



## 1.2 Customer Needs

Since this is an entrepreneurial project, the team will be using a few different sources of customer data and research to help validate the design and viability of the machine, as well as set up guidelines that will be used during the development. These sources will consist of previously made customer personas found in Appendix B, data collected during the FAU Regional I-Corps program in Appendix F, and discussions with Dr. McConomy.

### 1.2.1 Persona Customer Statements.

The personas were very helpful in gaging the needs and wants of potential customers by giving a more in depth perspective of why certain markets would be viable. The table below will note the key goals mentioned above, potential customer statements, and their interpreted needs for each of the different personas. These personas were based on conversations with Dr. McConomy as well as market data collected through the NSF I-Corps program.

Table 1: Customer Interpreted Needs from the Personas

Prompt	Customer Statement	Interpreted Need
Size Requirements	1. Would be nice to fit on the end of a desk	Machine should be no deeper than a standard desk, and probably no wider than it is deep
	2. Would be nice to have multiple in a room	Machine should have a frame that will allow for multiple to be put side by side or potentially stacked
Material Variety	3. Work with almost any possible final material	Customers would prefer the machine is able to utilize a variety of materials to get a



		better understanding of how a final version would work
	4. Have a variety of materials that will work with the machine	Varieties are very important to test different styles of parts or the effects of different materials
Power Source	5. Plug into a normal outlet	Machine will run off of 120V from a standard outlet
Ease of Use	6. Will not require programming to use	Machine should work with a standard slicer used by a 3D printer
	7. Will not require someone trained or tech school	The program used by the machine should be intuitive and easy to use
Speed to Make Parts	8. As fast as possible	Parts should be made as fast as the method used should allow for
	9. Faster than it would take to send orders to machine shops	Be easily accessible and easy to use so that contracting is not required
Accuracy	10. Need a machine to be accurate with my models	The machine will hold tolerances called out on a drawing.

### 1.2.2 Dr. McConomy's Statements.

Since this is an entrepreneurial project, it lacks a corporate sponsor. This means that Dr. McConomy acted as the advisor and sponsor for the team. Additionally, Dr. McConomy falls within the target market as a teacher/instructor that a machine such as this could benefit the curriculum, therefore the team asked him about his different needs and constraints during our initial meeting, the results of which are found below.



Table 2: Customer Interpreted Needs from Dr.McConomy

Prompt	Customer Statement	Interpreted Need
Easy installation	1. The system does not require changing the environment it is placed in	Be easily installed without the need to remove walls, change outlets, or provide advanced air filtration
Works in Garage	2. The system is small enough to fit inside a garage or outdoor shed	The system will be sized to fit in household workspaces
Safety	3. If the system sacrifices safety it would not be worth purchasing	The system will have all moving parts inclosed and have safety features to keep the user away from dangerous actions of the machine
Expands Capability	4. The system must do more than a simple 3D printer or 3-axis router	Machine should be more advanced and be able to produce with a greater variety of materials or geometric complexity
Price	5. If the system is at a reasonable price, it would be worth it to purchase.	Machine should be priced at a point reasonable for purchase by hobbyists or capital-constrained businesses