Designing a Privacy and Security Label for IoT Devices

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Echo Dot (3rd Gen) - Smart speaker with Alexa - Charcoal

Add Alexa to any room

List Price: $49.99
With Deal: $29.99 & FREE Shipping. Details
You Save: $20.00 (40%)

In Stock.

Want it Friday, May 31 Order within 1 hr 59 mins and choose Two-Day Shipping at checkout. Details

Ships from and sold by Amazon Digital Services LLC. Gift-wrap available.

Color: Charcoal

Configuration: Echo Dot

- Our most popular smart speaker - New with a fabric design and improved speaker for richer and louder sound.
- Voice control your music - Stream songs from Amazon Music, Apple Music, Spotify, Sirius XM, and others. You can also listen to audiobooks from Audible.
- Bigger, better sound - Pair with a second Echo Dot (3rd gen) for rich, stereo sound. Fill your home with music with compatible Echo devices in different rooms.
- Ready to help - Ask Alexa to play music, answer questions, read the news, check the weather, set alarms, control compatible smart home devices, and more.
- Connect with others - Call almost anyone hands-free. Instantly drop in on other rooms in your home or make an announcement to every room with a compatible Echo device.
- Use another speaker - Connect to your own speakers over Bluetooth or with a 3.5 mm audio cable.
- Alexa has skills - With 50,000+ skills, Alexa is always getting smarter and adding new skills like tracking fitness, playing games, and more.
- Voice control your smart home - Turn on lights, adjust thermostats, lock doors, and more with compatible connected devices.

Jump to: Compare devices | Technical details

Used & new (2) from $16.59. Details
no privacy or security information is available
no privacy or security information is available
Label for a smart security camera

general information

privacy information

security information

general information
We found that privacy and security are valued

- Almost all wanted to know about privacy and security before the purchase
- Almost all were willing to pay a premium for such info (10%-30%)
  - Assurance of being protected
  - Peace of mind
Positive attitude toward labels

- Interviewees found the labels
  - Understandable
  - Easy to read
  - Useful
- Almost all liked the label concept
  - **Independent** privacy and security ratings
  - **Choices** to control privacy and security
Privacy and security are latent concerns

- About half had unprompted privacy and security concerns
- Almost all had prompted privacy and security concerns, mostly caused by:
  - Media reports
  - Friends’ opinions
  - Devices acting weird

HAHA
Participants asked for more information

- Definition of some of the terms (e.g., identifiable data)
- Encryption protocols
- Privacy and security star ratings
IoT privacy and security labels are promising

- Consumers have limited privacy and security knowledge
- Almost all want to know about privacy and security at the point of sale
- Almost all found our labels to be informing
  - Most liked the ratings
  - Most liked the choices
What should be on IoT privacy and security labels?
Policymakers called for IoT labels but no specific guidelines.
Expert Elicitation Study with Privacy and Security Experts

Pardis Emami-Naeini, Yuvraj Agarwal, Lorrie Cranor, Hanan Hibshi
Interviews and surveys with experts

- **Goal:** to elicit privacy and security information that experts believe consumers should know about when purchasing IoT devices.

- **How:**
  - Semi-structured interviews with more than 20 privacy and security experts
  - Follow-up surveys
Our main contributions

• Specifying the most important privacy and security information to include on IoT labels
• Proposing a set of guidelines and developing a wireframe to present privacy and security information effectively on an IoT privacy and security label
Could one label fit all?

- **Expert elicitation study**: experts specified 48 important privacy and security factors to show on the label
- **Consumers’ purchase behavior study**: consumers want to have a small set of important privacy and security factors and the option to know more

**solution**: layered privacy and security label
Security & Privacy

Smart Security Camera, NS200
Firmware version 2.5.3: updated on 9/15/2019

Security certification level: gold
Security updates will be available until 1/1/2030

Security Mechanisms
Automatic security updates: No factory-set default password

Privacy certification level: silver
Device is equipped with:
- camera
- microphone
- presence sensor

Data Practices
- video
- voice
- motion
- detecting activities

Other sensors to detect:
- temperature
- carbon monoxide

Privacy Statement: www.NS200PrivacyPolicy.com

Scan the QR code or type in the URL to see more information on security mechanisms and data practices.

<URL>
We are not done yet!

- Test the usability, comprehension, and risk communication
  - **How**: by following an iterative user-centered design process
    - Series of semi-structured interviews or focus groups
    - Iteratively improving the design of the label

- Understand when doing comparison shopping, how much of a premium people are willing to pay for an IoT device that complies with a set of security and privacy best practices
  - **How**: by conducting large-scale incentive-compatible study using Multiple Price List (MPL)