

# **Individual Analytical Analysis**

## **Interactive Charger**

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**Section 002**



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## **DISCLAIMER**

This report was prepared by students as part of a university course requirement. While considerable effort has been put into the project, it is not the work of licensed engineers and has not undergone the extensive verification that is common in the profession. The information, data, conclusions, and content of this report should not be relied on or utilized without thorough, independent testing and verification. University faculty members may have been associated with this project as advisors, sponsors, or course instructors, but as such they are not responsible for the accuracy of results or conclusions.

## **Introduction**

The NAU Engineering Building is in need of a sustainable way of charging electronic devices. Students are always using their electronic devices and having to plug them into the power outlets around the building. The NAU Engineering Building could help reduce their energy consumption by adding an interactive charger that allows students to charge their electronic devices using human energy. Currently, the building has an interactive charger, but it does not produce any power. The goal of the new interactive charger is to replace the old device with a working one that is user friendly. Having a new interactive charger in the engineering building would allow students to create their own energy to charge their electronic devices, while giving students the possibility to earn free printing credits.

## **Types of Desks and Chairs**

Picking a specific type of desk and chair was a challenge for the team because of the design of the foot motion. The team decided to go to the NAU Surplus store to pick up a low cost, but sturdy chair. While the team was there, the team decided to pick up an old desk as well. After deciding upon a design for the motion of the feet pedals, the team decided upon a design for the chair mount and desk. The team decided that two designs would work for the interactive charger. One design that the team came up with is a four post design that has a steel plate that sits on top of the four steel posts. The chair will be mounted on top of the steel plate with the bracket that is connected on the bottom of the chair. The desk would be fixed and mounted to the steel posts that are under the chair. This design can be seen in Appendix A, Figure 1. The second design was having the chairs bottom bracket sit on a single steel post mounted straight to the frame. The desk mount would then be mounted to the single steel post. This design can be seen in Appendix A, Figure 2.

## **Acceptable Weight**

The average weight that a normal rolling, cushioned chair can hold is two hundred and fifty pounds [1]. A large chair that is specifically built for a big and tall person can hold a weight of between three hundred and eight hundred pounds [1]. The chair that the team acquired is a normal rolling chair with the capacity of holding approximately two hundred and fifty pounds. The mounts that the chair will be connected to will be made of steel and will be able to hold considerable amounts of weight.

## **Charging**

Students will be able to charge their devices and place them in a safe place while they have the ability to work. The desk will serve multiple purposes for the interactive charger. The desk will allow students to do any type of written work while they created power. The desk will also be used to mount the small display screen on. The wires for the display screen will run through the steel, which will allow the wires to be protected from students.

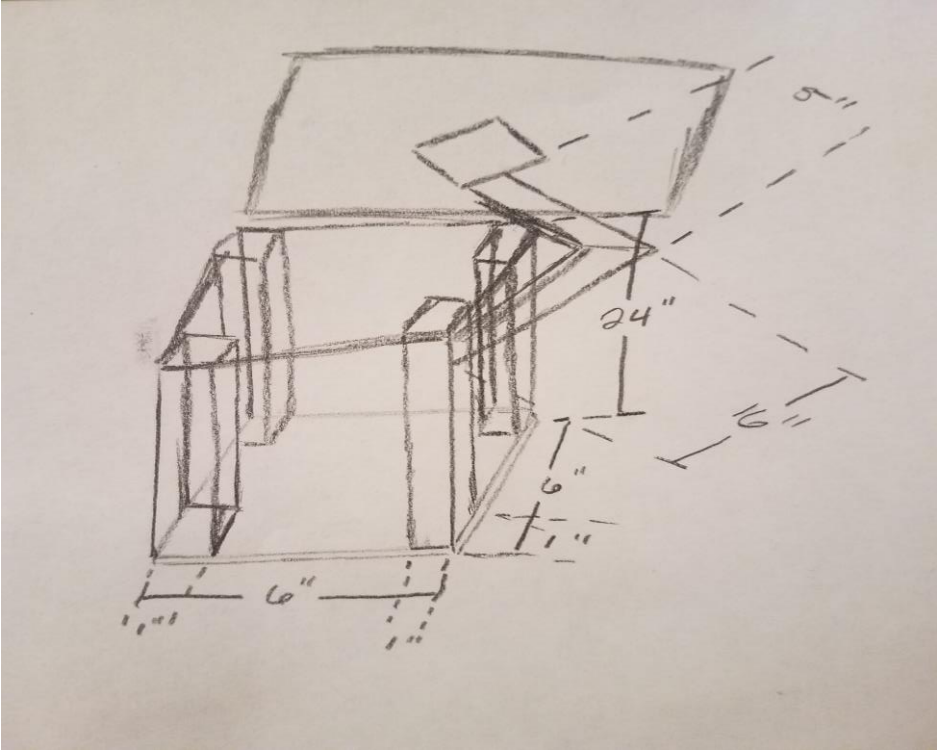
## **Conclusions**

Having a working interactive charging machine in the NAU Engineering Building would benefit both the students and the university. The students will have the opportunity to charge their electronic devices while burning calories and possibly earning print credits. The university will be able to save money on electricity because less students will be plugging their devices into the wall power outlets.

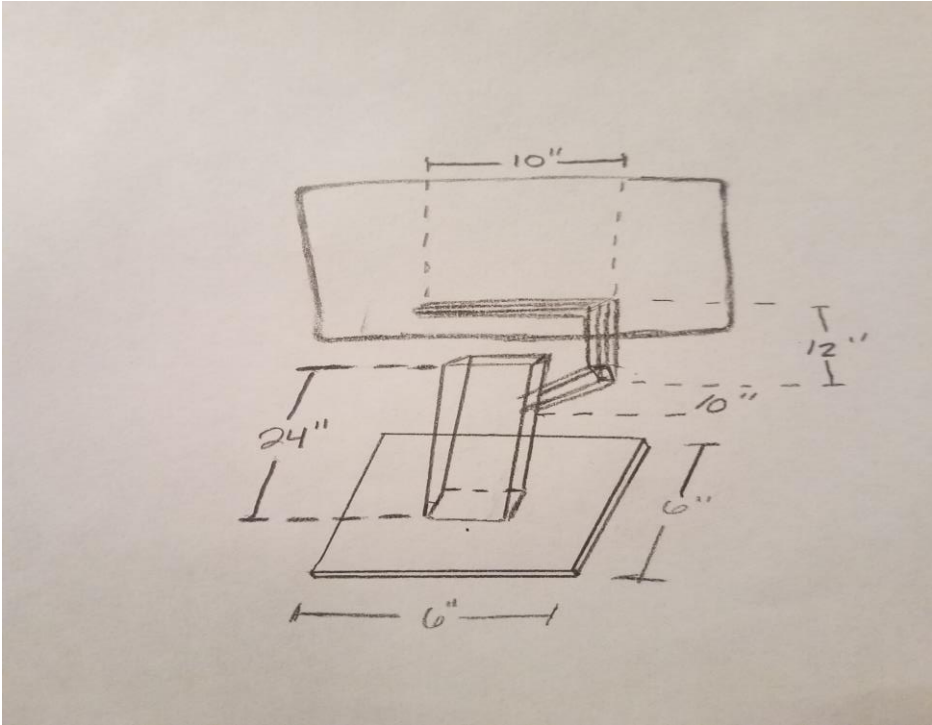
## REFERENCES

- [1] Howe, Rachel. "How Much Weight Does the Standard Office Chair Hold?" *Office Chairs in 1000's of Styles w/Free Shipping*, OfficeChairs.com, 31 Aug. 2017, [www.officechairs.com/blog/how-much-weight-does-standard-office-chair-hold](http://www.officechairs.com/blog/how-much-weight-does-standard-office-chair-hold).

**Appendix A**



**Figure 1: Design One**



**Figure 2: Design Two**

