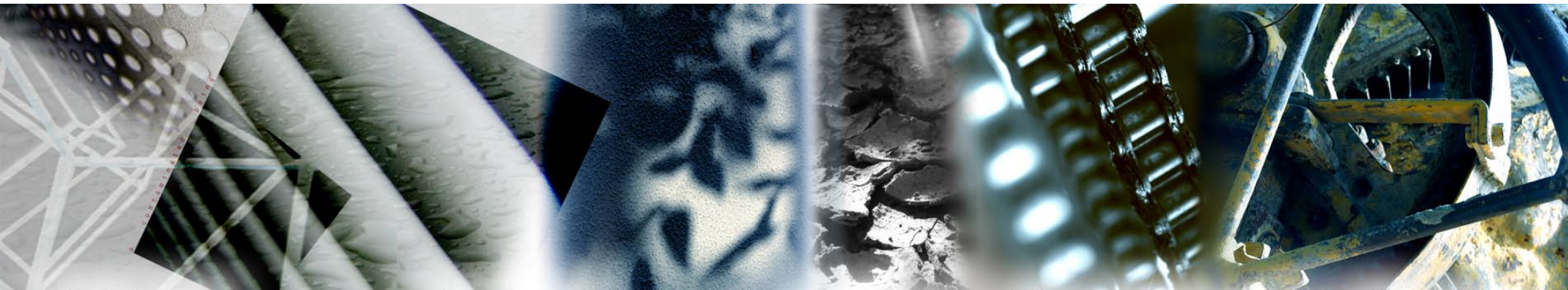


What follows are pages containing work done by the undersigned. This hurried aggregation maintains a design perspective and thus excludes artwork such as illustrations, photography and sketches.

my aggregate



Himanshu Khatri

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Interface design
National Institute of Design - NID
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India
www.nid.edu*

Brief

Choose a product or service, tangible or intangible, and conduct a thorough ergonomic study from the point of view of cognitive issues.

Duration

2 weeks

Design

3Ds Max is one of the most used 3d Modeling softwares and belongs to a class of softwares which have a significantly large learning curve clearly because of the complexity of 3D processes. The aim of this study was to discover the pattern the user follows to learn and use complex software like 3DMax and what mental maps does the user develop while traversing the learning curve. The objective was to identify implicit and explicit redundancies/overloads/ambiguities (if any) that the user faces. The key tools used were HTA (Hierarchical Task Analysis), and Contextual enquiry. The study lead to some interesting findings and ultimately 'pointers to solutions' were provided to all the identified problems.

A broad conclusion (sparing the details)

Softwares are meant to enhance human capabilities especially in the context of creational softwares like 3DsMax where the imagination innovation and creativity of the users leads to virtual 3D environments complete with objects. But the long learning curve of the software leads to a long time lag before the user can express his/her creativity freely and not be bound by lack of knowledge of the software thus User Interface is extremely crucial in this context. Most users use more than one 3d modeling software in their creations (ie AutoCAD, MicroStation, VectorWorks, Katia, Rhino, SolidWorks, SolidEdge) and the user is more adaptive than influencing – that is, most users don't customize the UI rather they try to adapt to the default and learn it – a cue should be taken from these facts and some 3D modeling software UI standards should be made and met such that at least the basics remain the same.

Stereotypes should be challenged or broken under two circumstances only ...

- If the stereotypes is regarding aesthetics and not having a significant influence on the usability.
- If the plan is that of bringing about a complete UI approach makeover for which even though a user inertia period is expected yet leading to a better product in the long run.

Brief

Develop futuristic communication scenarios (group project).

Duration

1 week

Design

A project which drew inspiration from the ideologies of Calm technology and Ubiquitous computing and wove them further into promising ideas like 'Content over Container'. These new ideologies that were conceived were used to identify user groups and build futuristic communication scenarios. First user studies were conducted, then the personas were created, their user needs were mapped and then the scenarios were illustrated.

An excerpt from the research document

"

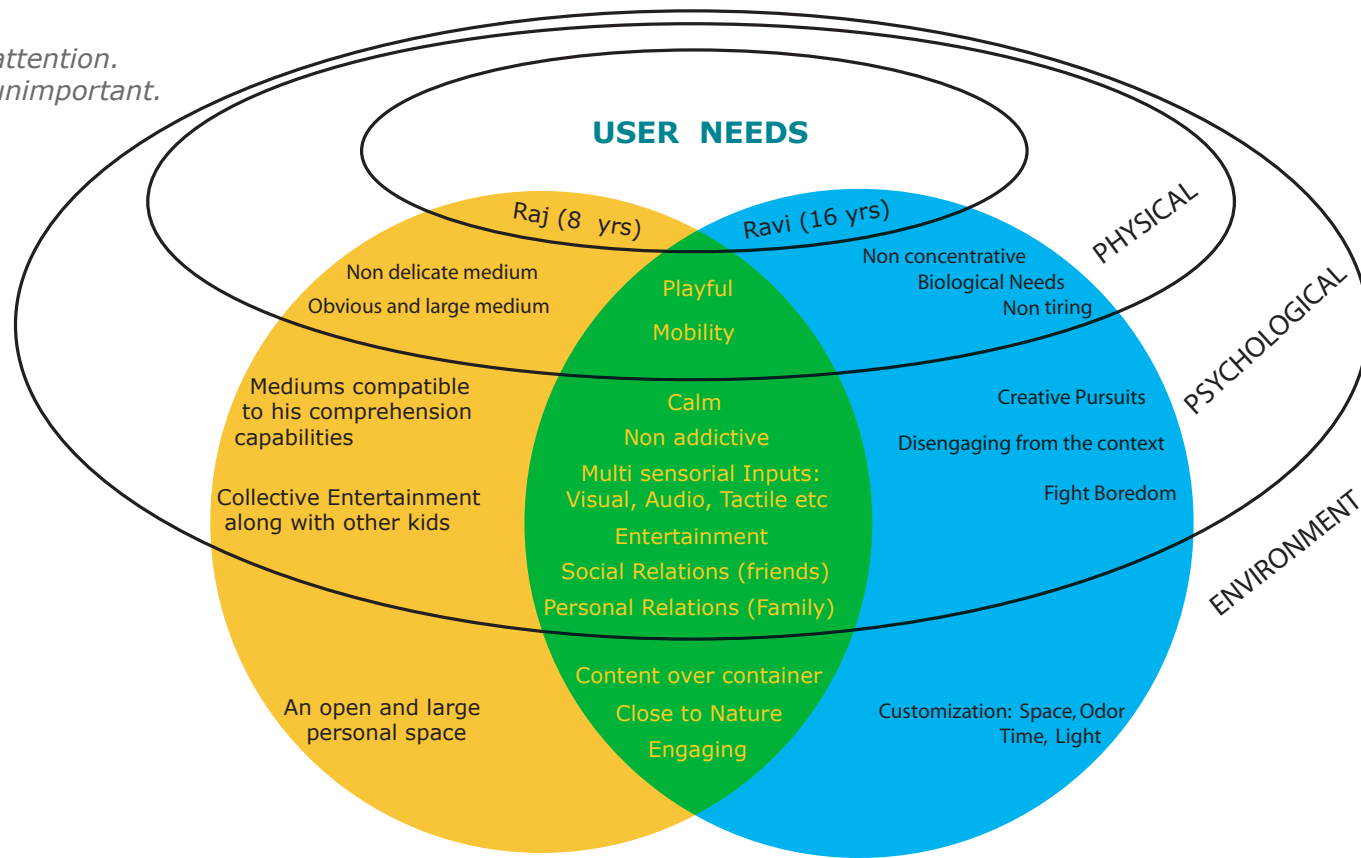
Calm technology engages both the center and the periphery of our attention, and in fact moves back and forth between the two so that we can command technology without being dominated by it.

- Center is the active focus of our sensorial attention.
- Periphery is anything but on the fringe or unimportant.

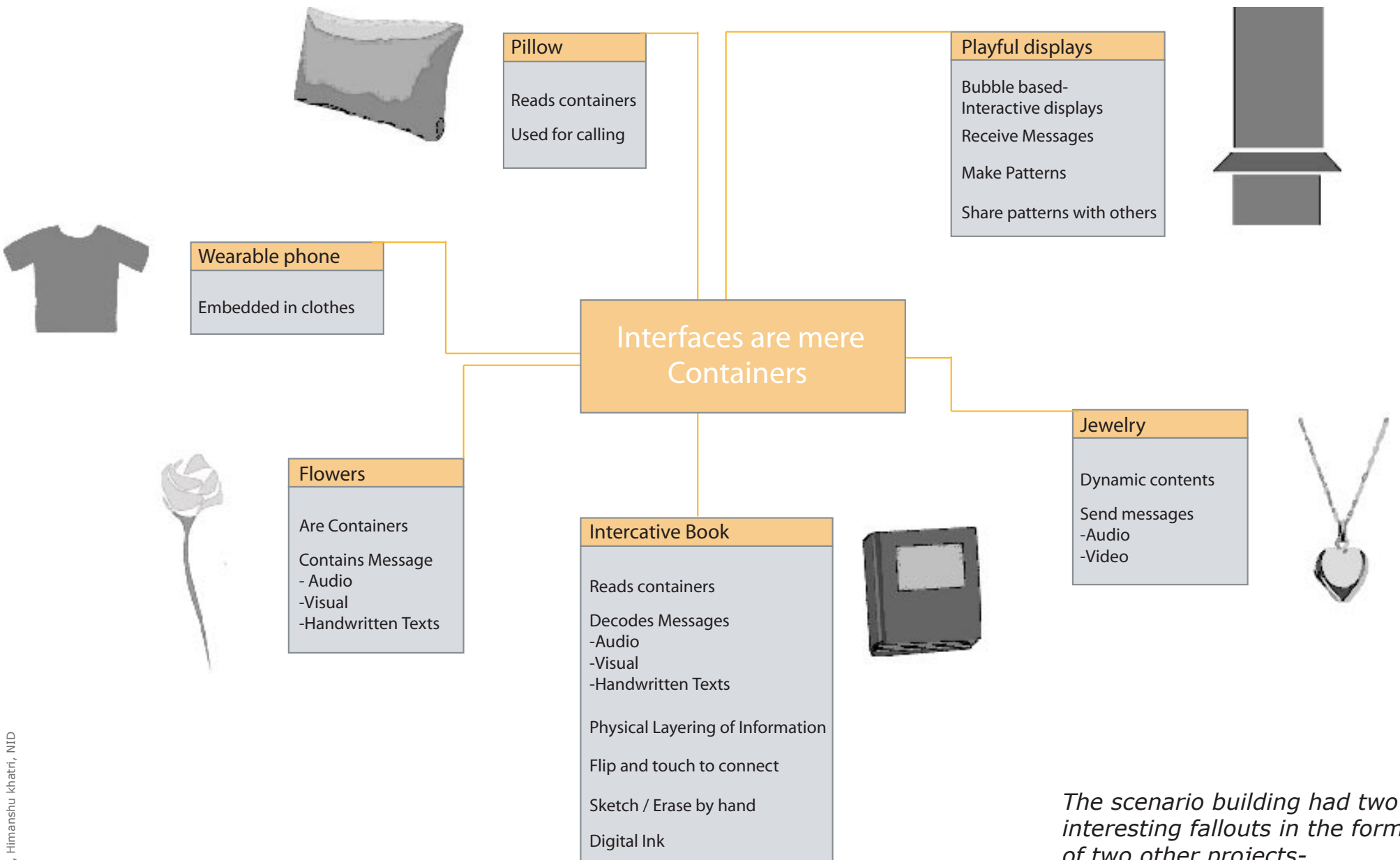
What is in the periphery at one moment may in the next moment come to be at the center of our attention and so be crucial. A calm technology will move easily from the periphery of our attention, to the center, and back. This is fundamentally calming, for two reasons:

- Things in the periphery are attuned to by the large portion of our brains devoted to peripheral (sensory) processing. Thus the periphery is informing without overburdening.
- Centering the periphery is a fundamental enabler of calm through increased awareness and power.

- Mark Weiser Xerox Parc "

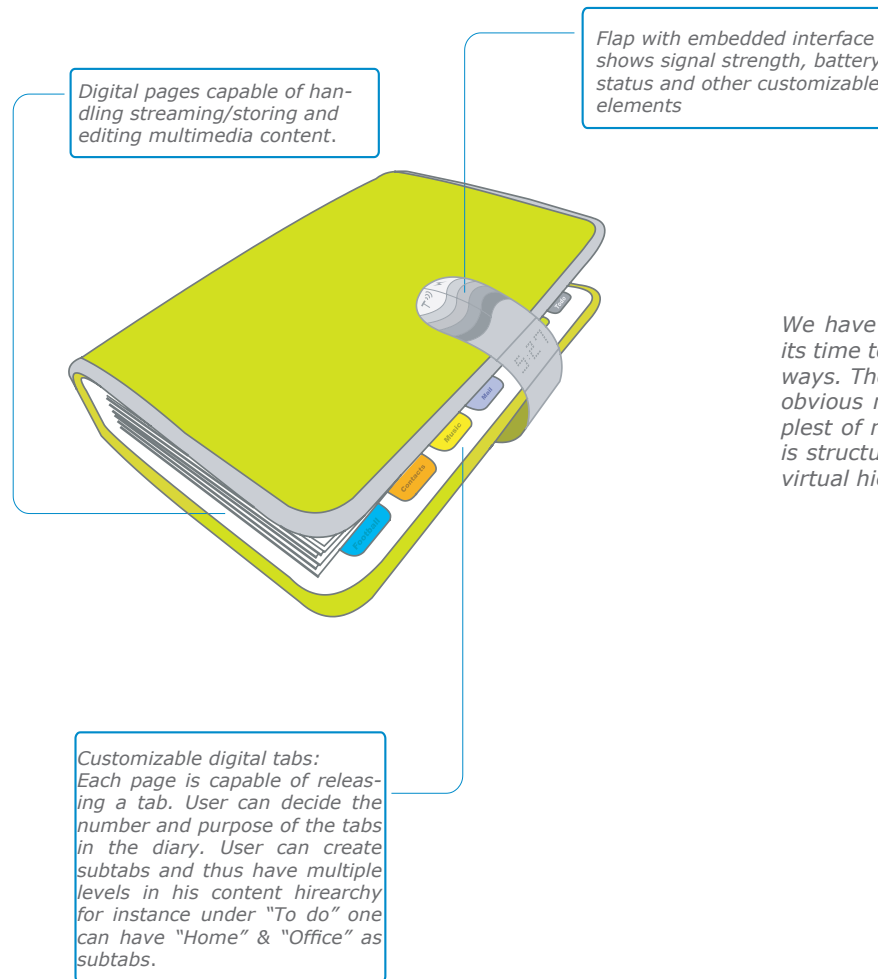


Devices in the scenarios:



The scenario building had two interesting fallouts in the form of two other projects- BOOMrang AND Aquaplay.

The second fallout project essentially is an idea within the realms of 'Unconventional display mediums' and explores a liquid medium to be a display unit within which 3D patterns of rising bubbles can be used to display scrolling information and graphics. Such a display was christened AQUAPLAY and lead to further feasibility research as a separate project.



We have been pushing the boundaries and cutting the edges, now its time to gather the technology and go back to our old natural calm ways. The boom book organizes information in the most natural and obvious menu systems - as pages in a diary - this needs the simplest of mental models for navigation and usage as the information is structured physically as a stack of pages and not in an imaginary virtual hierarchy.

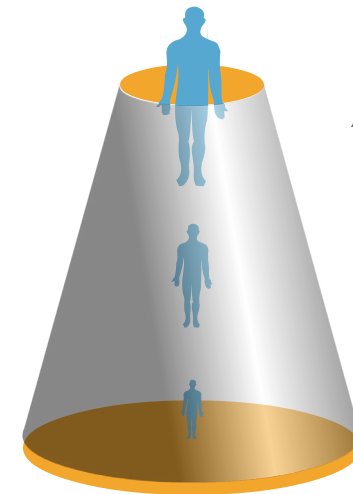




The concept of calm technology gains further strong grounds when the scenario is in a sensitive context such as a hospital or school where the conventional means of information communication such as screens displays etc are too loud and turbulent and need to be mellowed down. It seems contradictory to say, in the face of frequent complaints about information overload, that more information could be encalming. It seems almost nonsensical to say that the way to become attuned to more information is to attend to it less. It is these apparently bizarre features that may account for why so few designs properly take into account center and periphery to achieve an increased sense of locatedness. But such designs are crucial. Once we are located in a world, the door is opened to social interactions among shared things in that world. As we learn to design calm technology, we will enrich not only our space of artifacts, but also our opportunities for being with other people. Thus may design of calm technology come to play a central role in a more humanly empowered twenty-first century.

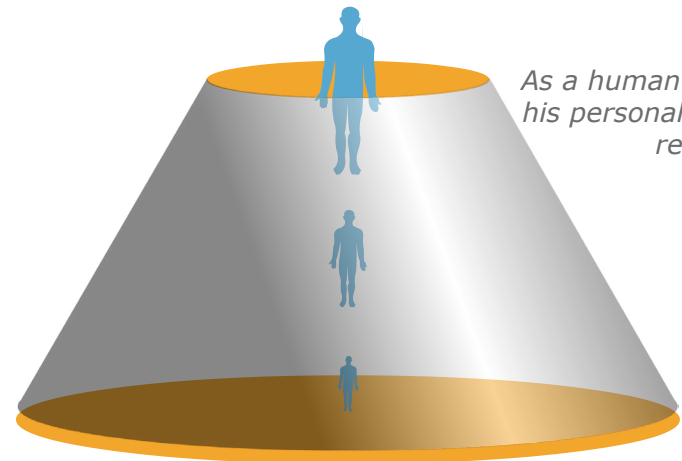


It has been observed that all individuals have a certain personal space which reduces as one grows old, this leads to social cocooning where human to human interaction is reduced. such phenomenon are mostly caused by personalization and customization of our living spaces and the artifacts they contain .Thus it should be considered that introducing children to personal gadgets from a very young age might reduce their space on the onset and due to the funnel effect (shown in the diagrams on right) lead to even smaller personal spaces as they grow up .



As a human grows his personal space reduces.

Personalized devices and customization at all levels reduces the personal space of a child which further goes on reducing as he/she grows.



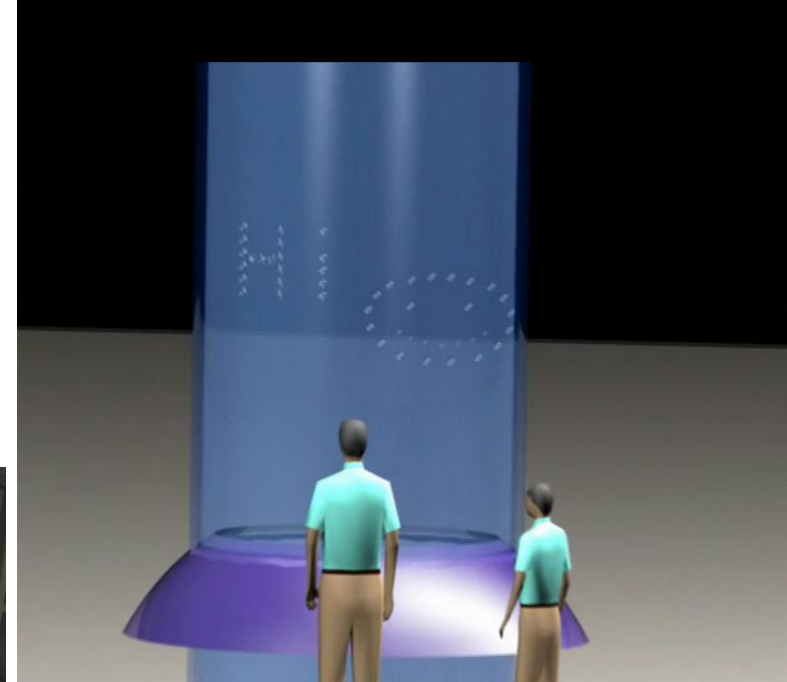
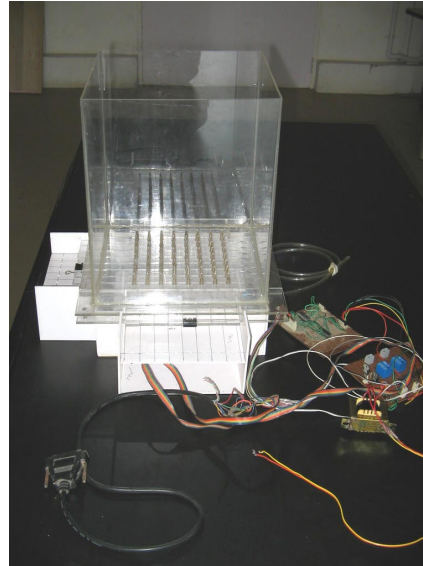
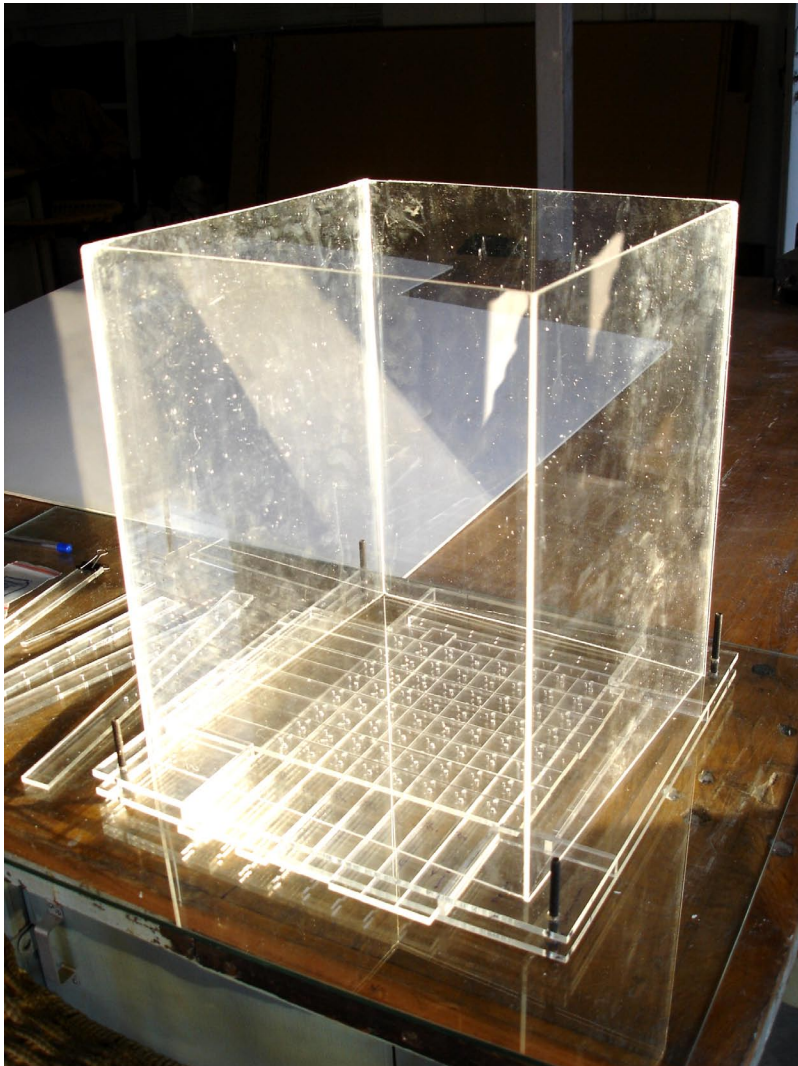
As a human grows his personal space reduces.

A large personal space to begin with as a child may lead to a bigger personal space in the future and lesser social cocooning among city dwellers.

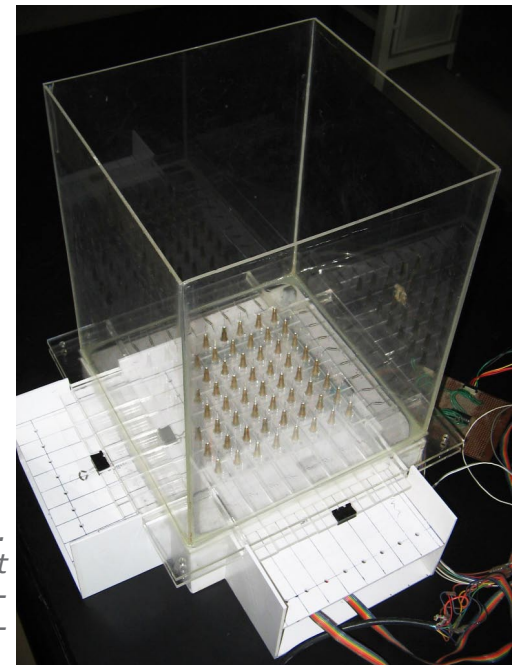
Thus there could be an installation in their living space (school/hospital) which could communicate any messages for them and allow them to play and interact with it while they read their messages.

Thus the device would mainly serve three purposes

- Instead of a personal gadget for each, the children share an ambient magical installation.
- They can simply communicate with family etc via the device or...
- They can make patterns and play amongst each other at the bubble display.



After some technical background work it was found that Aquaplay posed challenging technical hurdles, yet was very much possible and thus it has been taken up as a final project with the objective of creating a working prototype.



Work in progress towards a working Aquaplay. Which would generate 3D text and graphic content as a rising pattern of bubbles within a liquid medium. The display would be a naturally scrolling display as the pattern of bubbles would rise upwards.

Brief

Understand the Indian TV viewer and redesign his/her interface with the Television.

Duration

1 week

Design

First brainstorming was done to encapsulate every possible association with a television. Then the contents of the brainstorming session were sorted and classified to find out what points to raise during contextual inquiry and what questions to ask in the questionnaire. After the user studies phase enough constraint or parameters had been set to define the design premises. Thus design concerns were listed broadly under two domains first being the interaction with the TV and the second being the primary interface device that being the remote

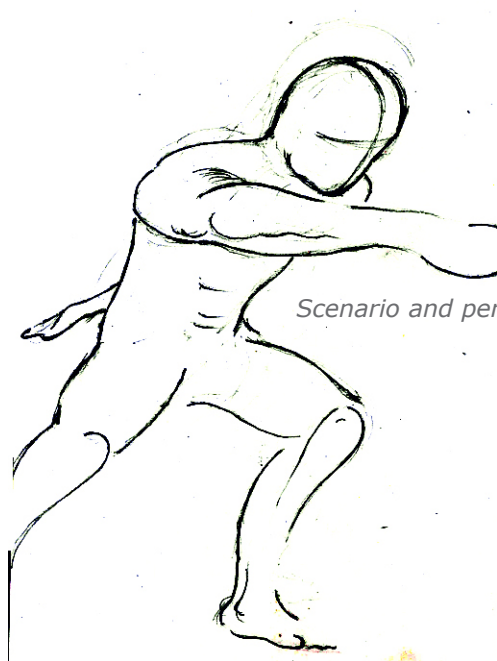
Design concerns

TV Interaction:

- ☐ TV viewing is a leisure activity should involve the least bit of concentration.
- ☐ Menu systems and layered information structure which requires concentrated attention is not successful as the overall view of the system is not provided in one go.
- ☐ Users use the most basic functions (volume channel and power) most frequently indicating the need for simplicity.
- ☐ If possible the information should be structured like a physical space like in a gallery where you can see all the paintings and then choose one ...go near and look at it closely... very obvious navigation.

Remote:

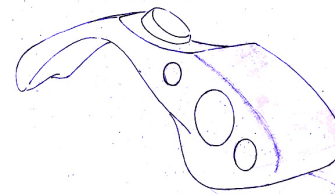
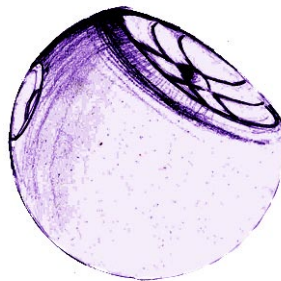
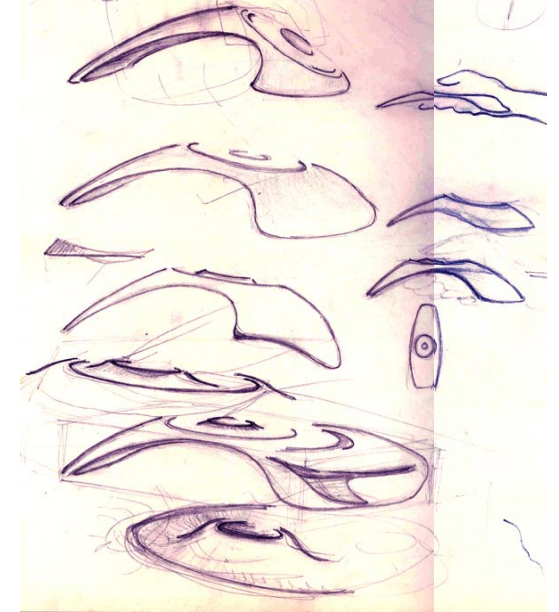
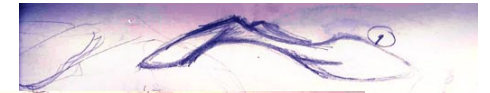
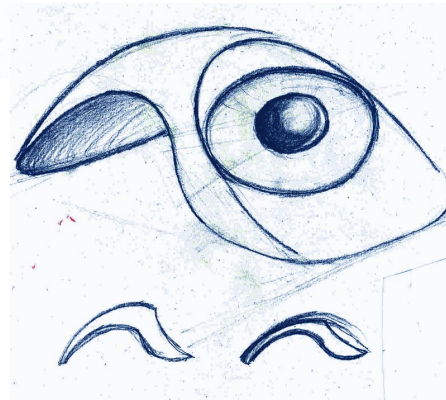
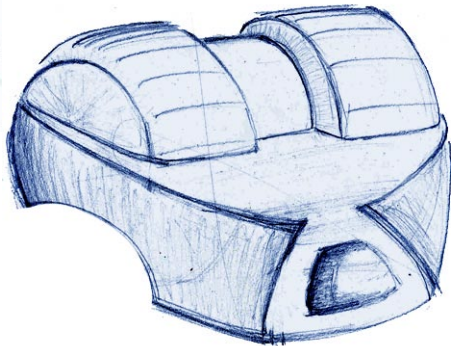
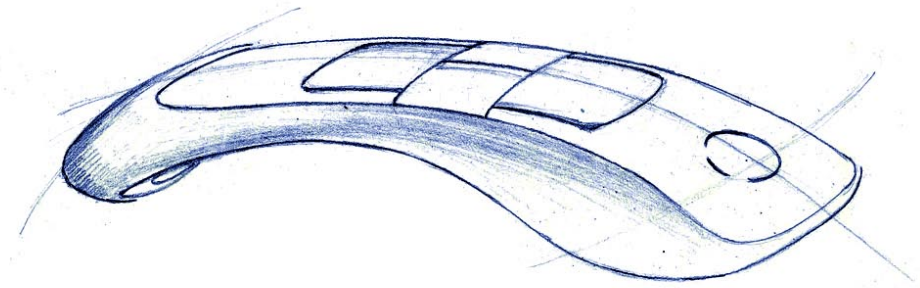
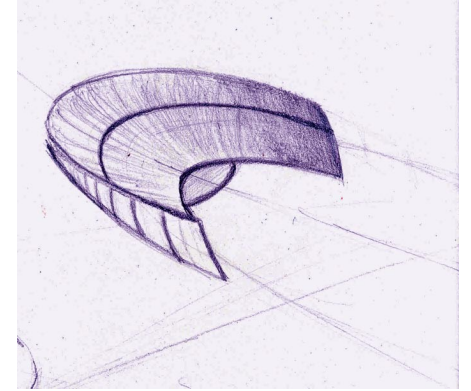
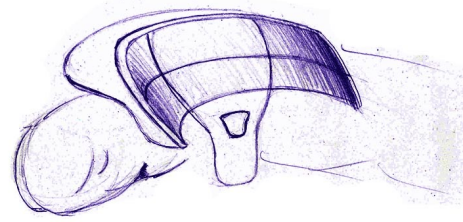
- Minimal interface.
- Unbreakable- rubberized.
- Anti dirt – washable.
- Playful form.
- Light form – Yet with enough surface for a sound grip.
- The surface should not cause sweating.
- The mass of the form should be balanced such that it does not fall even when held very loosely.



Scenario and persona sketching



Thus started the process of exploring form and actually making the TV remote. First various exploratory sketches were drawn, Of all the exploration one concept was chosen and its form was explored. The form was then detailed and various material renderings (steel, wood etc) were done on it. After sketching the form in detail and having a form frozen in mind thermocol was used to make models.



After several thermocol models and profiles the form was frozen complete with its interface (single button), then the form was crafted out in MDF, surface finished and painted.



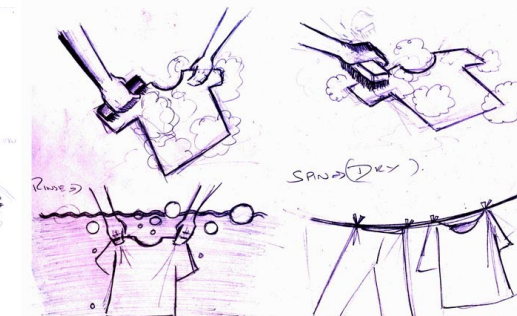
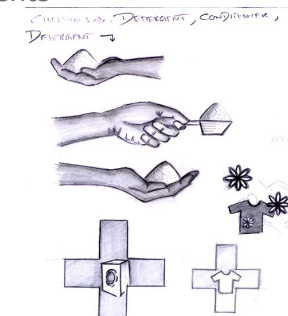
Steel finish render



Keeping the mentioned Design concerns in mind, began the process of detailing out the interaction of the user with the TV using the remote.

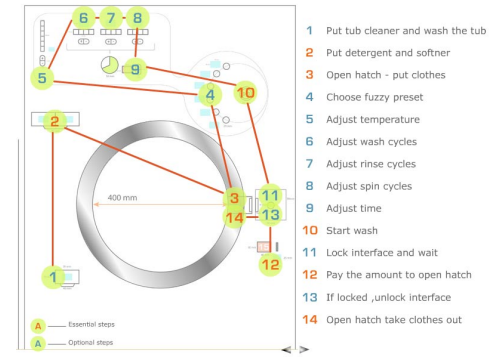
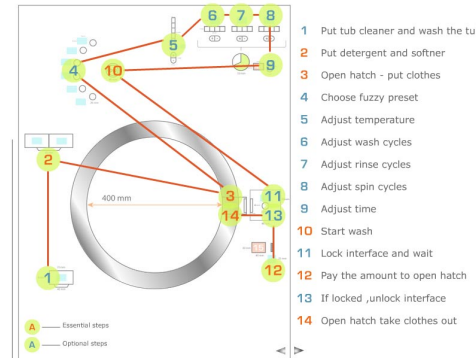
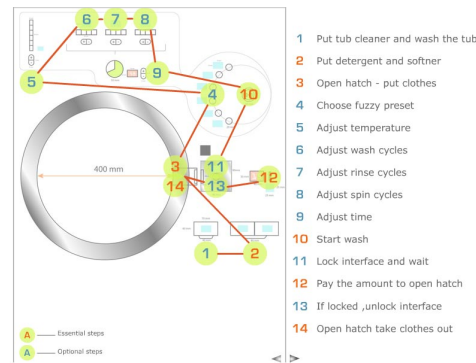
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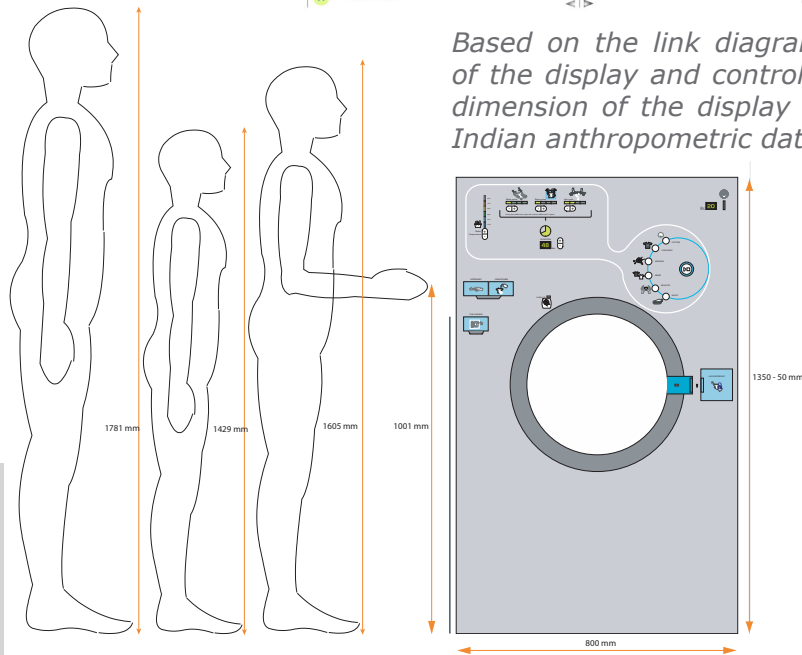
[illegible]

A compilation of Indian anthropometric data was taken into consideration while determining the dimensions of various UI elements of the wash Mart. The compilation used was: Indian Anthropometric Dimensions -for Ergonomics- By Debkumar Chakrabarti

These layouts were user tested and link diagrams were made to find out possible conflicts



Based on the link diagrams a single layout of the display and control was chosen. Every dimension of the display was detailed using Indian anthropometric data.



The above studies lead to lengthy 'Task Analysis matrices' containing the following details of each step taken by the user

- Sub-Task Detail.
- Knowledge needed to do the sub task.
- Feedback being provided by the system to accomplish the subtask
- Potential problem in the task.
- Possible solution to the problem.

Then the chosen layout was detailed by creating the icons, the text and the illustrations needed for the display. The detailing was done keeping in mind the color and form considerations. Once the layout was frozen then a functional simulation was made in flash to test the usability of the layout. This simulation was used for task analysis.

Brief

Design a new User Experience paradigm for interacting with computing devices. Hypothetical client- Microsoft. (Group of 2)

Concept

Of the 5 senses humans possess vision is perhaps the most often used to convey and to comprehend. Of all the visual content created, beamed (TV, PC etc) and consumed by users most is in a limiting flat two dimension. Presented here is a simple yet exciting concept which attempts to map the physical world into the virtual with more than the flat dimensions of video. The prime innovation in the system is the ability to create /record panoramic 3D content and give an unparalleled experience using the haptic interface and VR in the system. The user can actually physically experience being inside a movie or being in a recorded picnic at the 'park'.

One of the scenarios:

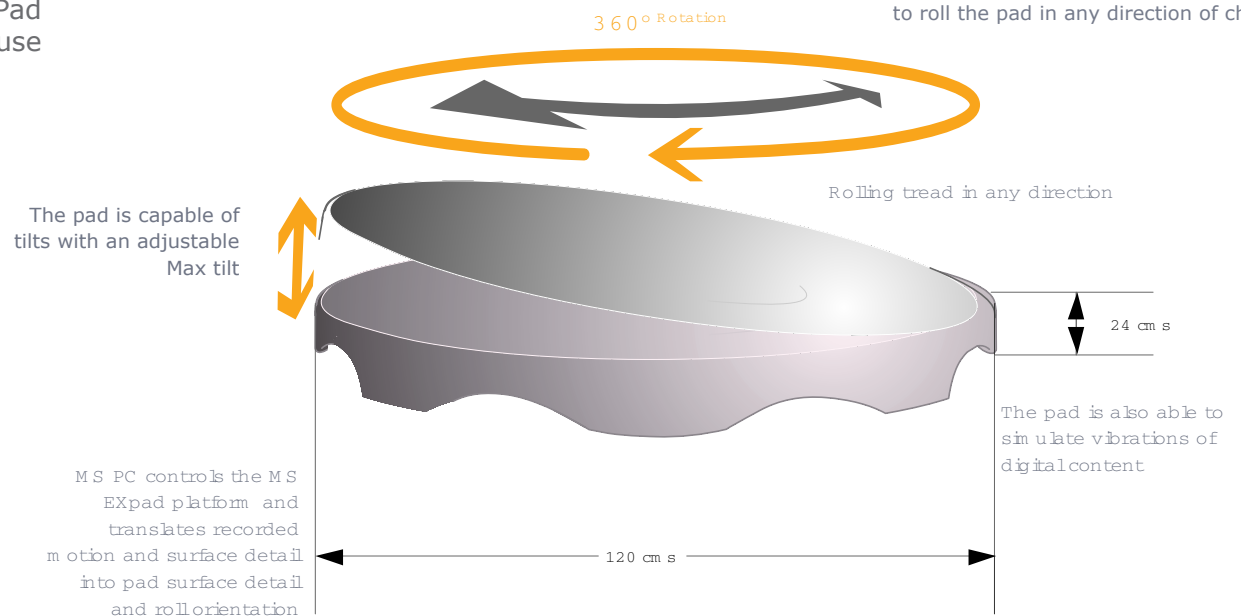
- Samir is an avid follower of football and is thrilled to hear about his favorite club Chelsea lifting the champion's league trophy.
- He sees the victory March and cup handover on the TV but wonders if the news crew got all the details and happenings that evening
- He logs on to MSN sports to find that MS had covered the Pancam view of the event and gets it's EXtour.
- He is delighted to see all the Chelsea players dance around him on the field with the trophy but also notices a pensive sir Alex Ferguson in the stands.

Aesthetics:

We begin here with the belief that the best interface does not exist at all a successful interface is one which lets one do the work without going through a plethora of input options. Similarly here since the user is completely enveloped within the immersive MS EXP the forms of the devices have to be functional for the tactile feedback (sense of contact with the MS EXPad while walking) but can take liberties visually as the user cannot see the real world through the VR goggles.

MS EXPad

This is an interfacing device used for giving navigational input and getting directional output while walking through a MS EXtour package. If the path in EXP content is predefined the PAD will roll predefined, only in the direction of the path, else the user is free to roll the pad in any direction of choice.



MS Virtual Maya

PC controlled Air
Conditioner maintains
the same temperature
as the real venue

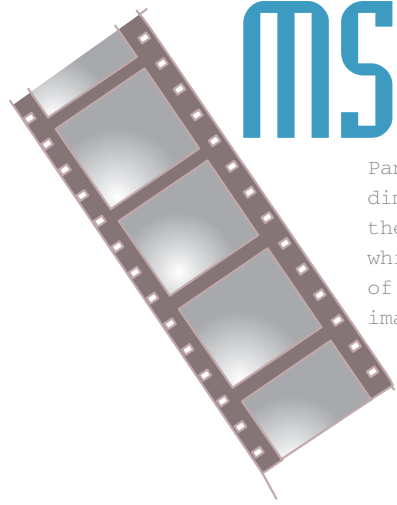
Samir Shah
Age : 28
Chartered Accountant
Bangalore
India

Win PC feeds the VR
Goggles, Sound,
temperature, wind and the
MS EXPad with parameters
from the MS EXtour package
which in turn depend on the
venue

Optional
safety
harness

Martha Andrews
Age : 32
Graphic
designer
USA

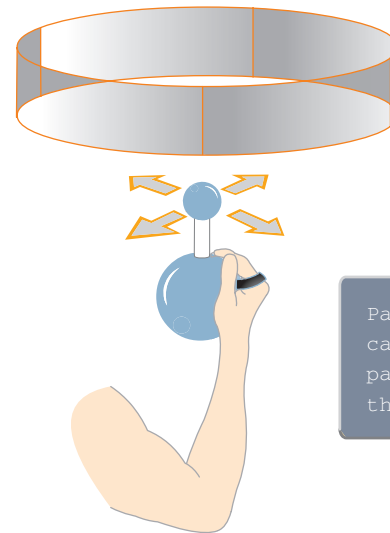
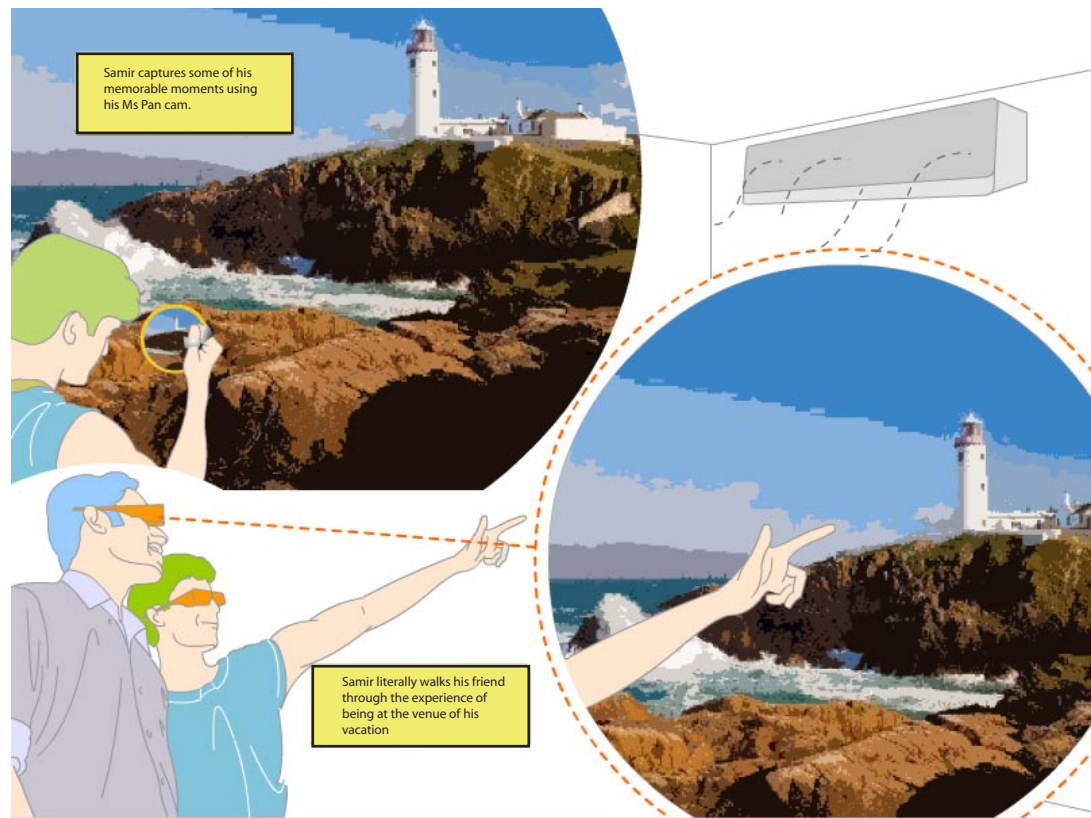
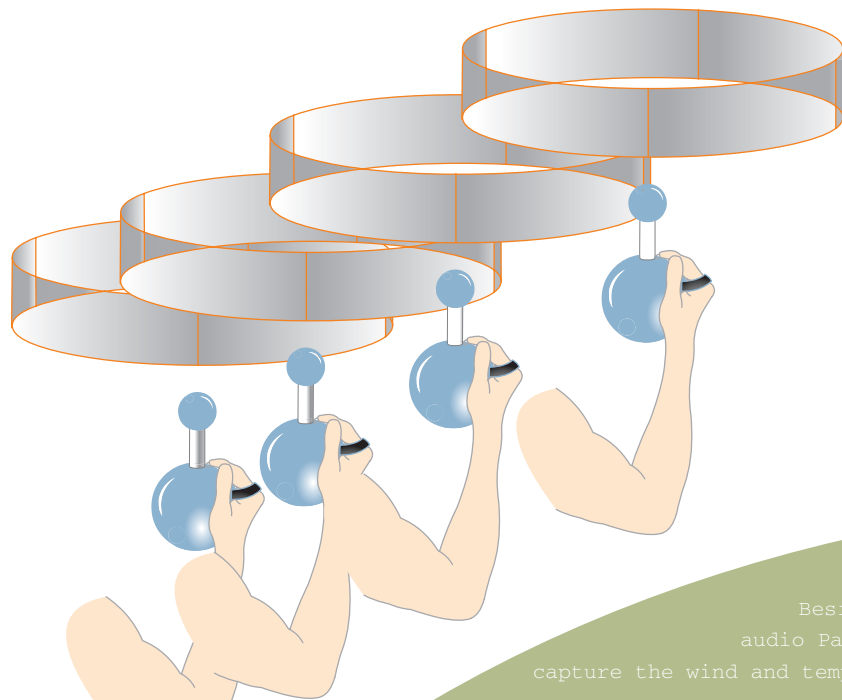
With MS Experience
platform, Samir and
Martha can both
participate in events
like virtual marathons
even though they are
located in different
parts of the globe



MS Pan Cam

Pan Cam breaks the one dimensional shackles of the conventional video which contains a series of progressive still images.

In pancam MS EXP format a series of panoramic frames are interleaved to form a new sense of reality wherein content is dynamic in every dimension as the viewer walks through the recorded path of the experience



Pan Cam progressively captures 360 panoramic views of the environment

Besides visuals and audio Pan Cam may also capture the wind and temperature details

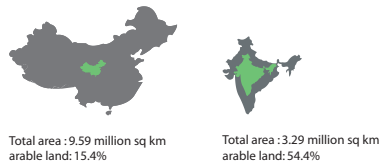
Data visualization

Brief
Study and visualize the growing economies of INDIA and CHINA as two major world forces .Provide a systems view of the situation highlighting the advantages as well as the hurdles faced by each.

Duration
2 weeks.

Status
Work in progress.

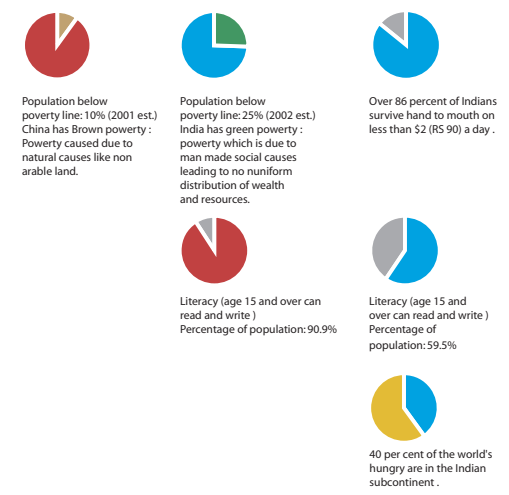
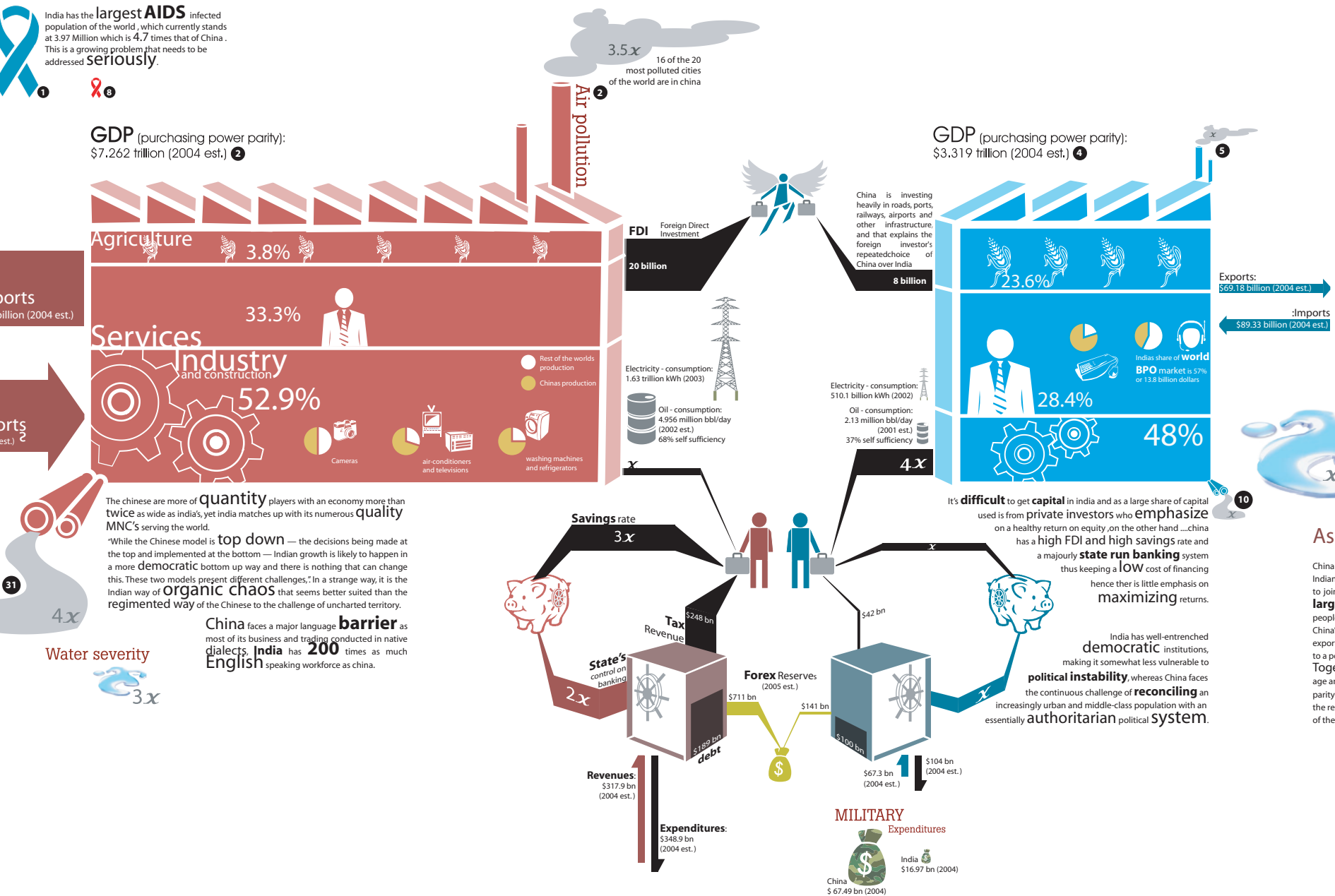
方正康體繁體



A look at the trend of the mapped data reveals that indian companies maintain a positive slope in the first five sectors but fail to do so in consumer goods, auto components, energy and telecom sector. The chinese however maintain a positive slope in all sectors except software and services. Even though indian companies have higher PERCENTAGES of returns, one should also remember that still the actual cumulative amount of chinese returns would be much larger as most of the chinese sectors are 2-3(energy) or even 5 times (capital goods) as much.

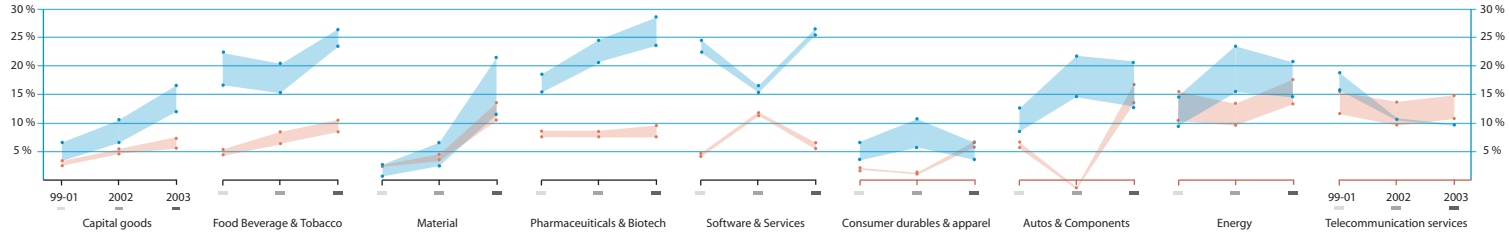
Top edge - Return On Equity - ROE of indian \ chinese companies. ROE is a measure of how well a company used reinvested earnings to generate additional earnings or how much profit it is able to generate given the resources provided by its stockholders .

Bottom edge - Return On Invested Capital - ROIC of indian \ chinese companies. ROIC is a measure of how effectively a company uses the money (borrowed or owned) invested in its operations.



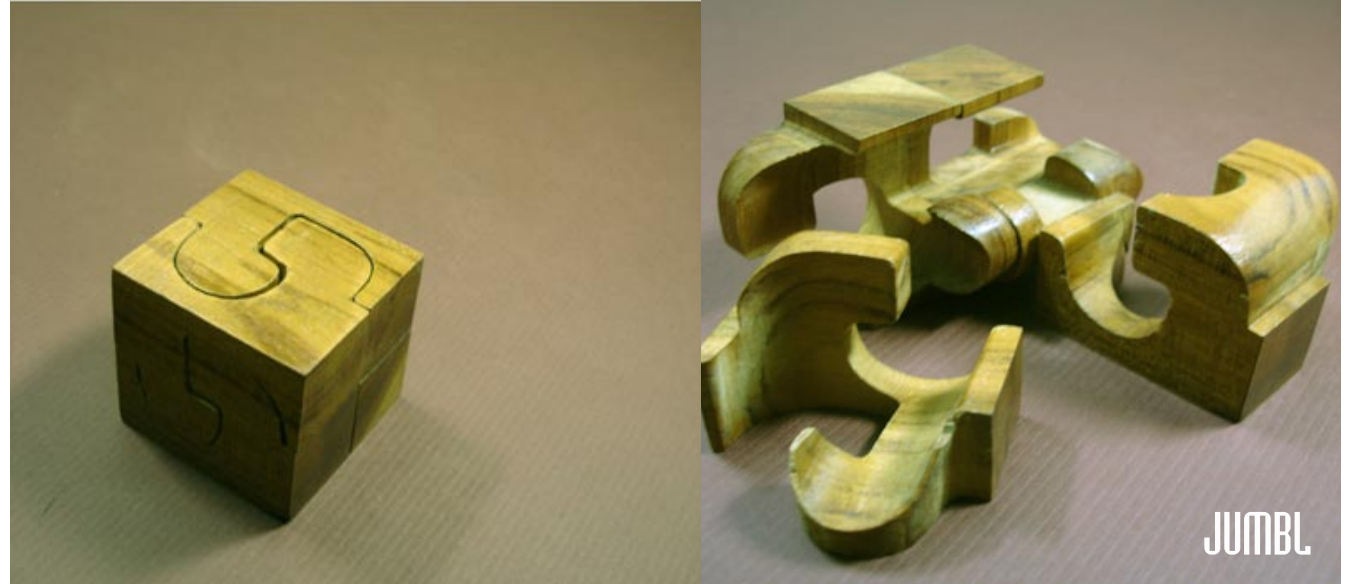
AsiaUniting

China wants Indian (Asian) support in the UN Security Council thus supports Indian application, it is also preparing to join SAARC and India on the other hand is ready to join ASEAN and ratify the FTA (free trade agreement) thus creating the largest and thus most influential free trade zone in the world with over 2.7 billion people and 2 trillion in trade. India's increasing presence in manufacturing and China's in services. Both low-cost countries will be driving forces in global trade, with exports (after internalizing intra-euro trade) rising from a combined total of 12% today to a possible 20% by 2010 and 30% by 2030. Together, indian and china account for 40% of the global population of working age and 18% of the global economy, on the basis of purchasing power parity (PPP). For two decades, their economies have been growing twice as fast as the rest of the world. Indeed, in a decade, China's economy should surpass that of the US and India's should be bigger than Japan's (using PPP).



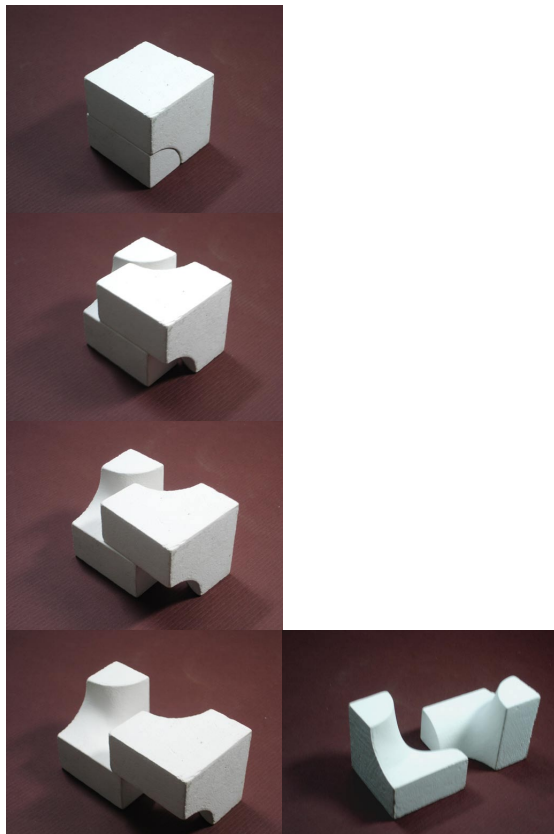
There is a legend being propounded by many economists which advocates the rise of the BRICs (Brazil Russia India China) nations as the next power pole of the world. It is said that the strengths of the BRICs lies in the fact that Brazil and Russia are rich in natural resources and raw materials while India and China have strong production and services industries promising an inevitably successful blend, once BR and IC collaborate.

Geometry and form

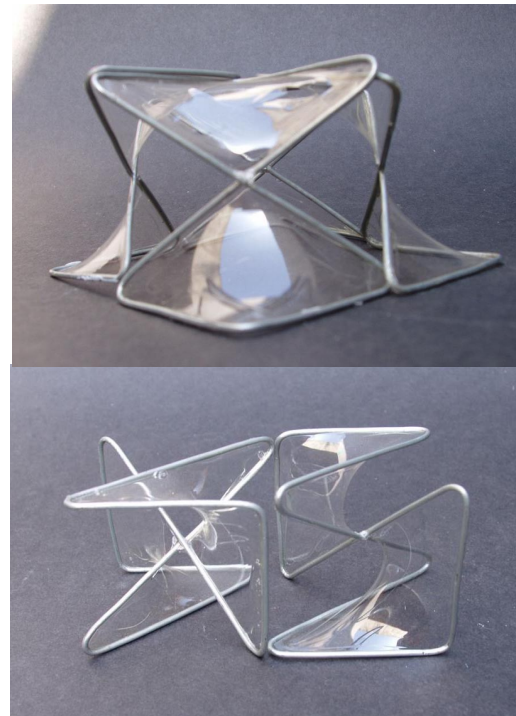


Exploring cuts in various basic forms.

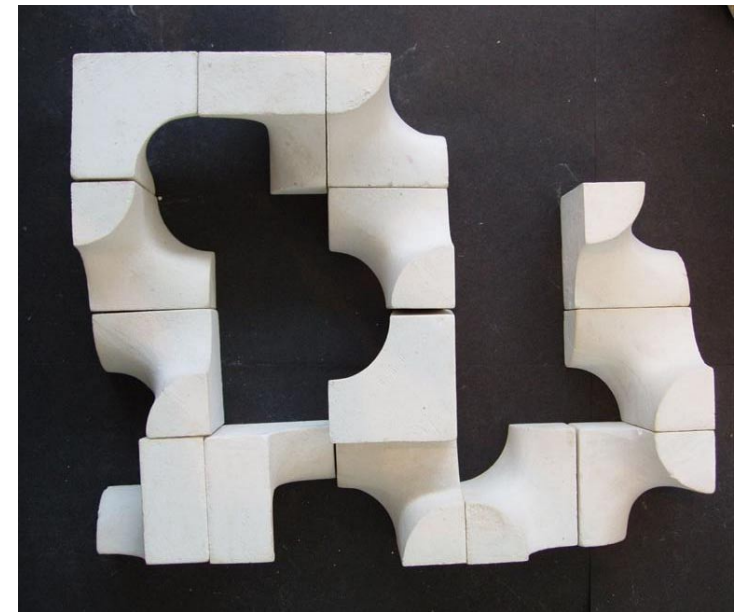
Creating permanent warps using crystallizing liquids forming perfect curved surfaces due to air pressure. Various combinations of waxes and resin based liquids were experimented with at varying temperatures to make permanent films of various color strength and texture properties.



Tessellation of the warp units.



Tessellation of the cut units.



Vaayu

Brief

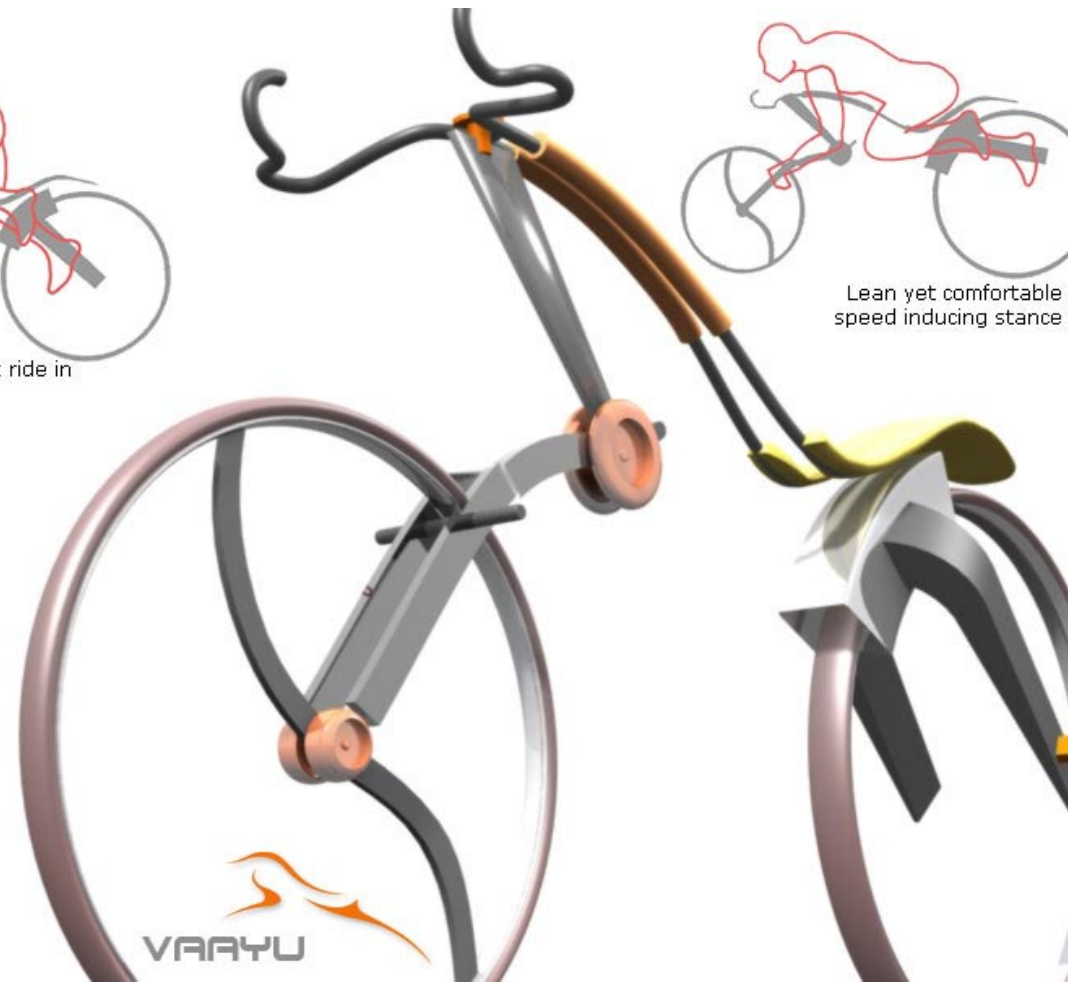
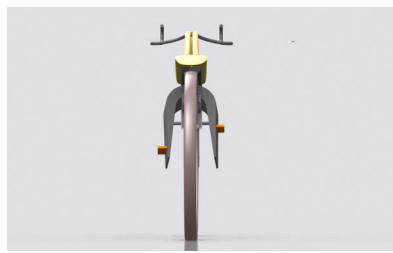
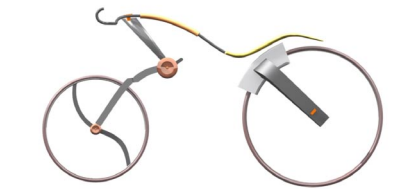
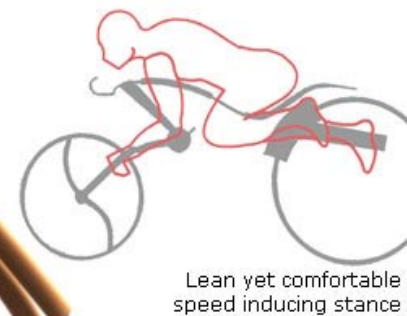
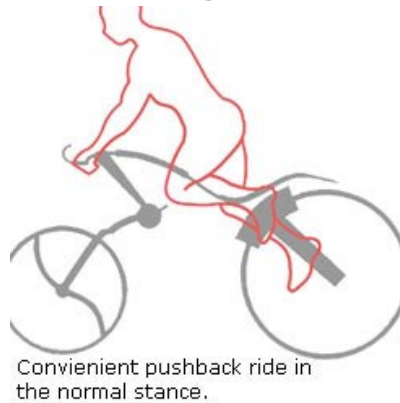
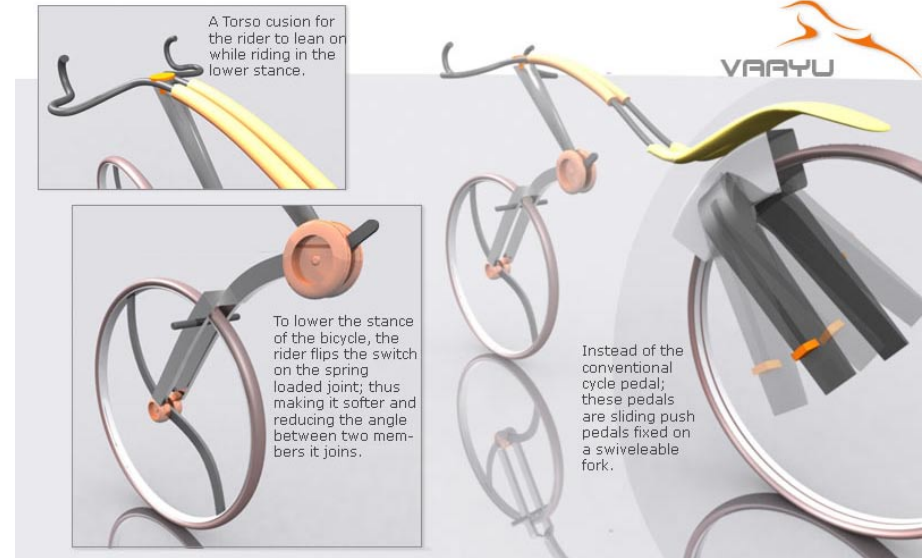
An alternative approach to riding a bicycle.

Duration

1 week.

Design

After various concept sketches and analysis of presently available bicycles and the dynamics of the human body the following design was frozen upon .Vaayu is a alternative design wherein the force applied is in the horizontal axis initially but as the bicycle attains speed the rider can lean forward on the frame and lying in a completely reclined position he can henceforth push the pedals (now in a different axis as the pedal fork can swivel) backwards .Hence at higher speeds the application of force and the direction of motion are completely opposite to each other thus allowing better force application from the riders calf and thigh muscles.



Interaction design I

Brief

Choose a person (a relation /a friend /an acquaintance) map his/ her personality traits, identify a need and design a solution. Keep yourself as the reciprocative part of the interaction

Duration

1 week

Design

The subject chosen is a dear friend who's interest are a sound marriage between science and art and holds extrovertish traits of being witty and outspoken with a good ear for sound. In the past we both would often jam together using anything anywhere.... the sense of percussion is strong in both of us. However after having parted away our ways our percussion sessions have remained but a sweet memory. To recreate those memories I proposed a design wherein a percussion device is possessed by both users and can be used to start a jam session remotely. The device holds sound tags of various kinds that can be stuck on different surfaces to capture the sounds when a surface is hit and stream it into the docking unit which in turn streams it to the user on the other side. With a similar feed coming from the other end, a jam session can proceed and to consolidate the spontaneously emerging patterns a resonating light suggestively guides the mood of the beats. The device may also include streaming loops of the ambient sounds captured within the environment one is in like the sound of a train the yell of a hawker etc.

There were various explorations of the possible form and interaction of the user with the device.



LUG

Brief

Innovate new ways of switching a light source off or on.

Duration

1 week

Design

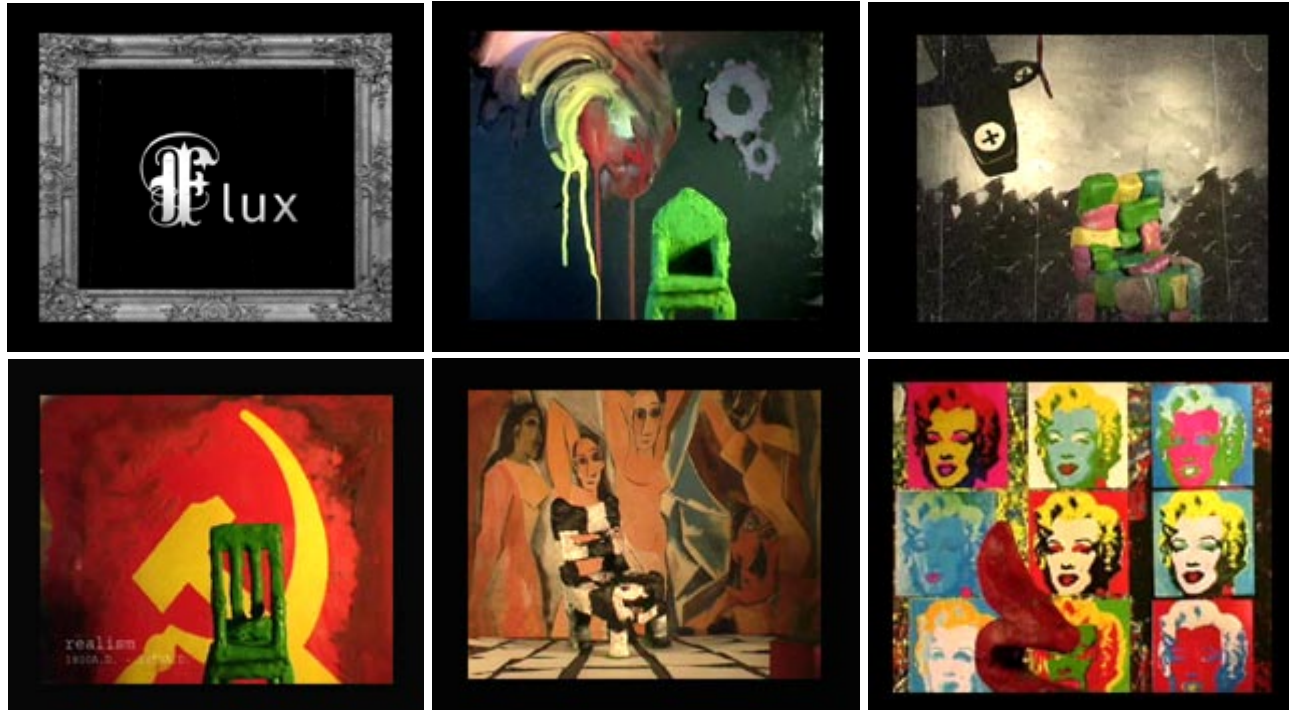
After an exhaustive session of brainstorming the following idea was chosen-Create a mug which accompanies its possessor during the act of consuming a liquid. As the mug is filled with liquid contents it gets under lit and glows ambiently and as the contents are consumed gradually the light too fades off. Thus rendering the mug to be dark when empty and almost joyfully bright when filled.



A working prototype.

FLUX

A mix medium animation (9 minutes) narrating the evolution of 'Western Art movements' over various ages in history. This film is about transitions in western art movements and historical events that informed them, from early cave paintings to post modernism. Flux is a group effort by eight individuals, wherein my role was to make animation elements and editing.



PERFECT

A 60 second spot film commenting on a more inclusive society which considers the physically disabled section of the society as a part of itself. The comment was achieved by creating otherwise unusual visuals by keeping the objects used by the disabled amongst the day to day objects of the able. For instance keeping a hearing aid amongst a display rack selling headphones thus suggesting that the senses and abilities that we take for granted while designing our world are not as obvious for the mentally or physically challenged or disabled.



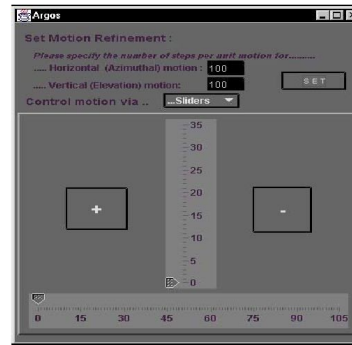
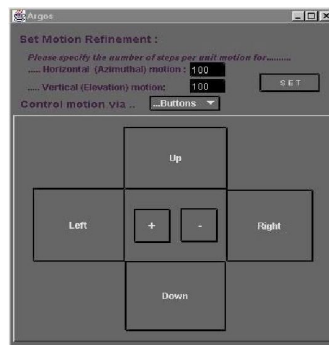
Projects during Bachelors •

ARGOS

Abstract

'A R G O S'- The giant with a hundred eyes seemed to be the apt name for this project as its roots lie in the realms of vision. The need for a low-cost, scalable, cross-platform, distributed system for performing visual surveillance prompted the development of Argos. With the created mechanical arrangement (mount), a telescope, a web cam and personal computer, a user can use Argos to remotely monitor distant objects in live video and archive video for later retrieval. This thesis describes the use of the Java™ Programming Language developed by Sun Microsystems, for constructing the system. This application attempts to automate the procedure of using a telescope, which involves moving the telescope in elevation as well as azimuthally and also the focusing of the image using the focusing dials.

A web cam is attached to the eyepiece of the telescope and the image viewed is the actual image that would be seen by the user, and they can be even captured and stored. Stepper motors stand attached to the telescope through a mechanical arrangement one for the horizontal movement one for the vertical movement and one for the focusing of the telescope. The controller code will interact with the IC to control the duration for which the current flows from the power source to the motor thus controlling the amount of movement (vertical or horizontal) imparted to the telescope. Once aligned in the required direction the third motor could be used to rotate the focusing dial of the telescope to obtain the best possible image, which would be visible as the image seen by the web cam.



Messenger - Deliverer or bearer of a message (Group project).

Status

Complete but not implemented.

spYder is similar to the commercially available messengers - Yahoo! MSN, Rediff, Indiatimes, etc. Though this, spYder, may look as an effort to imitate the existing versions of the messengers but it basically is an effort on the part of its "creators" to understand the working of a messengers code. It is a freeware .The basic functionalities of spYder are more-or-less the same as its counterparts.

They include: -

- Online as well as offline messaging
- Availability of two-way communication
- Contact List, maintenance and viewing
- Add contact
- Delete contact
- Block contact
- Indication and intimation of online status
- File transfer
- Split file.
- Merge file.

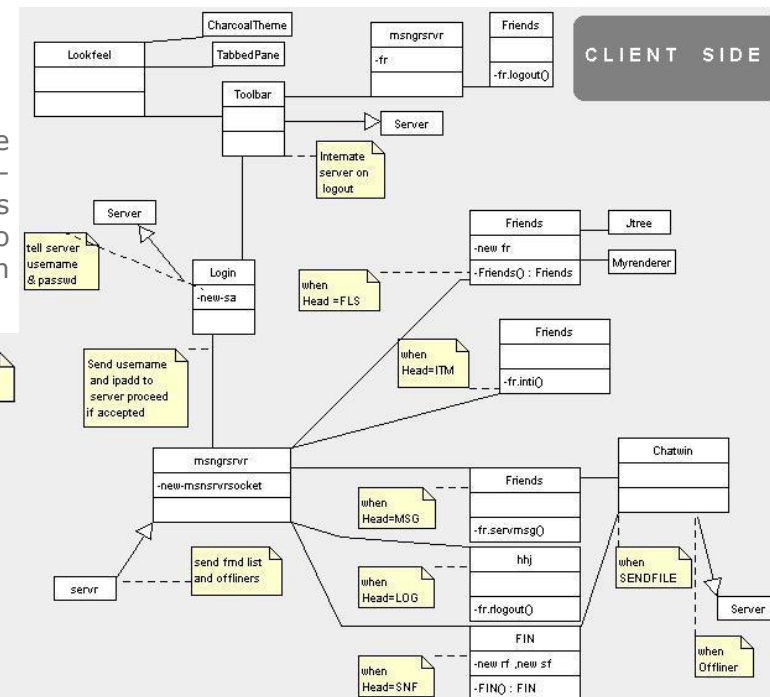
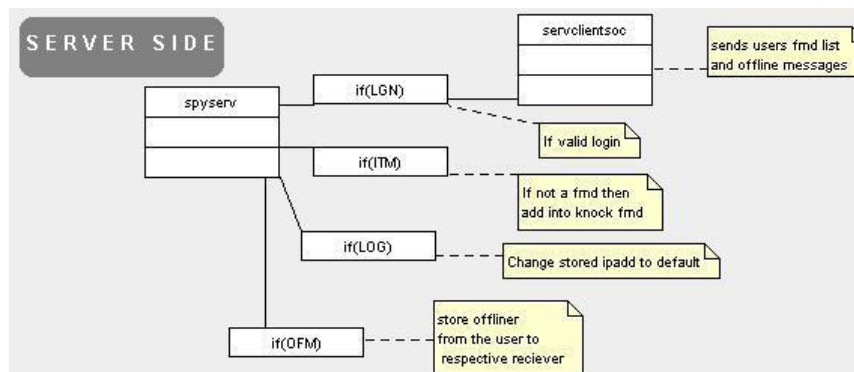


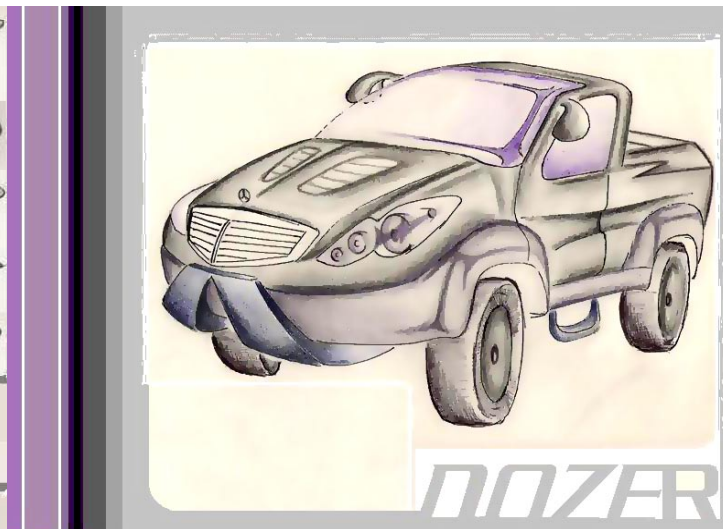
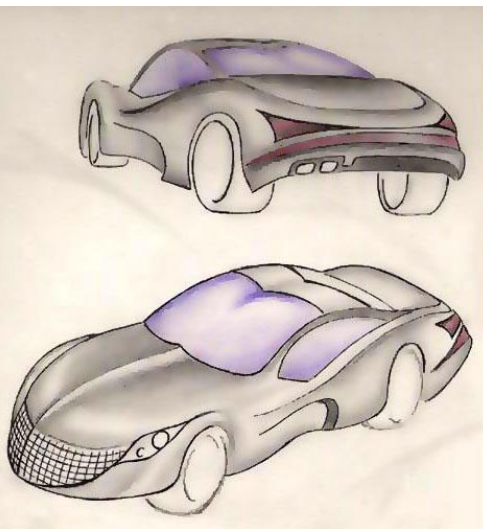
Various technologies used in spYder are: -

- Ø Flash 5
- Ø Java Script
- Ø JSP.
- Ø J2SE: - Java Development Kit- jdk1.3

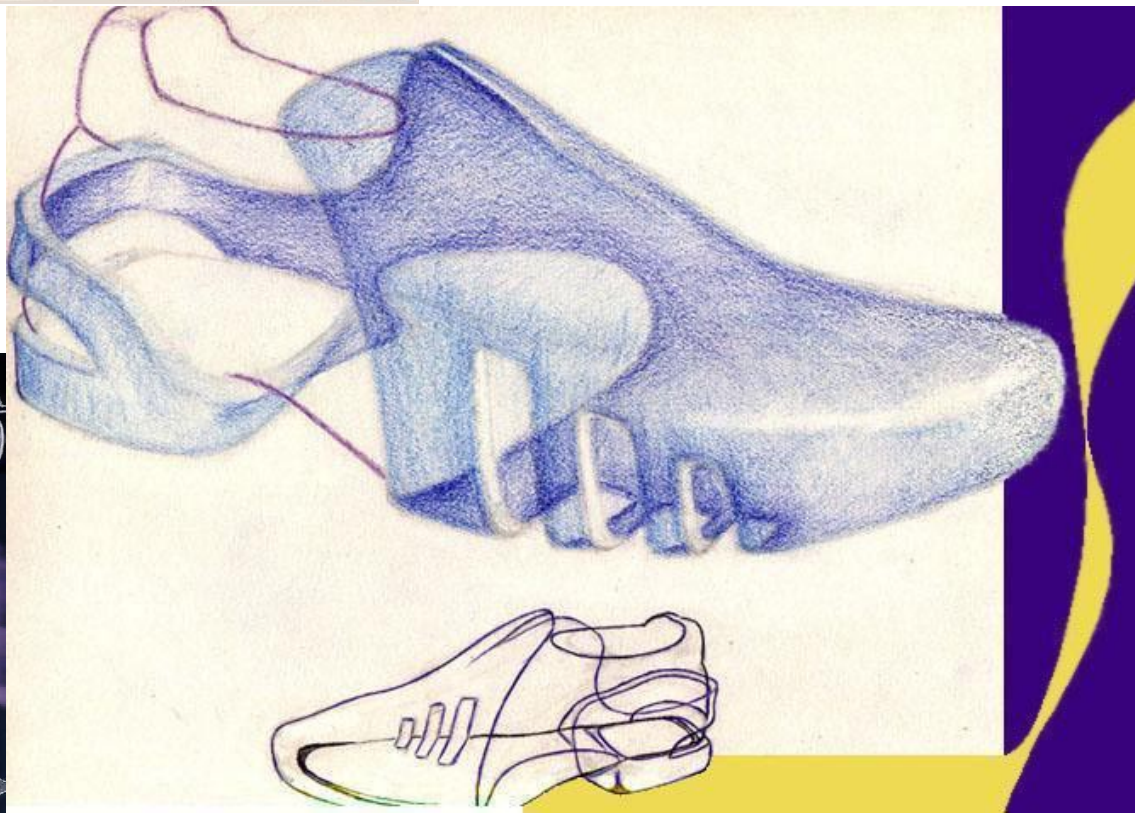
Future prospects

A small website: - The user is given an introduction of the spYder, which is followed by the registration form. The user needs to register him or her before using the software. On the basis of the information provided by the user, he or she may be allowed to login to the spYder's web when he or she later uses it. Just as the registration is over, the user is given a link so that he or she may download the software and use it at his or her discretion. The registration and download is a one - time process for each perspective user.





Gusto



Car • render

An outcome of a car rendering tutorial over the internet .

Design by
Harald Belker



<http://www.ccardesignnews.com/studio/tutorials/050408belker-rendering/index.html>

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