Curing Chamber Project – Initial Phase V1

*Project Needs*

For the curing chamber design the initial scope is to design a temperature-controlled and humidity-controlled chamber designed for curing meats, cheese, and wines. As outlined the users and stakeholders of the project are me and my girlfriend. Thus, I set out the following goals as my user needs.

* System must maintain temperature and humidity values to that necessary for safe curing.
* The product must be power and space efficient.
* Cost must be at a minimum; the end goal is to save as much money as possible with the design.

Having the three main user needs I pushed into outlining the requirements of the curing chamber system.

Regarding the user’s needs we can divide them into three main categories: cost, efficiency, and accuracy. To quantify the importance of each need they were ranked from 1-3, 1 being the most important.

|  |  |
| --- | --- |
| User Needs Scores | |
| Cost | 1 |
| Efficiency | 3 |
| Accuracy | 2 |

*Project Requirements*

From the needs we can then outline more quantifiable project requirements. Going through the needs in order of importance we first decide on hardline costs. Going through existing curing chambers for sale, a price of around $2500 for the cheapest on market chamber. Setting a goal for 10% a budget of $250 was outlined. For accuracy there are operating ranges for curing meats and cheese, so a temperature range of three degrees and humidity range of four degrees was decided on. These were set due to keeping safer fridge operating times to extend the life of the chamber appliances. Finally, for efficiency the form factor was set to a 4.4 cubic foot compact fridge to save on power draw and space. Finally outlining further requirements beyond the initial set of needs, it was decided that the project should have a way of displaying errors in case of system failures and communicate with the user specific temperatures and humidity readings. Enumerating the requirements we have:

1. The cost must be under $250 for all supplies
2. Temperature and humidity cannot exceed 3 degrees and 4% from set values respectively
3. Chassis must be a compact fridge to save energy and space
4. Must display error messages to user within five seconds of noticing a malfunction in readings
5. Humidity and temperature readings must refresh and be displayed every second.