

Design Research Seminar

Expression of forms

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Introduction

To study the *Expression of forms*, using *Eye-tracking* to analyse nine elements of design (Texture, material, surface, surface quality, line edge quality, color , orientation and proportion) that define the form expression.

Expression of forms

Expression of forms is a concept by Prof A G Rao(IDC, IIT Bombay) , which serves as a generative tool, to arrive at new product forms.



Elements of design:

Texture: smooth, highly polished

Material: metallic, plastic dial

Surface: flat surfaces

Surface quality: glossy (case and wristband), plastic and glossy dial

Line: Parting line: horizontal and vertical, subtle fillets at the corners

Graphic lines : horizontal and vertical, subtle fillets at the corners

Stroke lines:

Edge quality: slightly round off

Color: high chrome, black

Orientation : vertical

Proportions:

Expressions

Cold

Strong

Eye-tracking

Eye tracking is the process of measuring either the point of gaze (where one is looking) or the motion of an eye relative to the head. An eye tracker is a device for measuring eye positions and eye movement.



Eye tracking data

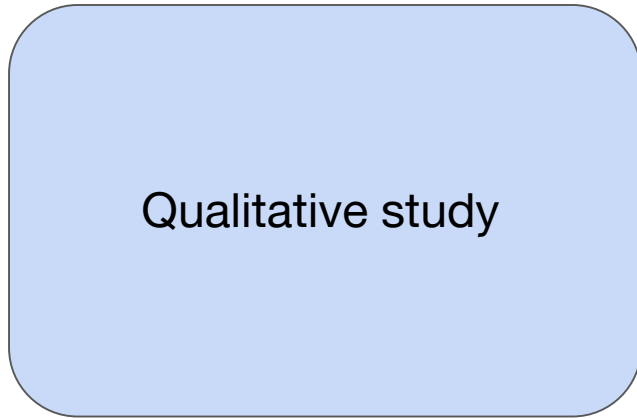
1. Fixations
2. Saccades
3. Smooth pursuits
4. Miniature eye movements like drift, tremor, and microsaccades



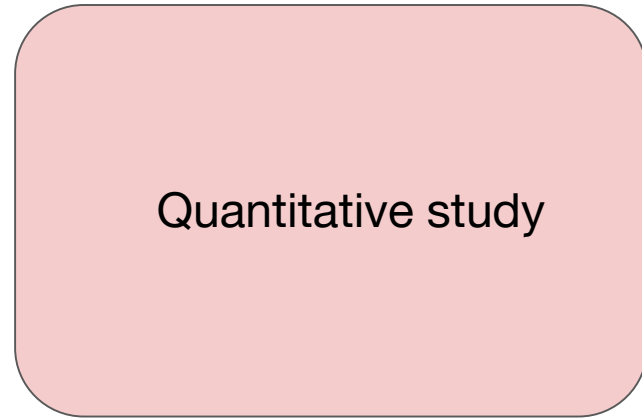
Why Eye-tracking

- Where you look at depends on the properties of what you are looking at, as well as your goals, experiences and expectations
- Eye tracking captures foveal vision(what we are fixating/focussing directly) it provides useful information about visual attention, because in most cases in most case fixation coincides with attention.

Experiment



Elements of design for every expression are studied in detail by visual examination



Elements of design for every expression are studied from the data generated from eye-tracking

Soft images



Qualitative data for soft

Surface	Matte surface, can be glossy
Texture	Smaller scale becomes soft, soft textures should be smooth to touch
Proportion	1:1, 1:2.5
Form	Free flowing, Continuous, Organic, Symmetric
Edge quality	No sharp edges, Free flowing, minimum interruption in edges, broad fillet
Line quality	Free flowing lines, fuzzy outlines
Colour	White, cool colours, light pastel colours
Scale	-
Orientation	-

Quantitative data for soft Equipment and protocol

- **Brand:** Senso- motoric equipment
- Remote Eye tracker
- **Set up :** Placed in a fixed location in front of the participant
- **Think aloud protocol** is followed



Subjects were asked to rate the images sitting in front of the eye tracker



7



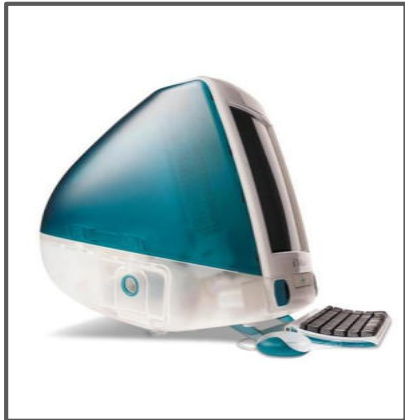
6.8



6.3



6



6



5.5

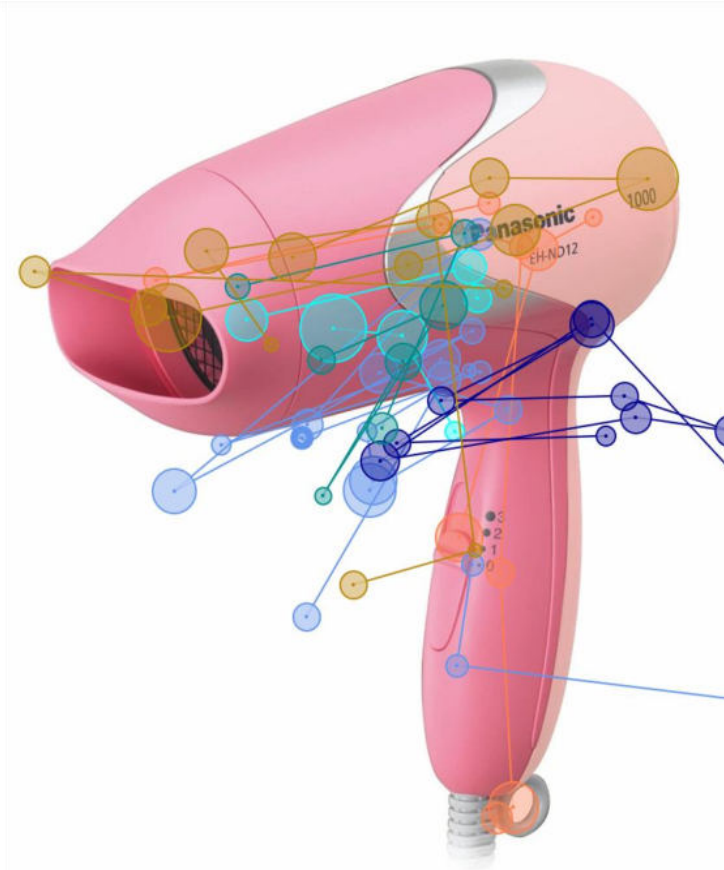
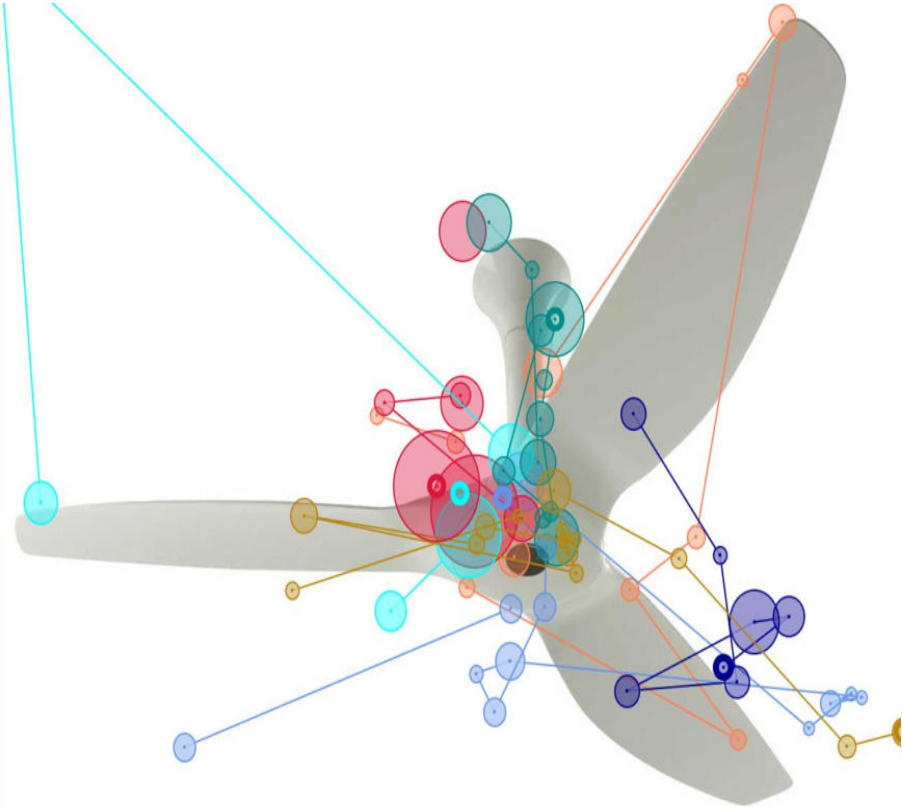


5



3.8

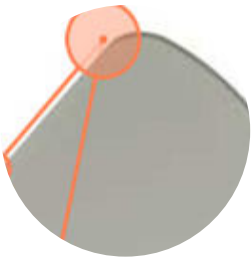
Eye tracking data for the top two images



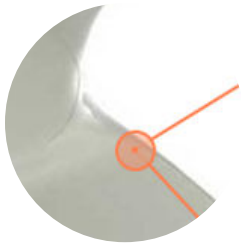
Analysing fixation points



Flushed surface near joining part making it look like one single form transition, smooth finish, rounded surface, glossy surface white tint



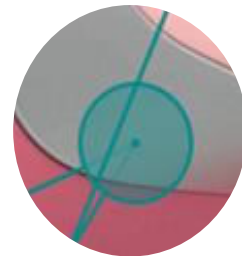
Filleted corners, continuous flow of edge line



Free flowing form, partitions lines are barely visible, white tints, flushed surface near the joining of parts, organic flow of form



Matt finish surface, rounded edges, plastic, also feel like silicon or rubber, undulated surface, soft pastel shades, matte finish, curved lines, soft pastel colors

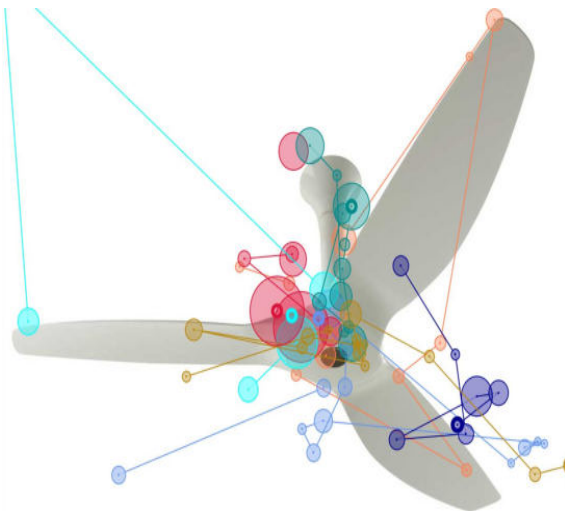
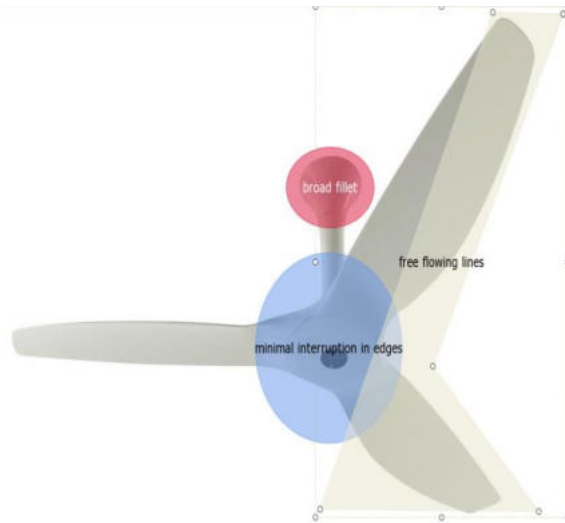


Matte finish, soft plastic feel, curved line, no visible protrusions, all surfaces are flushed to same surface level, pastel colors and silver is slightly glossy



Matte finish, light pastel colour and bold font is used for logo, logo is printed on the surface.

Advance data



Area of interest	AOI Order	Sequence	Fixation count average	Revisor count
Free flowing lines	1	3	2	3
Broad fillet	2	4	1.4	3
Minimal interruption in edges	3	2	7.9	6
White space	4	1	5.1	7

Observations

Sequence -- The soft curved surfaces is the first one noticed in most of the soft products among all AOI's

Revisits count-- the soft curved surface has more revisit count in all the soft products among all AOI's

Fixation count---the soft curved surface has the highest fixation count among all AOI's

The subject hit count, diversion duration average glance count average all show the soft surface area in the product has more impact than other details

End