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Hydroponics 5
GNG1103[D]
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Deliverable C: Design Criteria

Introduction

After identifying our needs, we are currently translating those needs into design criteria to help us clarify functional requirements, constraints and non-functional requirements that our product has to satisfy as well as establishing some approximate values to these requirements and constraints. We are also analyzing commercial designs to inspire us and determine which methods are efficient and which are not.

Translating Needs into Design Criteria

Number	Need	Design Criteria
1	● Our product must be self-powered	● Electricity production
2	● Our product cannot require a constant supply of water	● Water recycling
3	● Our product must be safe	● Safety
4	● Our product must be sealed to prevent pests entering	● Inviolable
5	● Our product must be resilient enough to function in exterior temperatures	● Temperature resilient
6	● Our product must be easy to assemble with minimal tools	● Assembling time
7	● Our product must disassemble into small parts that can fit inside a light cargo van	● Maximum width, length and height (in) ● Can be disassembled
8	● All the materials and components for the hydroponic system should be less than the expected cost	● Cost ($)

Engineering Design Specifications

	Design Specifications **Functional Requirements**	**Relation (=, < or >)**	**Value**	**Units**	**Verification Method**
1	● Electricity production	>=	20	W	Analysis
2	● Water recycling	>=	10	L	Analysis
3	● Assembling time	<=	1	h	Estimate
	Constrains				
4	● Cost	<	100	$	Estimate, final check
5	● Size	<=	6’x6’	ft	Analysis
6	● Operating Temperature	=	0 to 35	℃	Test
	Non-Functional Requirements				
7	● Safety	=	Yes	NA	Test
8	● Resilient	=	Yes	NA	Test
9	● Transportation	=	Yes	NA	Test
10	● Can be disassembled	=	Yes	NA	Test

Branch Marking

Hydroponic System	**Weight**	Current Culture H2O Under Current Solo Pro	AmHydro NFT 48 System kit	AeroFlo 60
Company		WaterFarm	AmHydro	General Hydroponics
Cost	**2**	$768.39 USD	$1499.95 USD	1597.95 USD
Number of sites	**5**	11	48	60
Reservoir Size	**2**	35 Gallon	10 Gallon	40 Gallon
System Dimension	**3**	25" x 36" x 15"	2 x 5 (ft)	5’1”L X 6’10”W X 2”H
	Total	22	32	27

Conclusion

To conclude, we have now identified various requirements that our product has to satisfy and compared a few commercial designs to provide a good standard for each criteria that we are gonna use for our own design. The next step of this project will be Conceptual design

1.https://growdaddycanada.com/collections/hydroponic-supplies/products/current-culture-h2o-under-current-solo-pro-35-gallon-system-with-11-x-5-5-net-pot

2.https://shop.amhydro.com/collections/complete-nft-systems/products/93081

3.https://generalhydroponics.com/aeroflo