Deliverable C - Design Criteria

Introduction

Following a meeting with both the Surface Tension and Equilibrium clients, the team chose to commit on improving the Equilibrium art installation. During the client meeting, information was gathered from the client from which a concise list of interpreted needs was developed. This list is presented in this document along with how these needs could be interpreted into design criteria. A list of design constraints was developed, an analysis of functional and non-functional designs was completed, as well as an analysis of existing similar projects (benchmarking). The objective of this document is to serve as a design template that will assist the team in defining a direction for potential design ideas to follow and a path for the design process to take.

Interpreted Needs

Number	Needs	Design Criteria
1	The structure is low cost	Cost ($100)
2	Power consumption	Under 100 W
3	The structure needs to be lightweight	Weight (<800 lbs)
4	Requires low maintenance	At least 2 months

Constraints

1. Cost ($)
2. Dimensions (Length, Width, Height)
3. Weight (kg)
4. Power Supply (watts)

Benchmarking

	Our project	Greenhouse project	Bowie
Cost	$100	$242	$1,000
Weight	800lbs<	N/A	12lbs
Size	1ftx2ftx3.9in	15ftx10ftx8ft	N/A
Functional	sensors change light	house providing electricity, insulation, ventilation, security, water collection	Separates and dispose garbage
Non-Functional	LEDs	N/A	takes opinions, sound
Power	<100W & 100A	solar	5 hours

Target Specifications

Cost	At most $150
Weight	Between 800 lbs and 1000 lbs
Size	Exactly 1ftx2ftx3.9in
sensors	At most 100W&100A Total with LEDS
LEDs	At most 100W&100A Total with sensors
Power	At most 100W&100A

Conclusion

In conclusion the product that is to be designed is a prototype that would be added to the already established equilibrium. After the first client meet it was determined what target specifications must be met by our product, and what constraints might arise during the product's development. On realising what are true needs and restrictions are, it will be easier for the team to develop a design that meets our customers needs in the most efficient way.

Bibliography

- https://makerepo.com/lalkh081/gng1103construction5greenhouse
- https://makerepo.com/tbedair/bowie-house-a12