Dream Design

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1 Introduction

Interfaces and their designs are considered necessity in our daily technological use of modules that can be applied on a hardware, or a software. Moreover, the interface between a user and a machine, has to be built based on some guidelines, principles, and theories of interface designs, that allow the user to have a better experience when using those interfaces. However, in this paper I will mention my dream interface that can be applied as a software in a specifically designed machine, which therefore has to follow certain guidelines and principles of design that are going to be mentioned. So what is my dream interface?

Since we are all surrounded by so many hard objects in our lives, and those objects sometimes are needed to be shown exactly as they are on a computer or a tablet so they can be illustrated or modified in a way or another. Therefore, what I have always dreamed of is a 3D scanner from your own computer, tablet, or phone's screen. The screen can work as a scanner which scans any object you place it in front of it, to an exact 3D model of it in the software that you're using. Moreover, the screen will

capture objects in full color with multi-laser precision. The laser comes out from the screen and scans the object and deliver a 3D model of that object to your computer.

2 Design

The 3D scanner interface design should be implemented in every device that has a screen in it. For example, PCs, tablets, Televisions, smart-phones, and video game devices. Furthermore, the interface design should be efficient, and easy to use by all kind of users. Therefore, it should make the user interaction with the machine easier and more convenient than ever in accomplishing this kind of tasks.

Furthermore, we all know that there are some 3D printers out there, and few 3D scanners as well. However, the 3D scanners that are available now are very expensive and they are in the form of a different device that is connected to a computer and require a whole workstation to perform their task. Also, the ones available now needs more than one positioning to the object as shown in the next image

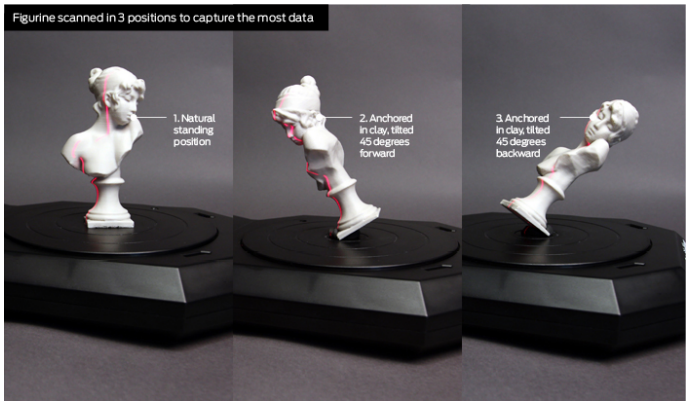

Figure 1: A simple caption by: makerbot.com

However, the one I am dreaming of is actually within the screen itself. For example, think of your laptop screen as it's able to fire some laser when it asked to do so by a command that is in the software drop down menu, or a shortcut similar to "command + P" for printing. Then, the object placed in front of it, let us say on the user's hand gets scanned in the form of a 3D model to your computer. Also, when 3D scanner is used within the most used device by the user, it makes the user more comfortable and only needs simple instructions on how to use this kind of interface, which is clearly a very useful interface as we will show the usage scenarios in the next section.

3 Usage Scenarios

When it comes to the usage scenarios of this interface, there are many. For instance, making movies requires implementing real objects into them. Let us say you are a 3D Modeler that needs to design some kind of buildings, cars, weapons, and you only have the smaller version of that object on your hand. Usually visual artist will place that object and draw it using some kind of application in their computers. Of course, this takes time with less precision. But, with this kind of interface the only thing you need to do is hold that object in front of the computer's screen and it will laser scan the object with hundred percent precision.

Another usage, we all have objects in hand, and sometimes we complain about their design, layout, and maybe functionality. For example, you're holding a glasses or sunglasses, and that glasses doesn't fit very well, or maybe it can break easily and you have some adjustment in mind. So, what you do is scan it and then edit

it. When you're done, send a copy of your work to the manufacturer and they will get you what you asked for. Moreover, everyone has things in mind and don't know how or where to suggest their ideas. So, this kind of interface if used with a specified application that allow the user to edit the 3D model easily, and link the application to any company that manufactures the product, then I beleive this will revolutionize the industry with so many innovations and adjustments to the current objects we have.

4 Rationale

For this section we will discuss the interaction design concepts that are used in this dream interface. The first thing about a good interface is that it should facilitate finishing the task at hand without making unnecessary attention to itself, which this dream interface does. Also, a user interface design requires a good understanding of user needs, and we all need this 3D scanner to be available at any time to manage our tasks easily, as demonstrated in the previous section.

Moreover, this dream interface should be effective, efficiency, and satisfactory. The interface should be effective because it scans the object into a 3D model of it without using any other devices to do this task. This interface allow the user to achieve its goals of making a 3D model of anything in hand with multiple clicks, instead of a whole set of devices and stations. Also, it can be very efficient as it requires nothing but for the user to hold the object in front of the screen, and that will definitely reflect on the overall user satisfaction to accomplish a task that is considered really

hard in our days. Furthermore, these quality factors of usability can be affected to be better by the simplicity of this design if manufactured as intended to be, which in a way that the design will not use unnecessary complexity.

Finally, the interface should measure for the predictability factor in it. For example, when the laser comes out the user needs to know that he/she needs to rotate the object once the laser stay still, which means it's time for the user to rotate the object to a different angle to allow the scanner to capture the whole object into 3D model. Moreover, the interface should also be responsive and provides enough feedback information about the system status and the task completion, while the user is making the task.

5 Usability Metrics

For this section we will assume that the dream interface is being implemented and tested, then what are its strongest Usability Metrics? Well, I believe once this interface is being tested the stodgiest metric will be ef?ciency as mentioned above. The reason why, is that this kind of task requires a lot of time to accomplish and also more than one device. But, in this interface, it should only take up to two minutes to accomplish 2 hours task. The next strong metric should be learnability, but only under one condition which as we mentioned before the system should be responsive. Therefore, the user will only need to move the object as directed, and that requires no further, or previous learning.

However, this system can be weak in some of the metrics, and I am thinking it should be error making. The reason is that this kind of interface needs to capture precise data, and that requires precise movement, and placement to the object in front of the screen. Therefore, users may place the object too close or too far from the scanning area "let's say above the keyboard or 3 inches away from the screen if it were a tablet." Also, some will definitely if not all, not going to rotate the object of not instructed to so. Whereas, some will rotate the object but not in all angels.

Finally, this kind of interface should be very satisfactory to the users as it's a new and a very important innovation, that will require a lot of research and hardware new technologies in order to get it to work as it's planned to be.

6 Target Systems

Before, we sum up all this dream interface, we

7 Conclusion