St. Francis Institute of Technology

Department of Computer Engineering

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Subject: Human Machine Interaction

Class / Branch / Division: BE/COMP/A

Experiment No:- 5

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AIM : To understand how to design appropriate icon for a specific domain.

I - THEORY :

1. What is icon?

Icons are graphical representation of objects or actions. They are part of the visual language and communicate large information in a single glance which otherwise may need number of words. Icons can be in the form of 2-dimensional flat symbolic image or 3-dimensional.

They can be static or animated. Icons can be accompanied by text or labels. The shape, size and style of the letters that form such labels form part of typography design. Typography is a vast area in design. Here only recommendations for typography are made. Widgets are also designed using the same methodology as the icon.

2. Explain the aspects of icons.

Aesthetics is not only about looks and attractiveness; it is about how efficiently the icon functions vis-a-vis the human user. An icon can be very creative and good looking but can miserably fail in communicating the right meaning. A poor icon design may lead to human errors or accidents. Imagine a save icon in the shape of a basket being confused with a storage icon because visually a 'basket' represents it. The semantics of an icon - (what meaning a graphic

symbol communicates) can therefore be creatively destructive. Some other factors that also contribute to aesthetics are shape, color, simplicity, order and proportions.

Construction aspect of an icon design is equally important. Vector based image construction is far more easy for computation, scaling, refreshing and display compared to pixilated construction. Pixilated icons require heavy sizes and have limited animation capabilities. On the other hand vector based icons may not be suitable for all situations and screen environments.

You should create separate icon sets for high, medium and low pixel density screens.

Pixel density of a mobile phone screen is calculated as follows:

- Specifications: display size=3.7 "(diagonal) / resolution= 480 x 800 pixels
- Pixel density (PPI) = pixels per inch
- Width: height ratio is same as 1: 800/480
- Thus width= 1.9" and height=3.175" (By Pythagorean theorem and diagonal)
- PPI= 480 divided by width of 1.9 or 800 divided by 3.175 to give 252ppi.
- Human eye cannot distinguish the difference in PPI when the figure reaches a saturation point of about 250ppi or 300ppi at the most.

II - OBJECTIVE :

At the end of this experiment

1. You will understand icon design heuristics.
2. You will be able to design or create icons effectively.

III - PROCEDURE :

1. Sketch an outline of a typical pen drive in 2 dimensional form as familiar to you.
2. Refine the outline by removing all unnecessary lines, features and clutter.
3. Ask yourself : Does this figure look like how pen drives look like in real life.
4. Isolate or consolidate significant features of all pen drives you have noticed till now.
5. Assign colours, shadows, highlights as you deem fit.

IV-TOOL :

Name : Inkspace

Inkscape is a free and open-source vector graphics editor used to create vector images, primarily in Scalable Vector Graphics format. Other formats can be imported and exported. Inkscape can render primitive vector shapes and text.

Inkscape is professional quality vector graphics software which can be downloaded on Linux, Mac OS X and Windows desktop computers.

V - IMPLEMENTATION :

A. Domain Evaluation

USB Icon comes under I.T. Domain that is Information Technology Domain

B. Define the icon's purpose and use:

USB is such a technology that allows connecting an electronic device to a computer. USB is used in computers and other electronic devices like android and video games. USB ICONS are used to identify the components throughout devices. The USB Icons can be used in the user interface of the devices where Usb is used. It can also be used on the USB device itself.

C. Design the icon :

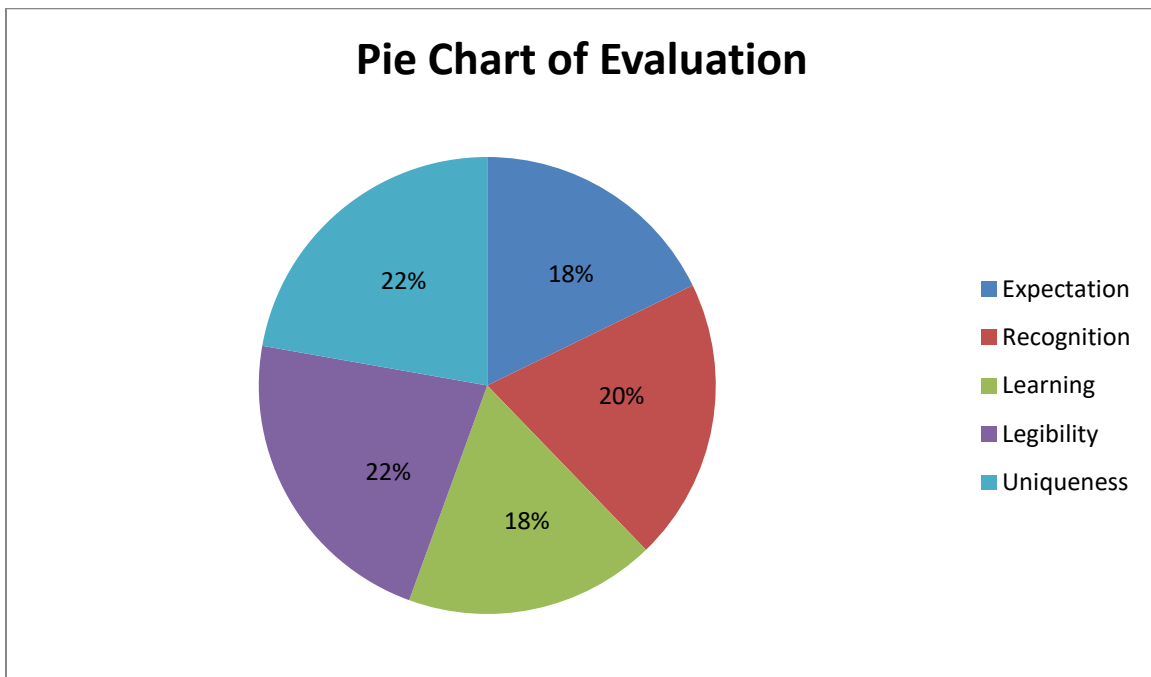Using InkSpace tool below is the USB icon that we have designed.

Figure 1 : Usb icon designed in Inkspace

D. Testing the icon :

Now we evaluate the icon that we have made for USB.

EVALUATION :

Sr. No.	Test Criteria	Poor	Average	Good	Very Good	Excellent	Ratings
1.	Expectation			√			8
2.	Recognition				√		9
3.	Learning			√			8
4.	Legibility					√	10
5.	Uniqueness					√	10

Pie Chart of Evaluation

VI - CONCLUSION :

From this experiment we understood how we can design an icon for a given domain. Icons are graphical representation of objects or actions which can be static or dynamic and can have different shape, size and styles. With the help of IIT Guwahati Virtual labs we understood how to design an icon. Finally we used the Inkspace tool for designing a USB icon and then we evaluated the icon.

VII - POST LAB QUESTION ANSWERS :

1. Discuss two important aspects of Icon Design.

   Answer : The two important aspects of Icon design are :

1. Aesthetics : Aesthetics is not only about looks and attractiveness; it is about how efficiently the icon functions vis-a-vis the human user.
2. Construction : Construction aspect of an icon design is equally important. You should create separate icon sets for high, medium and low pixel density screens.

2. What standard icon sizes do we need for Windows 7 icons?

   Answer :

- Extra Large Icons – 256 x 256 pixels.
- Large Icons – 96 x 96 pixels (Automatically rendered by Windows from 256 version)
- Medium Icons – 48 x 48 pixels.
- Small Icons – 16 x 16 pixels.
- List – 16 x 16 pixels.

- Details – 16 x 16 pixels.
- Tiles – 48 x 48 pixels.
- Content – 32 x 32 pixels.

3. Explain generic steps for creating effective icons.

     Answer:

1. Size of the icons should be as per the screen size
2. Icons should mimic real world objects and still look simple.
3. Icons belonging to a shared screen should have same shape, style,size as per the other icons on the screen
4. The font style and size used for the icons should be pleasing to the eyes

VIII - REFERENCES :

1. https://hci-iitg.vlabs.ac.in/icons_proc.html

2. https://inkscape.org/

3. https://en.wikipedia.org/wiki/Inkscape

4. https://www.creativefreedom.co.uk/icon-designers-blog/windows-7-icon-sizes/