

GENERAL METHODS

SKETCHING

Sketching refers to methods of visualization or representation of design ideas that support fast and flexible exploration.

Duration	From a few minutes to a couple of hours
Physical requirements	Sketching tools (e.g., pens and paper), cardboard, scissors, glue; creative programming environments, creative hardware tinker kits, or similar; camera, flipchart, sticky notes and pens to document and capture feedback
Energy level	Low to medium
Researchers/Facilitators	1 or more
Participants	3 or more
Research techniques	Studio interviews, focus groups, concept tests/discussions
Expected output	Research data (specifically bugs, insights, and new ideas), raw video footage and photos

Sketches are flexible, quick, and inexpensive visualizations or representations. Their explorative nature makes them a good first step in the prototyping process. In their most common form, sketches are prepared using pen and paper by making quick and low-fidelity visualizations of an initial idea or concepts within seconds or minutes. However, you are not limited to these tools. Sketches can be created using almost any medium as long as they are quick to produce, inexpensive, and support exploration. For example, *Processing* – an easy-to-learn programming environment for designers and artists – explicitly calls its programs *sketches*.⁰¹ Open hardware prototyping platforms like Arduino – which brought hardware tinkering to the masses – often use the term *sketching in hardware*.⁰² Similarly, bodystorming and early-stage walkthrough techniques are very efficient lo-fi ways to sketch (inter)actions using simplified forms of re-enactment – or *sketching with our bodies*.

⁰¹ See Reas, C., & Fry, B. (2004). "Processing.org: Programming for Artists and Designers." In *ACM SIGGRAPH 2004 Web graphics* (p. 3). ACM.
⁰² For a first discussion see Holmquist, L. (2006). "Sketching in Hardware." *Interactions*, 13(1), 47-60. But it is possibly best to find a local makerspace, get your hands dirty and make things!



Step-by-step guide

PREPARATION

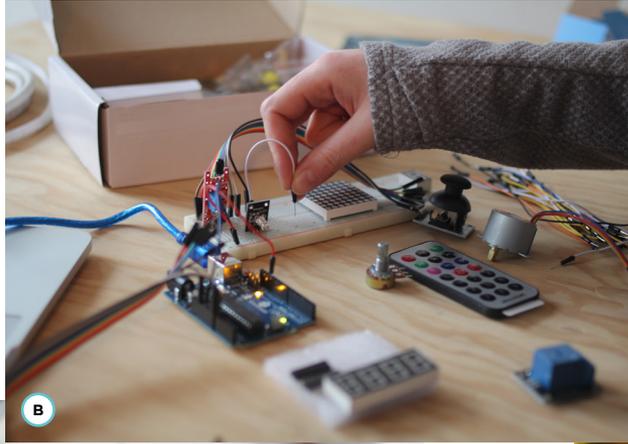
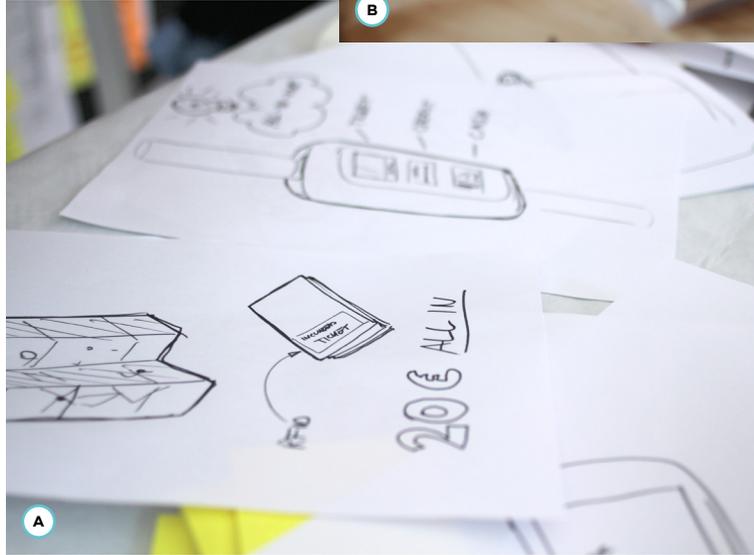
- 1 **Review scope and clarify prototyping questions:** What do you want to learn or explore? Look at your starting point and consider if and how you will bring previous knowledge into the room (for example, as a research wall, via artifacts for inspiration, or as key insights).
- 2 **Decide whom to invite:** Invite the right people to work beside your core team for the exercise (this might include people who know the background, people with no preconceptions, experts, representatives of the implementation team, people who will deliver the service, users, management, etc.).

If you chose to do sketching with specific materials, code, or hardware, make sure you have the required skillsets in the team. Balance your teams so everybody can contribute during the sketching process. For example, when sketching in code, not everybody needs to be

a coder; some can contribute by creating graphical elements, writing copy, or working out scenarios and information structures.

- 3 **Decide on quantity or deeper investigation:** Decide if you will be aiming for quantity, or for a more considered investigation or “deep dive” into particular themes or ideas. This decision will depend on where you are in your development process and will affect, for example, how much time you allow for the task.
- 4 **Prepare sketching tools:** Set up and prepare your sketching tools and your working environment. When working with pen and paper, just put them on a table. When working with code or hardware, it can be highly beneficial to take a bit of time to carefully select and prepare only a limited set of tools and platforms, optimizing for speed of sketching.
- 5 **Create sketches:** After you have given the group a design challenge (e.g., a “How might we ...?”

question), ask them to sketch varied concepts that address the challenge. If you are aiming for quantity, you might ask participants to resist the urge to discuss the ideas, but instead to concentrate on producing many sketches. (If it fits the sketching method, they might even work in silence, placing finished sketches in a visible place for others to see and build upon.) If you are looking for more depth, you might promote discussion and co-creation of the sketches as they are developed.



- A** Sketches using pen and paper provide a quick and low-fidelity visualization of an initial idea or concept.
- B** Open source prototyping platforms like Arduino allow you to sketch in hardware, creating first working prototypes of interactive devices.
- C** Early exploratory sketches often are for yourself only, or you will be able to explain them anyway. Therefore, go for inspiration not perfection. Learn from your children who are experts in doing just that.

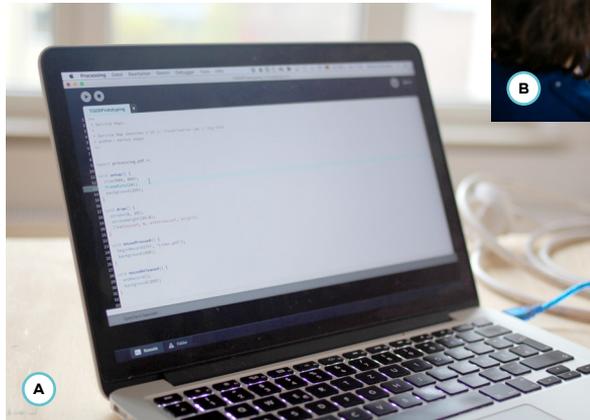


Step-by-step guide

USE/RESEARCH

- 1 Present and elicit feedback:** Present sketches either to each other within the design team or to an external audience to receive feedback and ignite discussions. During these sessions, you can directly work on existing sketches (e.g., by adding annotations or changing them on the spot) or easily add new ones with the new ideas already included. One alternative method is for the sketchers to present their work without explanation, and ask the people viewing the sketch to describe what they see and what it might be useful for.
- 2 Keep a list of bugs, insights, and ideas:** After each session take a few moments to reflect on what you have learned, and what you would like to change or try next. Briefly discuss the issues you discovered and prioritize them.
- 3 Revise your sketches and iterate (optional):** Are there any changes you can or should make right now? Do them quickly, then iterate from step 1.

- 4 Document:** Document and finalize your work. Use photos or videos of your sketches as well as key interactions to document the latest version from your sketching session. Briefly reflect on your documentation and identify critical issues as well as problem or opportunity areas that need to be addressed in the next steps in the design process. ◀



- A** With the right prototyping platform, sketching in code lets you explore working prototypes early.
- B** Bodystorming is a very efficient lo-fi way to sketch (inter)actions using re-enactment – or “sketching with our bodies.”