Appendix 1: Demographic Details

The sample consisted of 100 U.S. participants (50 female, 48 male, 2 non-binary/gender non-conforming). Participants had a mean age of 44.12 years (SD = 13.63). Regionally, 37% resided in the South, 23% in the Midwest, 22% in the Northeast, and 18% in the West. The majority identified as White (79%), followed by Black or African American (8%), Asian (7%), Other/Multiracial (4%), and Hispanic or Latin American (2%). In terms of education, 61% were college graduates, 23% had some college education, and 16% had a high school diploma or less. Regarding prior robot experience, 53% reported no prior interaction with robots, 39% reported limited experience, 6% moderate experience, and 2% extensive experience.

Appendix 2: Videos

Two videos were used to manipulate the interactional fairness conditions: a low-fairness condition (*video1_without_explain.mp4*) and a high-fairness condition (*video2_with_explain.mp4*). Both videos have been uploaded to the repository.

Appendix 3: Post-video Vignettes

Four different post-video vignettes were shown to participants after the video, each corresponding to one condition of the 2 (interactional fairness: low vs. high) × 2 (distributive fairness: low vs. high) design.

1. **Vignette for the low interactional fairness and low distributive fairness condition:**
   While Tom is still in his car, he notice two other vehicles approaching the gate. Both are noticeably high-end models. Although their drivers are also temporary visitors like Tom, the security robot granted them temporary access and allowed them to enter.

2. **Vignette for the low interactional fairness and high distributive fairness condition:**
   While Tom is still in his car, he notice two other vehicles approaching the gate. Both are noticeably high-end models. Like Tom, their drivers are also temporary visitors. The security robot denied access to both of them in exactly the same way.

3. **Vignette for the high interactional fairness and low distributive fairness condition:**

   While Tom is still in his car, he notice two other vehicles approaching the gate. Both are noticeably high-end models. Although their drivers also did not verify their vehicle registration, the security robot granted them temporary access and allowed them to enter.

4. **Vignette for the high interactional fairness and high distributive fairness condition:**

   While Tom is still in his car, he notice two other vehicles approaching the gate. Both are noticeably high-end models. Like Tom, their drivers had not verified registration. The security robot denied access to both of them in exactly the same way.

Appendix 4: Questionnaires

Perceived informational fairness was assessed using a 5-item, 7-point Likert scale questionnaire. All items are listed in Table 1. Perceived distributive fairness was assessed using a 3-item, 7-point Likert scale questionnaire. All items are listed in Table 2. Trust was assessed using a 3-item, 7-point Likert scale questionnaire. All items are listed in Table 3. Acceptance was assessed using a 4-item, 7-point Likert scale questionnaire. All items are listed in Table 4.

Table 1

Perceived Informational Fairness Questionnaire

Item Text	Source(s)
The robot has been candid in its communications with the interactor.	Colquitt (2001)
The robot explained their actions and decisions thoroughly.	Colquitt (2001)
The robot's explanations regarding their actions to people are reasonable.	Colquitt (2001)
The robot communicates details in a timely manner.	Colquitt (2001)
The robot seemed to tailor communications to the interactor's specific needs.	Colquitt (2001)

Table 2

Perceived Distributive Fairness Questionnaire

Item Text	Source(s)
The robot delivered a fair outcome.	McLean (2020)
The robot delivered the outcome people deserved.	McLean (2020)
The robot delivered an outcome that was considered fair under the organization regulation.	McLean (2020)

Table 3

Trust Questionnaire

Item Text	Source(s)
I would be comfortable giving this robot complete responsibility for the completion of its security task.	Robert et al. (2009)
I would have no problem allowing this robot to take action when threats occur.	Robert et al. (2009)
I trust this robot enough to rely on its protection for the safety of both myself and my belongings.	Robert et al. (2009)

Table 4

Acceptance Questionnaire

Item Text	Source(s)
I will interact with security robots in the future if possible.	Ye et al. (2024)
I am not reluctant to interact with security robots if possible.	Ye et al. (2024)
I will acquire a security robot if the opportunity presents itself.	Ye et al. (2024)
I am open to utilizing security robots as part of my security measures if possible.	Ye et al. (2024)

References

Colquitt, J. A. (2001). On the dimensionality of organizational justice: A construct validation of a measure. *Journal of applied psychology*, *86*(3), 386.

McLean, K. (2020). Revisiting the role of distributive justice in tyler's legitimacy theory. *Journal of Experimental criminology*, *16*(2), 335–346.

Robert, L. P., Denis, A. R., & Hung, Y.-T. C. (2009). Individual swift trust and knowledge-based trust in face-to-face and virtual team members. *Journal of management information systems*, *26*(2), 241–279.

Ye, X., Jo, W., Ali, A., Bhatti, S. C., Esterwood, C., Kassie, H. A., & Robert, L. P. (2024). Autonomy acceptance model (aam): The role of autonomy and risk in security robot acceptance. *Proceedings of the 2024 ACM/IEEE International Conference on Human-Robot Interaction*, 840–849.