Deliverable B: Needs Identification and Problem Statement

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In this document, we will explore and prioritize the needs of CEED and Brunsfield space and we will declare a problem statement. The CEED and Brunsfield spaces have an assortment of needs they would like to be met. These needs fall into three categories; organization, data collection, and awareness. First, organizational needs are those which will improve the functionality of the Brunsfield and CEED spaces. Next, data collection needs are required in order to observe the number of users in the space and their actions. Last, awareness needs are specific needs that will keep users in the spaces on track and safe. In this document, we will discuss and prioritize the needs of CEED and Brunsfield spaces and a problem statement will be declared.

1. **Organization**
   The clients have expressed a need to have more organization systems throughout their workspaces. The CEED and Brunsfield spaces currently have a problem keeping track of inventory. CEED specifically mentioned they lose a lot of SD cards. The Brunsfield employee would like to have a better system to track their inventory so he is more aware of what he should order more of.

2. **Data Collection**
   The clients have expressed a need for a system to collect data on the spaces being used in order to improve the facility as a whole. They have expressed the need for a way to track the number of people that use the facility at certain times to track peak hours. They want a formal way to collect suggestions from the users and employees on how to improve the facility.

3. **Awareness**
   The clients have expressed a need for a system to ensure the users of the facility are aware of the time left in the day as well as how to properly use the available machines.
   By implementing a system to inform the users of the time left in the day it would prevent users from attempting to begin a 3-hour task while there is only one hour until closing. Also implementing a system that has a brief video about each machine and how to use it properly and safely will be beneficial. This ensures the user's safety and minimizes repetitive questions. After speaking with an employee in the Maker Space it was expressed that it would be helpful to have a system that would inform the employee when a 3-D print is completed.

Needs	Importance (1-5)
CEED and Brunsfeild employees need a system to track inventory.	3
CEED needs a system so users can easily book machines ahead of time.	4

CEED needs a method to inform users on how to use their various machines in MakerSpace and Brunsfield.	3
CEED needs a system to alert users in the space with the time left in the day	2
User Heat Map: Ceed needs to be able to track when users visit the most and what machines are used the most in MakerSpace and Brunsfield.	2
CEED needs a suggestion box so users are able to voice their opinions and areas that could be improved	1
The automated system must cost at most $100	4
The automated system must be easily implemented and integrated to the CEED or Brunsfield space	5

Problem Statement: CEED needs an automated system that is easy to use and cost-efficient but can also alert users and employees of the time remaining until machines are done the printing. As well as a system that tracks when inventory gets low, and alert users of the closing hours.

Benchmarking: Our project will alert employees when printing machines are done the printing.

Subsection	Benchmark	Description
Data Collector	Camera	Live camera feed so users can view their print progress anytime anywhere. Ex. GoPro $199.99
	Sensor	Temperature or Motion that is able to differentiate properties when the 3D printer is running and when it is completed. Ex. Zooz Z Wave Motion Sensor ($41.94)
	Person looking	Observes that the print is complete. Ex. CEED employees, the minimum wage is 14$/hr
Alert System	Person	Alerts Staff the print is complete Ex. CEED employees, minimum wage 14$/hr
	Alarm	Goes off to alert the staff

		member that the print is complete
	Flashing Light	Flashes to indicate to the staff the print is complete Ex. Skyjack Flashing Light ($23.27)

After reviewing the needs of CEED and Brunsfield spaces we have decided to focus our efforts on the 3D printers. Specifically, we will be creating a system to inform the employees of CEED when the printer has finished or stopped working so that the employee can collect the finished project. Our project should be a cost-effective and solution to improve CEED.

CITATIONS

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