

Recreating the Portable USB Hub

University of Minnesota

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Cole Garcia 9/14/22

Abstract

With the development of new, lightweight laptop computer models that sacrifice needed accessories in favor of being smaller or slimmer, there is a need for external accessories to accommodate for the user's needs. One such accessory is a USB adapter that adds several ports to the device that it's plugged into. While innovative, this accessory has some flaws in its design, making it more cumbersome than it needs to be. Making a simple change to the location of the connection effectively solves this problem and makes the product much more lightweight and portable.

Introduction

The modern world is dominated by technology. Technology is used on a daily basis, whether it's a smartphone used to check the weather for the day or a computer used to file taxes and manage finances. As we've become increasingly reliant on technology for assistance in our daily lives, there have been many products created to help enhance our experience with the technology that we use. These products have a wide range in their uses, some are used to help us hear more efficiently while others are used to help link two or more things together. Some products are made to help solve problems with existing products. While there are many products

that are designed to enhance our experiences, not all are created equally, and some have flaws in their design that make them less helpful than others.

Description of Artifact

The artifact in question is a portable USB adapter manufactured by consumer electronics company j5create. This USB adapter consists of a block with two female USB type A ports, one female USB type C port, and an HDMI port at the end (*See Figures 3 and 4*). Attached to this block is a cable that extends into a male USB type C cable which is then connected to a compatible desktop computer, laptop, or other compatible personal device. This USB adapter, or “hub”, is typically intended for use with laptops, particularly newer Apple models. As Apple makes newer laptop models with the goal of being sleek and lightweight in mind, they’ve largely eliminated many of the ports that came with older models. Newer laptop models typically are limited to two USB type C ports, meaning that an extender is almost a requirement for connecting accessories to your new Apple laptop. This is where the j5create USB adapter comes in, as it is able to use only a single port on the laptop to add two USB type A ports, one type C port, and an HDMI port. The adapter is about 19.5cm in length, with the main portion of the device being 7.5cm and the connector being 12cm.

Flaw of Artifact

While this object is undoubtedly useful for connecting accessories to your device, its design is inherently cumbersome, especially when taking into consideration the already lightweight nature of the devices that it is intended to be used on. Laptop computers, which are what this artifact was designed for, are typically used while sitting in the user’s lap, hence the name. The issue with this device is that when it’s plugged into a laptop during use, it hangs down considerably lower than the height of the laptop. This added length makes the size of the

computer setup much larger and more cumbersome than it needs to be. Combining this difference in elevation between the device and the laptop with the thickness and strength of the cable puts strain on the cable and the port of the laptop. This means that over time, the cable and/or the USB port on the computer will sustain considerable damage from stress.

Solution

The heavy-duty cable on the end of the adapter is more or less unnecessary when keeping the function of the product in mind, as there's really no need to create distance between the computer and the adapter. That being said, there is a relatively simple fix to this problem in order to ensure that the product is able to accomplish its task without damaging itself or the device that it's plugged into. Rather than having a 12cm cable protruding from the end of the device, the connection can simply be placed on the side of the block opposite to the side with the various USB ports (*See Figure 5*). This way, the block can simply be plugged straight into the side of the laptop, giving easy access to the ports on its side. This design would be much simpler, as the block then essentially serves as an extension of the computer's built-in ports rather than a cumbersome attachment with a cable that adds several extra centimeters of length to the setup, which is meant to be lightweight by nature. With this new design, the object becomes much more portable and lighter, enhancing the user's ability to take out their computer and any attach needed accessories anywhere they want. The lack of a cable makes the product's weight much more evenly distributed, causing less strain on the computer's port and on the adapter's connector.

Reflection on Societal Values

As stated above, living in our modern-day world means using technology on a daily basis, no matter where or what we're doing. As technology has advanced over the course of

recent years, portability and convenience has become essential to a technological product's success and usefulness. This product shows our willingness to live alongside technology and use it to our advantage as it plays a larger role in all our lives. The vast majority of people in developed countries rely on technology in some way or another in this day and age. Employees use technology to complete work for their jobs, students use technology to attend school and complete homework, businesses use technology to make their processes more efficient for their customers, and virtually all of these people have some sort of mobile device on their person most parts of the day. As time has progressed and technology has become more accessible to the average person, a demand for the use of technology in any location during any time of the day has risen. Years ago, there may have been situations in which someone would need to go to an internet café just for access to technology and the internet. This problem is unheard of today, as most people either have a laptop or smartphone to connect them to the world. Accessories such as the USB adapter described here are essential in enhancing our experiences with technology to help it better serve us.

Conclusion

While this product is undoubtedly innovative and useful to laptop users, its design wasn't perfect when thinking of the object's practical use. Roger L. Martin explains that design is a process about ensuring that products are not only visually appealing, but also functional in order to complete their given task in his book *The Design of Business: Why Design Thinking is the Next Competitive Advantage* (2009). Design is very important in ensuring that a product is able to deliver to its audience in the most efficient way possible. That being said, no design is permanent and improvements to already existing designs are being created every day.



Figure 1: View of described object



Figure 2: Cable and USB type C connector



Figure 3: View of ports on object



Figure 4: View of HDMI port on end of object

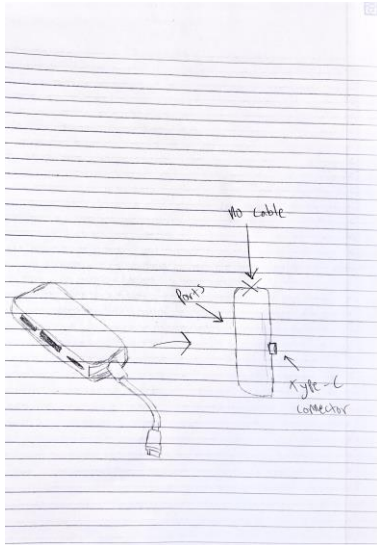


Figure 5: Sketch of improvement to object's design

References

Martin, R. L. (2009). *The design of Business: Why Design Thinking is the next competitive advantage*. Harvard Business Press.