

## Prototyping

Prototyping is an integral tool for artists, engineers, and designers to develop a product in multiple stages. The prototyping process is important because it allows developers to create steps for their product that allow debugging, feedback, and stylistic changes throughout the process which ends in a more responsive product for the developers needs. The stages of prototyping are laid out in order to help the designer do the following: understand, test and improve, communicate, and advocate. The prototyping process is divided into three main stages: low fidelity, mid fidelity, and high fidelity.

Low fidelity prototypes are the initial stages of design, which include sketches, component research, and initial trials. When setting out to develop a product one may not innately know the exact components one needs or how to properly make them work together. These early stages allow for several early designs to be tried and tested with a relatively low cost to errors and redesigns. Since the product is being tested at such a low level of development the goal is to catch potential issues before they get too far down the construction pipeline. For instance, one may discover a needed component in a circuit before the preliminary circuit has been soldered and completed, avoid a costly refresh.

Mid fidelity prototyping is where the product begins to take its final form and has some degree of interactivity. It is still not complete and is still open to modifications, whether major or minor. A useful stage of this fidelity level is being able to present ones product to a group of investors or interested parties for feedback. They will be able to see a near final form of the product and get a good idea of how it will be used allowing them to evaluate it's credibility. Without the product being ready for market and critiques can here be taken and applied to the prototype without significant set backs. The also allows the final form to be more true to its user base's needs.

High fidelity prototypes are nearly ready for launch, meaning they look and function like they are intended to. They do not have to be perfect at this stage but they should be good enough for an intended user to evaluate them accurately. Testing the product with users at this stage is an important mark as it allows last minute minute details to be corrected, such as across device compatibility.