

Elements of User Interaction: Output, State, and Mode

UX506

Predrag “Pedja” Klasnja



<https://pixabay.com/en/computers-keys-rays-1420200/>
<https://pixabay.com/en/cogwheel-gear-gearwheel-cog-145804/>



Output: Information that the system presents to the user in order to accomplish its intended function.



Output structure: The format in which information is presented to the user.

Output content: What information is presented.

Output Structure

- **Modality**
 - Visual (screen-based, ambient)
 - Audio
 - Haptic
- **Format**
 - Number
 - Text
 - List (e.g., Google results)
 - Graph
 - Push notification
- **Location**
 - In-app
 - wearable
 - phone lock screen

A screenshot of a Google search results page. The search bar at the top contains the query "ux design". Below the search bar, there are several search filters: "All" (which is underlined in blue), News, Images, Videos, Books, More, Settings, and Tools. The main content area shows search results for UX/UI design software and tools. The first result is for "UX/UI Design Software - Design interactive prototypes" from Adobe XD, which is marked as an ad. The second result is for "Blink UX - Data-Driven UX Design - blinkux.com", also marked as an ad. The third result is for "Breathtaking UI & UX Design - (Recommended) All platforms." from TheSkinFactory, which is marked as an ad. The fourth result is for "UX Design - Code-Free Rapid Prototyping - infragistics.com" from Infragistics, also marked as an ad. At the bottom of the search results, there is a yellow box containing the text: "User experience design (UX, UXD, UED or XD) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure". To the right of this text is a small graphic featuring icons related to UX and UI design.

ux design

All News Images Videos Books More Settings Tools

About 21,200,000 results (0.56 seconds)

UX/UI Design Software - Design interactive prototypes
Ad www.adobe.com/UX_Design/Software ▾
Take UX & UI designs from start to finish w/Adobe XD. Download now.
Pixel-perfect layouts · Boolean group editing · Photoshop integration · Illustrator integration
Adobe XD for Windows · Visit the XD Blog · Join the Community · Learn & Support

Blink UX - Data-Driven UX Design - blinkux.com
Ad info.blinkux.com/ux-design ▾
Interaction Design, Visual Design, Prototyping, GUI Design, & More. Contact Us.
Usability Testing · UX Design · User Research · Get User Experience Right
Services: User Research, Design Services, Performance Measurement, Usability Testing

Breathtaking UI & UX Design - (Recommended) All platforms.
Ad www.theskinfactory.com/ ▾ (954) 252-1786
UI & UX design for the world's biggest brands & most passionate startups.
Leading UX Design Agency · Contact Us Today · Desktop, Web & Mobile UI · Established in 2000
Services · Client List · Portfolio

UX Design - Code-Free Rapid Prototyping - infragistics.com
Ad www.infragistics.com/IndigoStudio/FreeDownload ▾
Industry-leading Collaborative Design, With Unlimited Remote Usability Testing.
Storyboarding · Training Library · Learning Library · For UI Designers · Realtime User Feedback
Free Usability eBook · Indigo Studio Free Trial · Free Learning Library · Samples Library

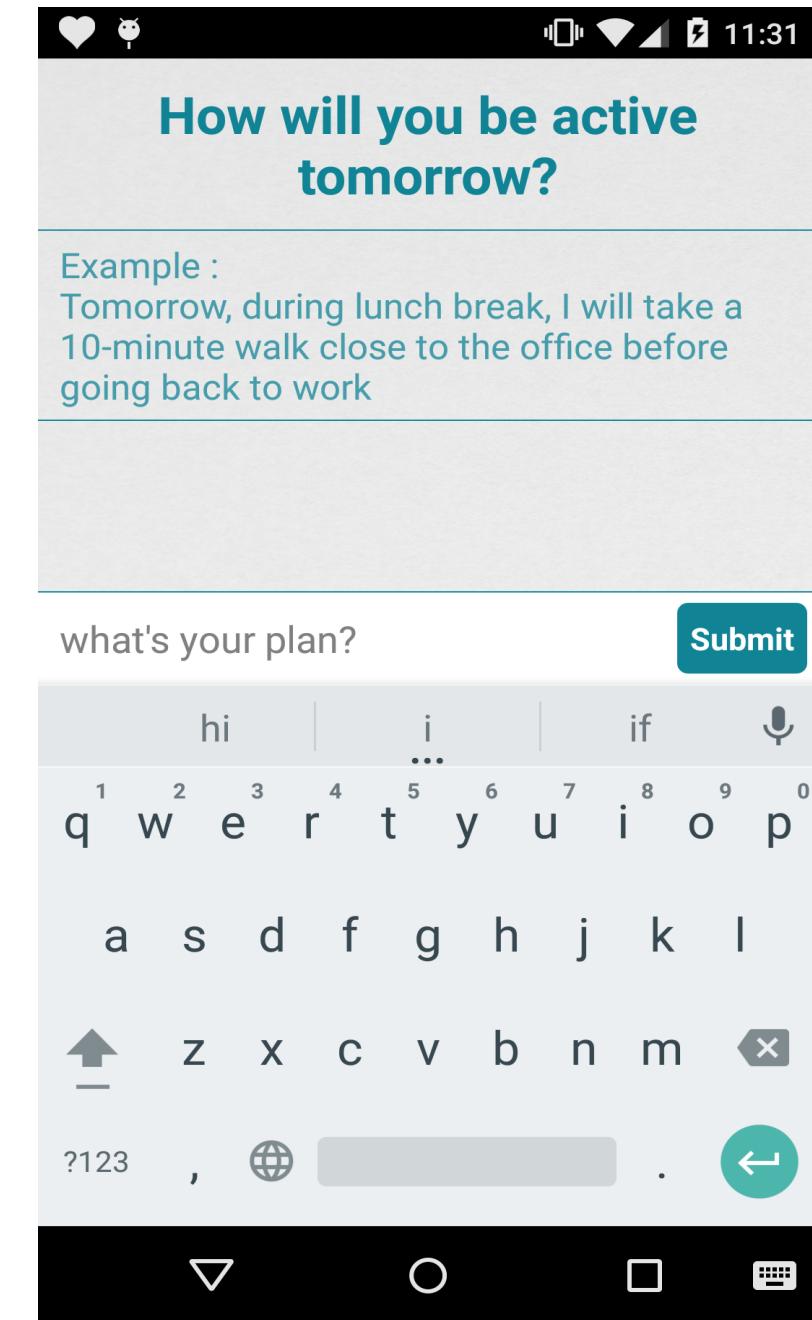
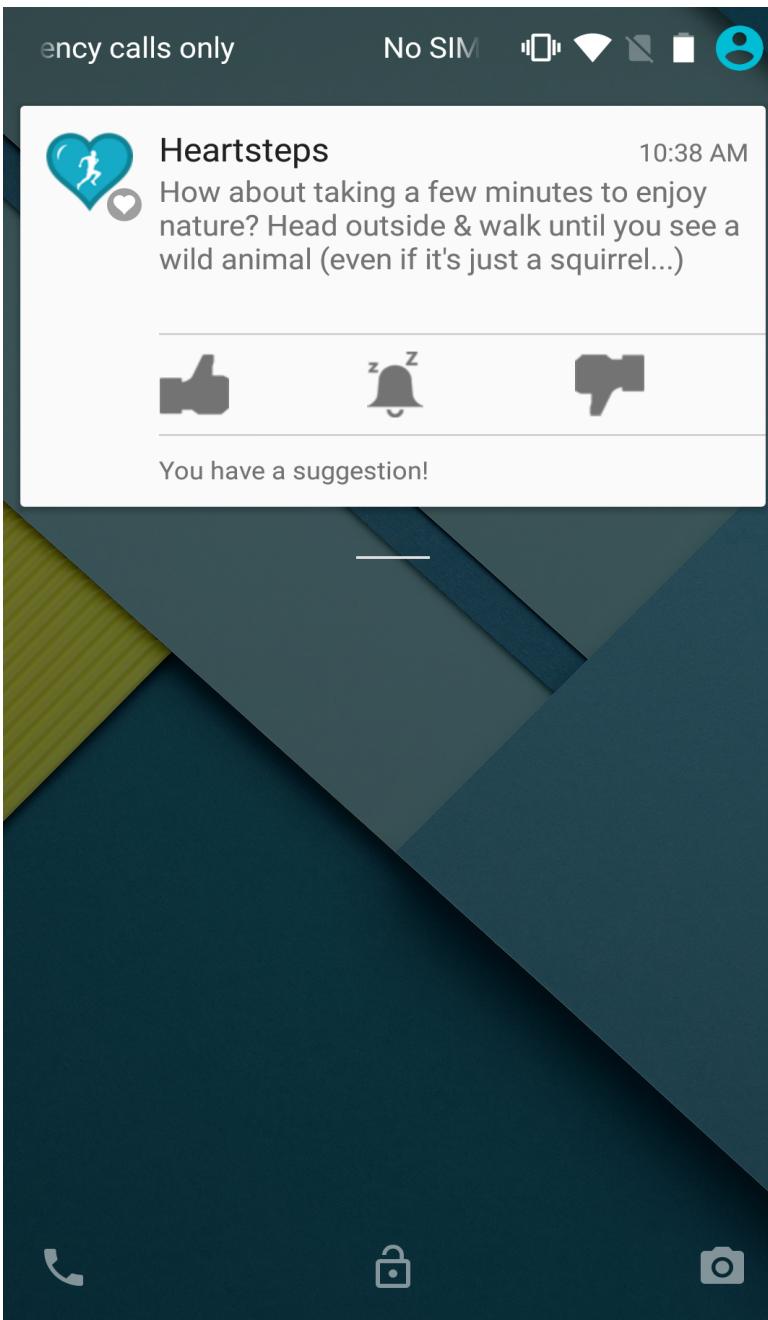
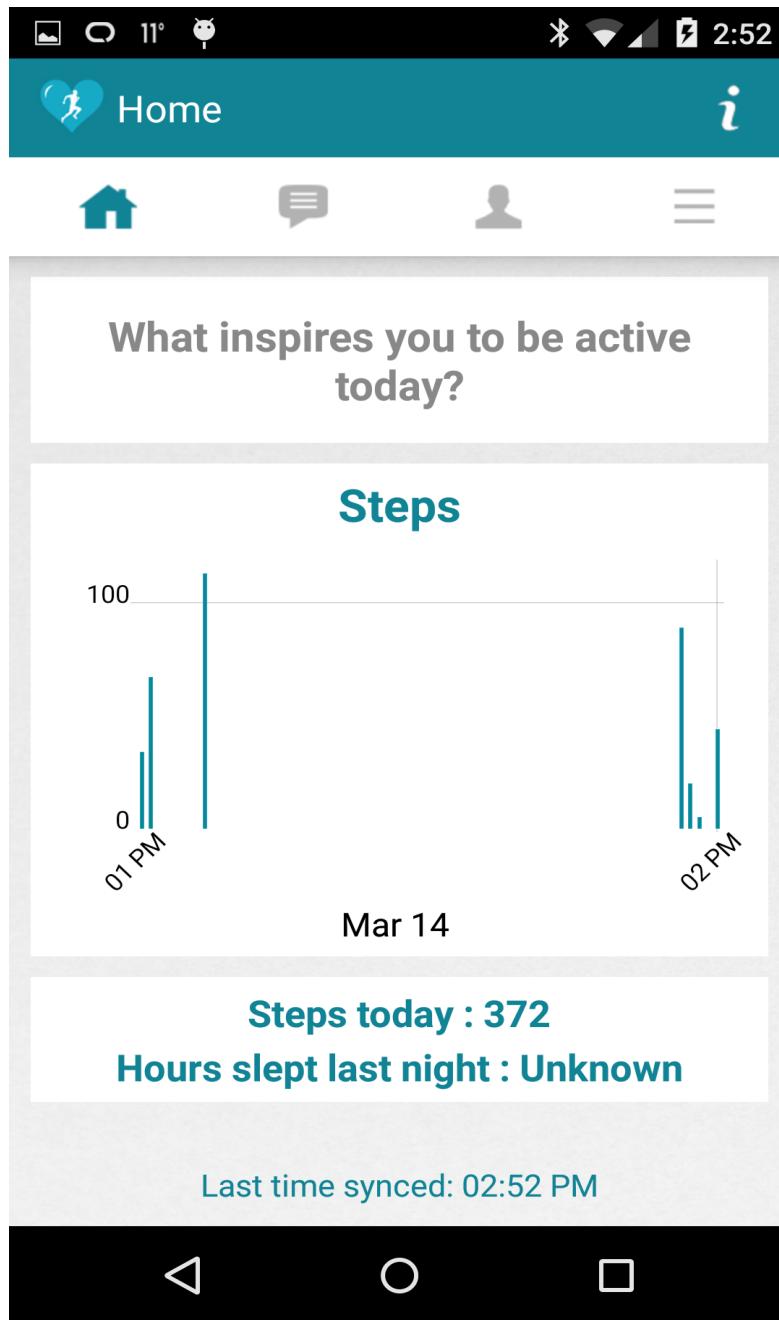
User experience design (UX, UXD, UED or XD) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure

Output Design Considerations

- What exactly does the user need to know to perform the task?
- When/how often will the user interact with the information?
- In what state will the user be when presented with the information?
- What is the user's current knowledge base?

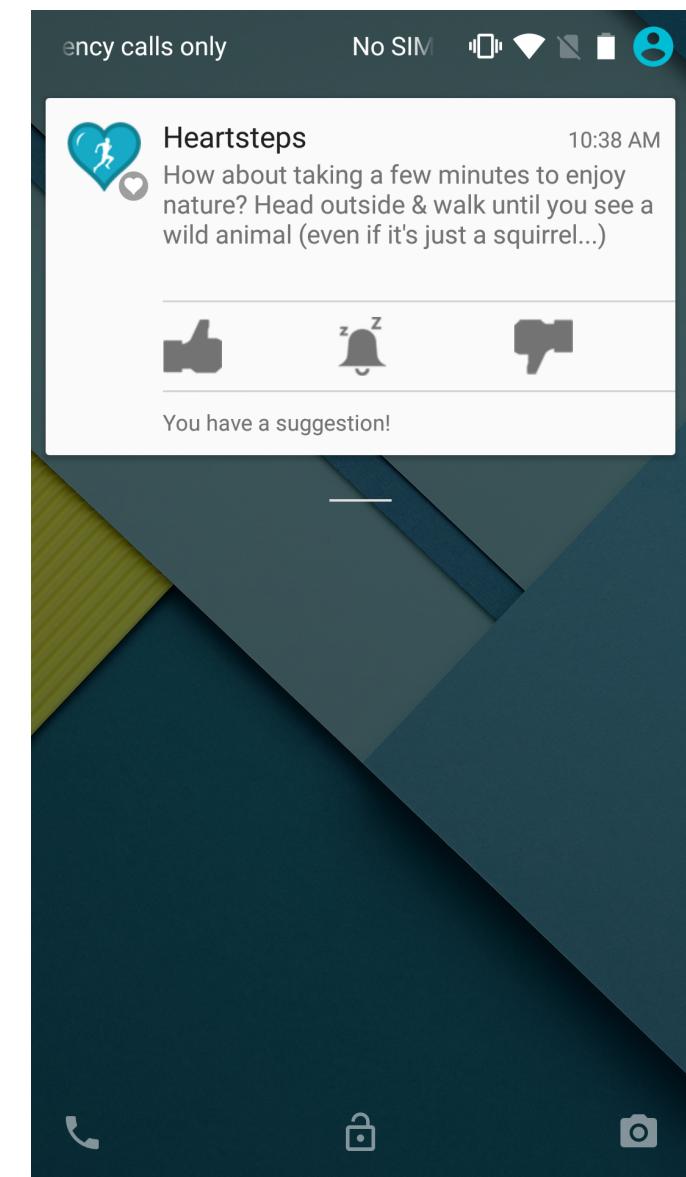
Elements of User Interaction: Output, State, and Mode

Wireframe to
Prototype



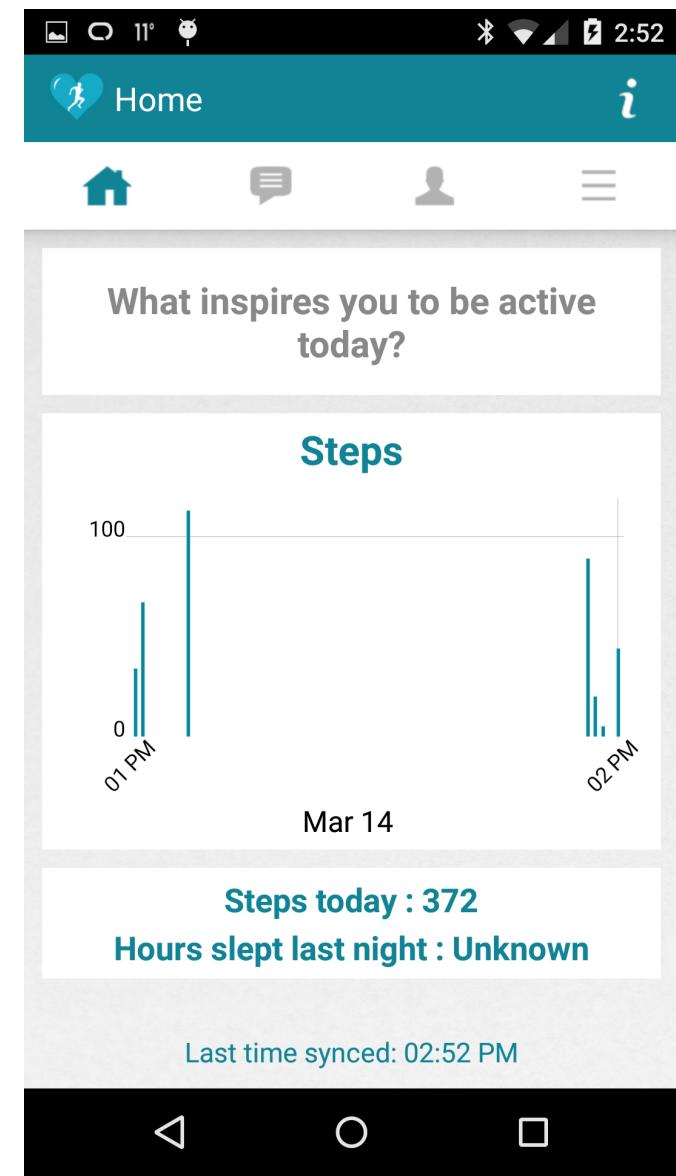
Activity Suggestion

- Information type: Suggestion for how to be active right now, in the current context (text)
- Time: ~ every 2 hours; timeliness of receiving suggestion is important
- User state: currently and recently sedentary
- Format: push notification: lock screen message + chime + vibration



Feedback on Step Count

- Information type: Step counts
- Time: user-determined
- Envisioned frequency: several times a day
- User state: likely variable
- Format:
 - in-app number (for quick reference) + graphs (for more thorough investigation)
 - lights on the activity tracker





<https://www.flickr.com/photos/billiondollarcreative/15064718054>

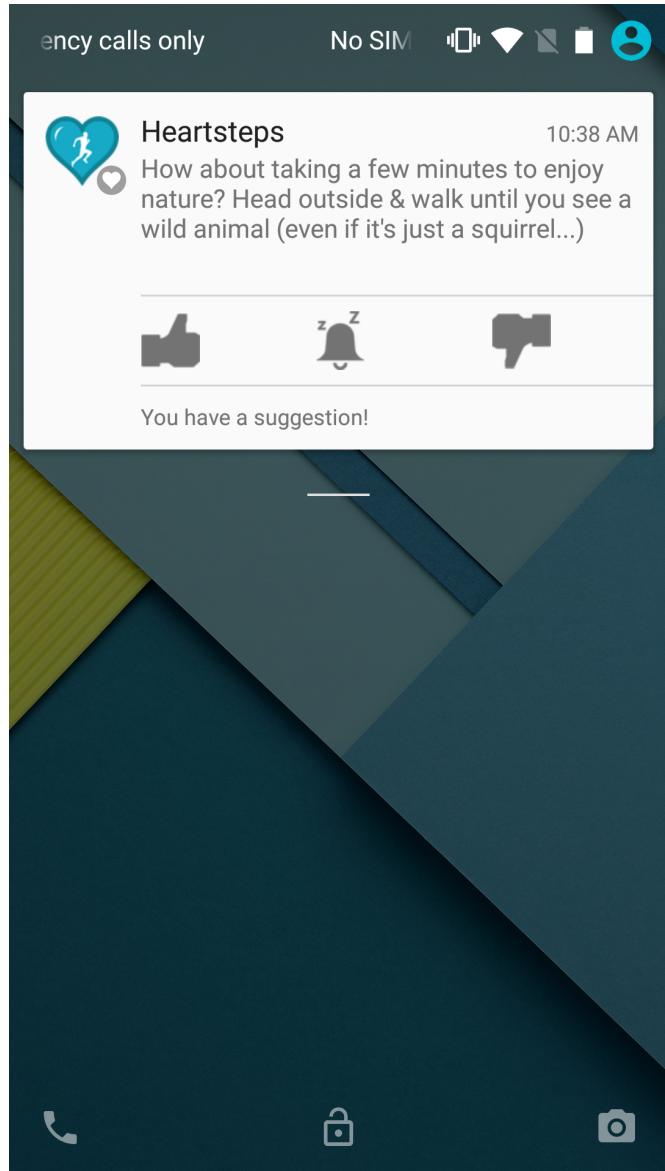
Pull Content

- Made available to the user, but accessed by user at will
- Can be highly interactive
- Leaves user in control of access
- Can be complex (if appropriate), as user chooses when to access it



Push Content

- Delivered to the user based on a set of rules
- Can use sensing and user modeling to determine right delivery time
- Might need to be kept simple
- Can be perceived as being high burden (annoyance)

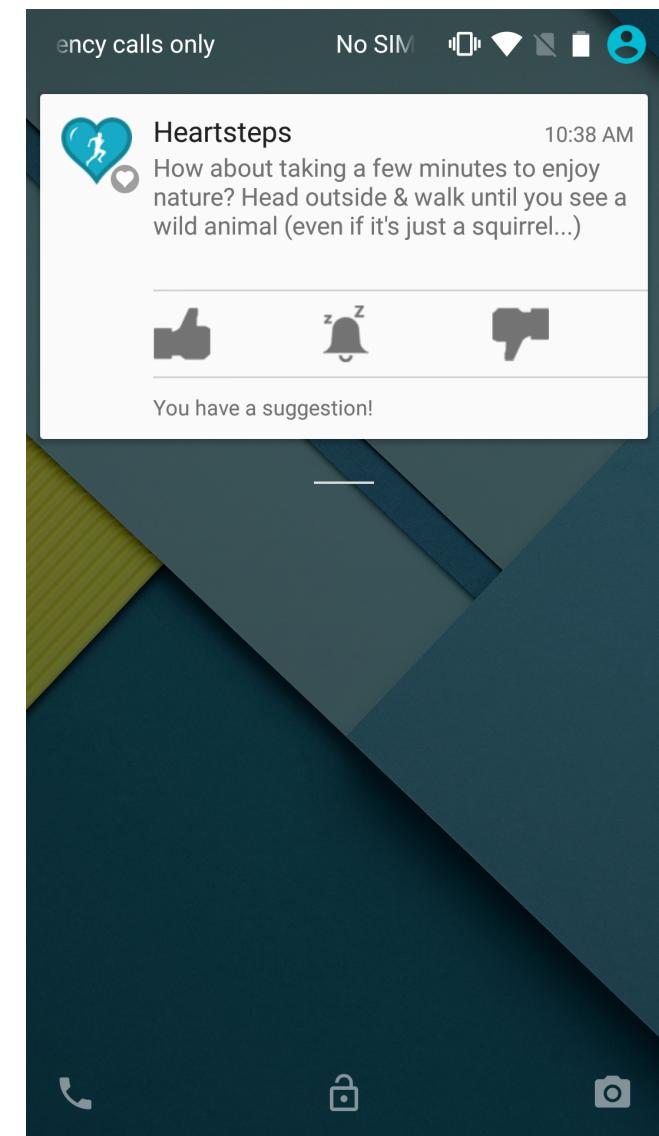




State: Current values of system inputs and the set of rules that determine what kind of output the system will produce.

State Determining Suggestion Delivery

- Suggestions delivered up to 5 times a day at user-specified times
- Suggestion chosen based on current context: location, weather, time of day, weekday/weekend
- Suggestion not provided if user is currently active or driving
- Suggestion not provided if user active within last 10 minutes
- Suggestion not provided if user had turned off suggestions for a period covering current moment



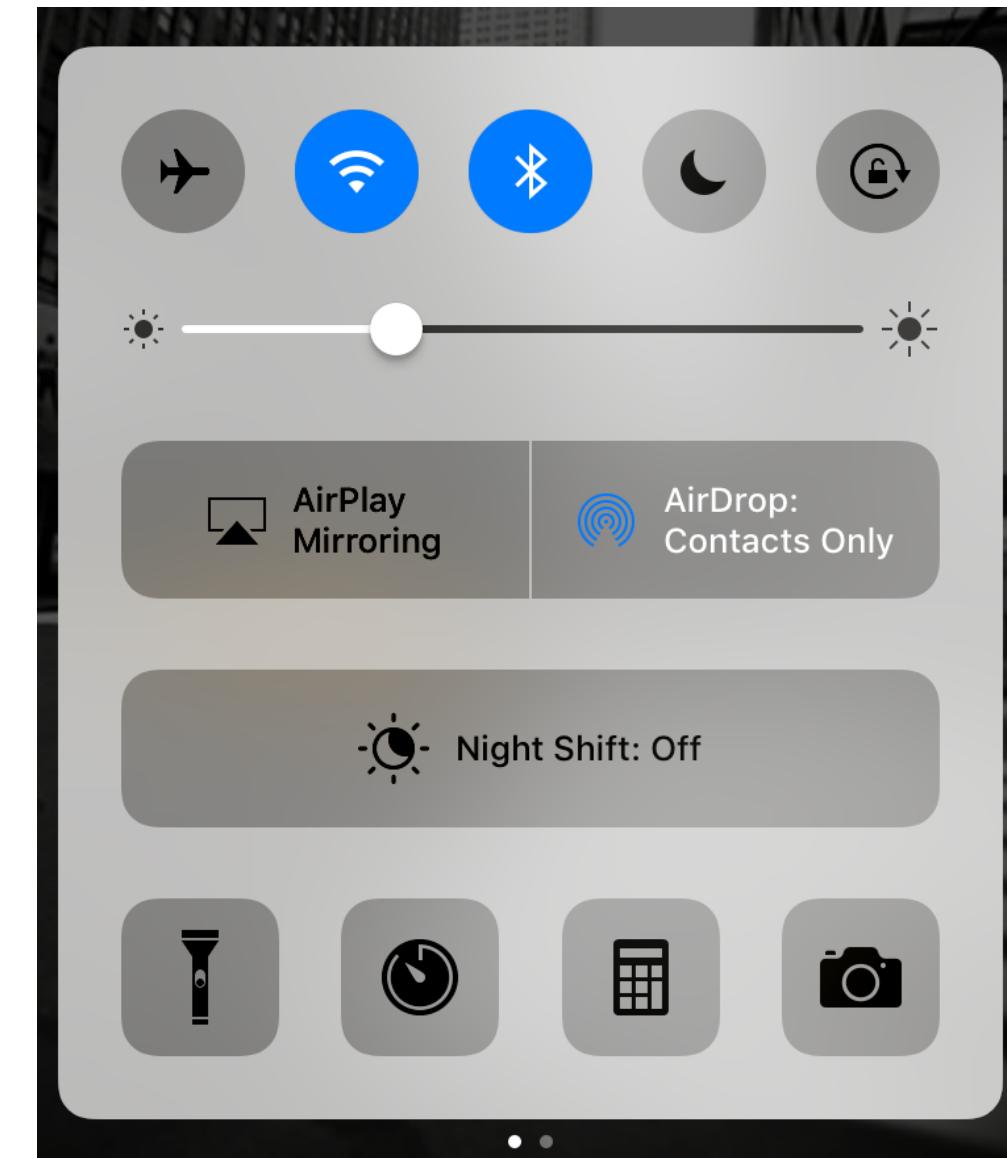


Mode: Element of state, usually user-controllable, that consistently determines how output is presented.

Some Common System-Wide Modes

- Ringer on/off
- Airplane mode
- Do not disturb
- Night shift

Feedback about the current mode is crucial for good user experience.





Summary

- UX design involves designing inputs, outputs, and rules that translate inputs to desired outputs.
- Design of both inputs and outputs must consider when, where, and how user will need to interact with the system.
- Visibility of state help users understand why the system behaves the way it does.