calming sounds.

Please write an appraisal of the robot's emotions in the video.

Page Break

You've completed the example questions. By clicking "Next," you'll proceed to the survey where we'll start collecting your answers.

Please make sure you've read and understood the instructions provided in the example. That way, you will be more familiarized with the upcoming questions.

Please be aware that once you move forward, you won't be able to return to this section.

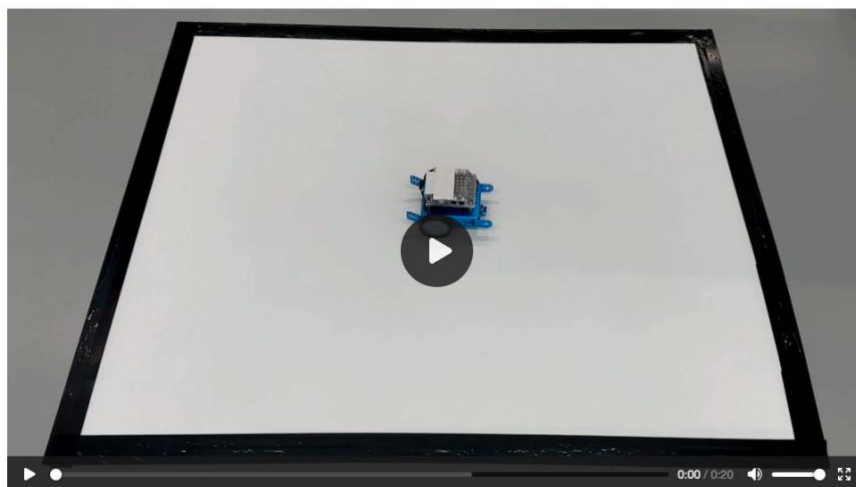
End of Block: Example Questions Block

Start of Block: Video 1

Video

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.



How intense were the emotions shown by the robot in the video? If you didn't see a specific emotion, select "N/A". Remember to give a rating for each emotion.

	N/A	Very Low	Low	Average	High	Very High
Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surprise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the pleasure of the robot (the unpleasantness or pleasantness the robot seems to express through its behavior).

Pleasure

1

2

3

4

5

6

7

8

9

☐
☐
☐
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☐

1

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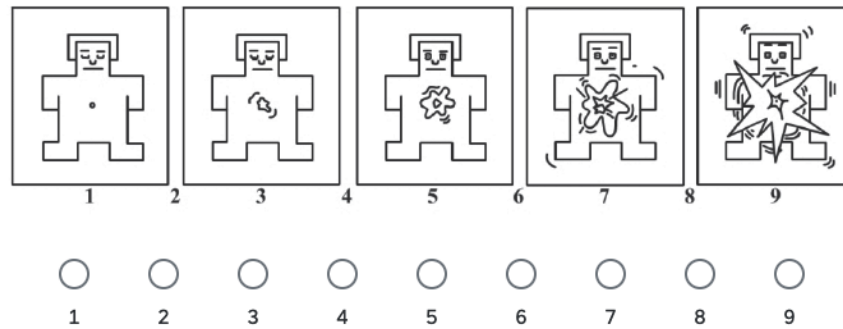
7

8

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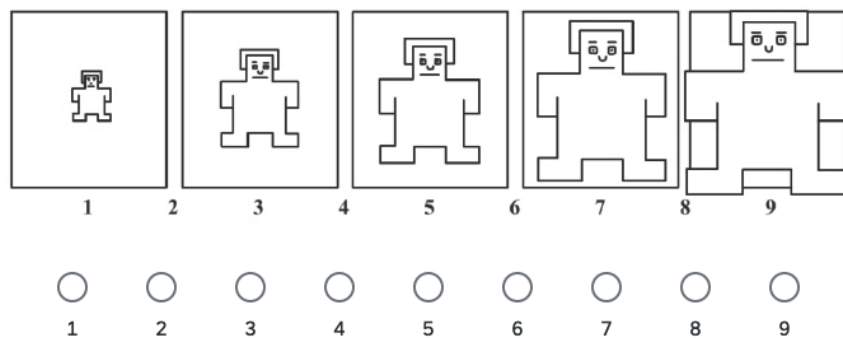
Please rate the arousal of the robot (the alertness, awakeness, and engagement the robot seems to express through its behavior).

Arousal



Please rate the dominance of the robot (how much control the robot seems to express through its behavior).

Dominance



Please write your thoughts or analysis about what might cause the robot's emotional reactions in the video. Please consider how the situation might affect (or has affected) its goals, desires, or overall well-being.

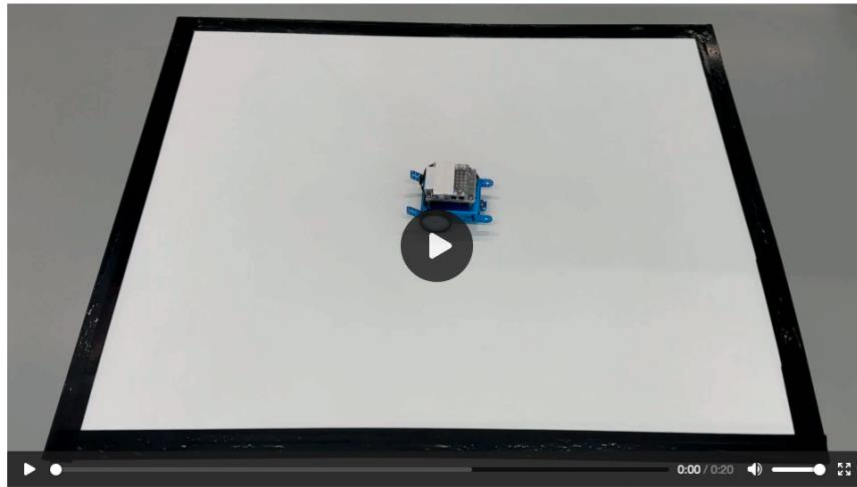
End of Block: Video 1

Start of Block: Video 2

Video

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.

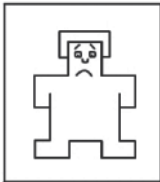
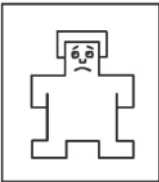
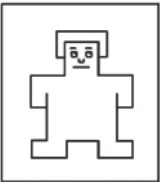
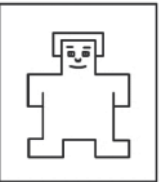
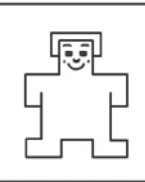


How intense were the emotions shown by the robot in the video? If you didn't see a specific emotion, select "N/A". Remember to give a rating for each emotion.

	N/A	Very Low	Low	Average	High	Very High
Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surprise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the pleasure of the robot (the unpleasantness or pleasantness the robot seems to express through its behavior).

Pleasure

								
1	2	3	4	5	6	7	8	9

☐
1

☐
2

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3

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4

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5

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6

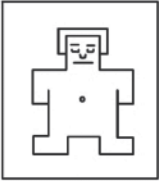
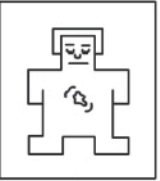
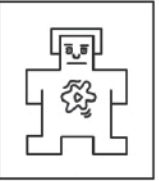
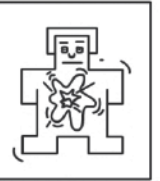

☐
7

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9

Please rate the arousal of the robot (the alertness, awakeness, and engagement the robot seems to express through its behavior).

Arousal

								
1	2	3	4	5	6	7	8	9

☐
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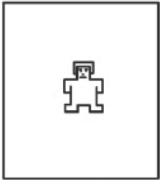
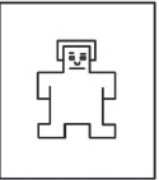
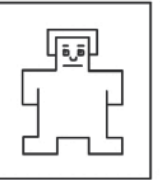
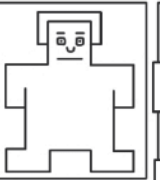
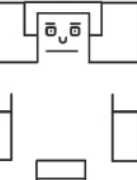
☐
7

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8

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9

Please rate the dominance of the robot (how much control the robot seems to express through its behavior).

Dominance

								
1	2	3	4	5	6	7	8	9

☐
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Please write your thoughts or analysis about what might cause the robot's emotional reactions in the video. Please consider how the situation might affect (or has affected) its goals, desires, or overall well-being.

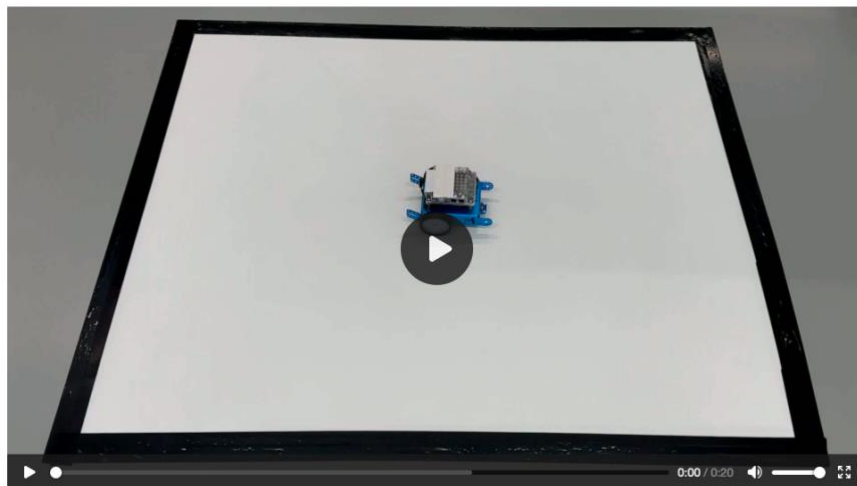
End of Block: Video 2

Start of Block: Video 3

Video

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.

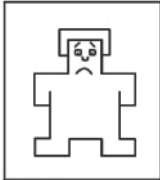
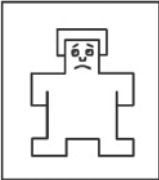
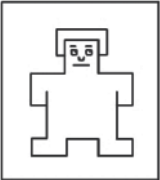
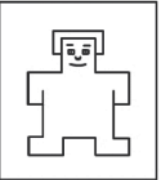
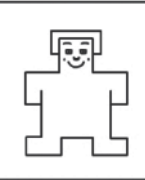


How intense were the emotions shown by the robot in the video? If you didn't see a specific emotion, select "N/A". Remember to give a rating for each emotion.

	N/A	Very Low	Low	Average	High	Very High
Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surprise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

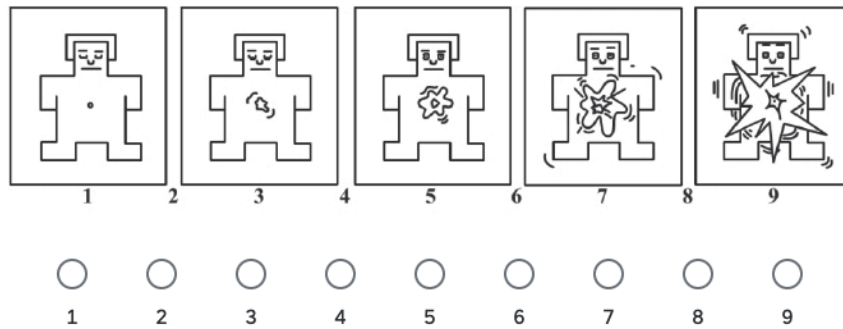
Please rate the pleasure of the robot (the unpleasantness or pleasantness the robot seems to express through its behavior).

Pleasure

								
1	2	3	4	5	6	7	8	9
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	2	3	4	5	6	7	8	9

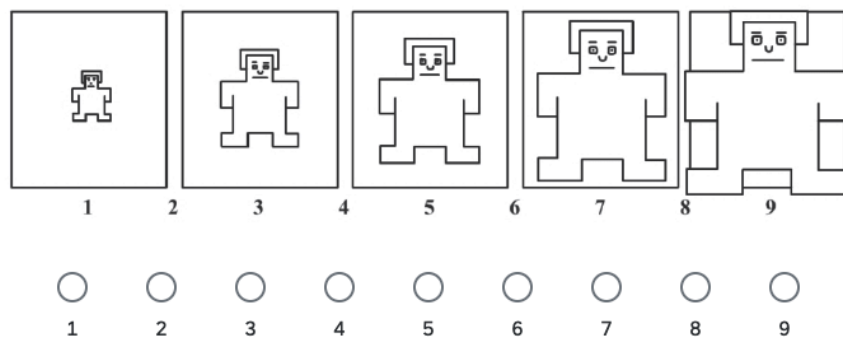
Please rate the arousal of the robot (the alertness, awakeness, and engagement the robot seems to express through its behavior).

Arousal



Please rate the dominance of the robot (how much control the robot seems to express through its behavior).

Dominance



Please write your thoughts or analysis about what might cause the robot's emotional reactions in the video. Please consider how the situation might affect (or has affected) its goals, desires, or overall well-being.

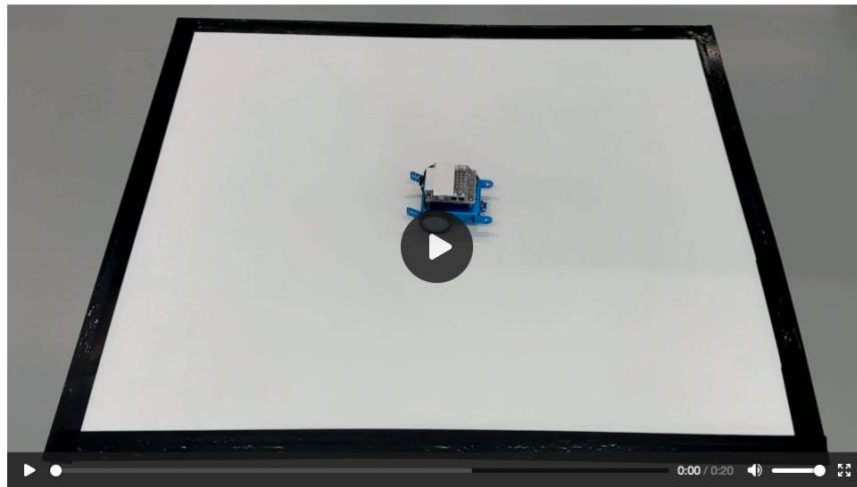
End of Block: Video 3

Start of Block: Video 4

Video

Please watch the video provided below. Click on the video to play it, and make sure you are using headphones or your computer's speakers to hear the audio. You cannot continue until the video finishes playing.

Feel free to replay the video as needed.

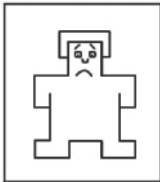
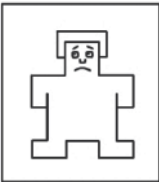
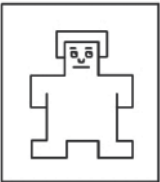
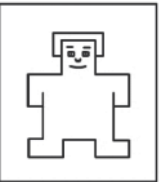
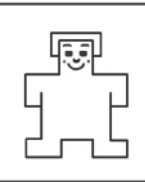


How intense were the emotions shown by the robot in the video? If you didn't see a specific emotion, select "N/A". Remember to give a rating for each emotion.

	N/A	Very Low	Low	Average	High	Very High
Joy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sadness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anger	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disgust	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surprise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate the pleasure of the robot (the unpleasantness or pleasantness the robot seems to express through its behavior).

Pleasure

								
1	2	3	4	5	6	7	8	9

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1

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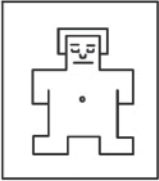
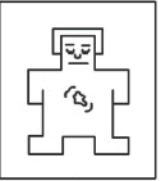
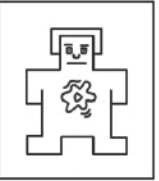
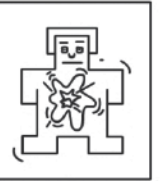

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Please rate the arousal of the robot (the alertness, awakeness, and engagement the robot seems to express through its behavior).

Arousal

								
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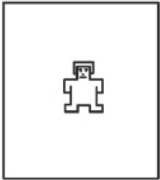
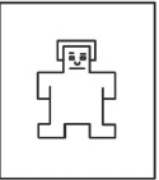
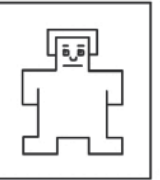
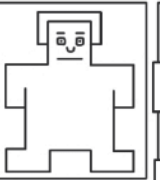
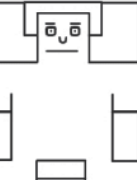
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Please rate the dominance of the robot (how much control the robot seems to express through its behavior).

Dominance

								
1	2	3	4	5	6	7	8	9

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Please write your thoughts or analysis about what might cause the robot's emotional reactions in the video. Please consider how the situation might affect (or has affected) its goals, desires, or overall well-being.

End of Block: Video 4

Start of Block: End Of Survey

Congratulations!

Thank you for your participation! You have reached the end of the survey. Please click on "Next" to submit your answers.

Thank you for your interest in our study!

End of Block: End Of Survey
