Interactive Installation for Children

Interaction Design Project-II by
Chinmoy Kumar Das

Roll No: 06633007

Guide:

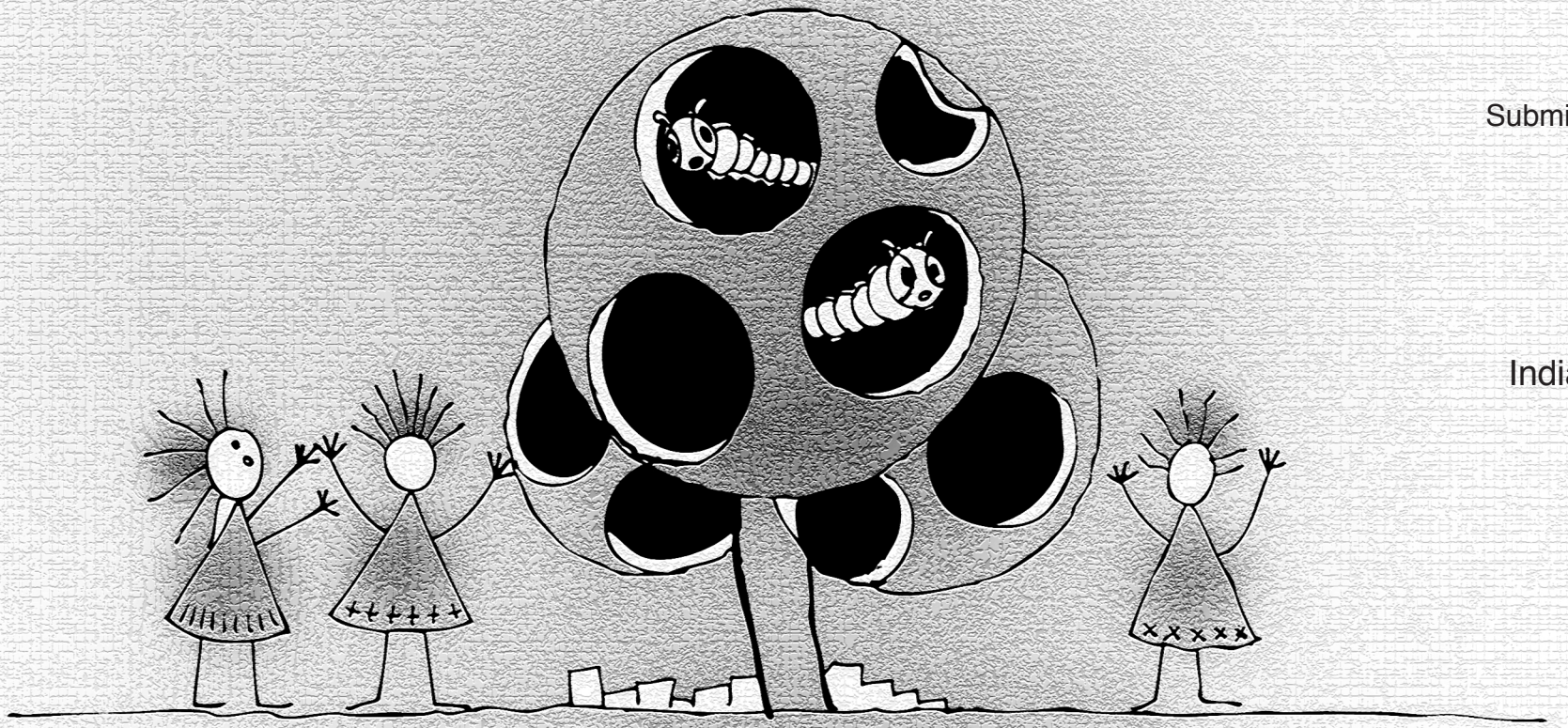
Prof. Ravi Poovaiah

Submitted in partial fulfillment of the
requirements for degree of
Master of Design

in Interaction Design

Industrial Design Centre
Indian Institute of Technology
Mumbai

Nov 2007



Acknowledgements:

I would like to thank Prof. Ravi Poovaiah for utmost guidance, support and encouragement. I would also like to extend my thanks to Prof. Aniruddha Joshi for his valuable inputs during the Data Collection and User Studies. I would like to thank Prof. U. A. Atvankar, Prof. Sumant Rao and prof Raja Mohanty for valuable inputs.

I would also like to thank those small kids of IIT Campus School for their kind help and feedback.

I sincerely thank to Mr. Avinash S. Kubal from Maharashtra Nature Park (Mahim) for sharing in-depth knowledge related to nature and my project.

Thanks to everybody in IDC especially workshop and library staff.

Thanks to my friends especially Puja Vanjari, Atish Patel, Anshuman Kumar, Bhakti, Atul for their viewpoints and timely support.

Lastly thanks to my family for their help, encouragement and constant support.

Approval Sheet

The project II titled “Interactive Installation for Children” by Chinmoy Kumar Das, Roll No: 06633007 is approved for partial fulfillment to requirements for M. Des. degree in Interaction Design.

Signature of the Guide:

Signature of the External Examiner:

Signature of the Internal Examiner:

Signature of the Chairman:

Structure of the report
Table of contents:

▼About the project

▼Introduction:

In today's age children are using computers extensively. They are studying from Internet, interactive CDs, playing video games, etc. Here the interaction is between the computer and the mind, physical senses, etc. Infact, knowing computers is one of the basic criteria in the school curriculum. Using Internet, interactive Cd's and playing computer games has encouraged the child to sit in front of the computers, which has increased the health related problems like weak eyesight, obesity, etc.This has also reduced child's physical activities. On the contrary it has good points also, like information can be sought very easily on various subjects on one click. Searching a particular information is very easy and less time consuming on the internet. Interactive sites and CDs teach and entertain children.

Today's technological advancement reduces effort but this project will try to increase physical and mental activity by using the emerging technology. My intention in this project is to make interaction between children and computer physical. This can be done through visual, auditory and tactile interaction which will give children the opportunity to have fun, play, explore and be creative by the action of the child's own physical movements.

Sequence of Work Over Time

Work \ Time	July	August	September	October	November
Data Collection					
Design Research					
User Studies					
Stage 1 Presentation		14th August			
Brain Storming					
Ideation					
Initial Explorations					
Detailing of Initial Explorations					
Stage 2 Presentation			18th September		
Final Explorations					
Detailing of Final Explorations					
Stage 3 Presentation				22nd October	
Design Documentation					
Prototyping: Proof of Concept					
User Testing					
Final Presentation					20th November

▼Research behind the project

▼User studies:

Age wise Characteristics
Age 3 to 6 Years...

General characteristics:
Kids between this age are friendly.
Curious about their surroundings.
They have great interest in adult activities.
They like to explore and experience things around them.
They like to help.
They are very dependable.
Also they are very imaginative.

Physical Growth and Motor Skills:
The kids between this age are usually very active and like to hop and skip.
They like to cut papers and are interested in craft activities.
They also like to draw pictures and colour them using crayons, water paints etc.
They can handle dressing,
They are easily frustrated because their motor skills have not developed properly.

▼User studies:

Age wise Characteristics
Age 3 to 6 Years...

Interests and Intellectual Skills:
They have a vague concept of time.
They can recognize common coins.
They have questions that are purposeful.
They like to see pictures in the books.
Hearing story is their favorite activity.

▼User studies:

Age wise Characteristics
Age 7 to 12 Years...

General characteristics:
They are very evaluative.
They are very peer oriented and very much interested in knowing the reasons for a particular action or behavior.
They are sensitive to any kind of criticism.
At this age they are very argumentative.
They are quite independent.

Physical Growth and Motor Skills:
They loose their baby body profile.
They may swim well.
They can write with considerable effort.
They can use tools very well because the motor skills are developed quite well.
They like to play in parks, beaches on open grounds, anything that involves a lot of physical activities.
They play games like cricket, football, and badminton.
They enjoy skating, cycling etc.
They also like to play in sand, water, mud etc

▼User studies:

Age wise Characteristics
Age 7 to 12 Years...

Interests and Intellectual Skills:
They like to watch TV.
There is increase in sense of humor.
They begin to be interested in past.
They can relate events well.
They like to read adventurous storybooks.
They are quite interested in puzzles, quizzes, anything that involves competition.
They like to play video games, computer games, etc.
They like to go to amusement parks where there are different kinds of rides.

▼Data collection:

What is an installation?

“A type of three dimensional art work usually comprised of many parts that takes over and alters the space where it is installed with the result that the viewer enters the space and is actively involved with the work of art.”

What is an Interactive Installation?

“An interactive installation is not just an object. It has interaction as its goal, and is concerned with abstraction and process. It is close to the theatre in a number of respects.
An interactive installation emerges through its relation with “participants” instead of an “audience”. This changed role of the observer is another difference that characterizes the art form.”

1. Level one: Passive - observational interaction
2. Level two: Ambient interaction (undirected)
3. Level three: Goal orientated interaction

Source: Sulekha Kuthiawala, P-II report on Interaction Design for Children

▼Data collection:

What is Interaction Design?

"The design process is conceived as a temporal activity in terms of an interaction across time as an organisation of it's various elements as an arrangement across space and as a physical activity in terms of arrangements across our sensory capabilities. The amalgamation of characteristics of these variables define the syntax of an interface which could be thought upon as domain in which the product accepts input from the user and presents information such that this interaction leads to an understanding of the product. Interface design would concern itself with the design of devices for operating a product, the path or procedure to be followed in interacting with a given product with the aim to make this interaction easy, simple, convenient, familier and friendly."

Source: Sulekha Kuthiawala, P-II report on Interaction Design for Children

▼Data collection:

Piaget

His view of how children's minds work and develop has been enormously influential, particularly in educational theory. His particular insight was the role of maturation (simply growing up) in children's increasing capacity to understand their world: they cannot undertake certain tasks until they are psychologically mature enough to do so. His research has spawned a great deal more, much of which has undermined the detail of his own, but like many other original investigators, his importance comes from his overall vision.

He proposed that children's thinking does not develop entirely smoothly: instead, there are certain points at which it "takes off" and moves into completely new areas and capabilities. He saw these transitions as taking place at about 18 months, 7 years and 11 or 12 years. This has been taken to mean that before these ages children are not capable (no matter how bright) of understanding things in certain ways, and has been used as the basis for scheduling the school curriculum.

http://www.learningandteaching.info/learning/piaget.htm

▼Data collection:

Piaget's Key Ideas...

Adaptation:
What it says: adapting to the world through *assimilation* and *accommodation*.

Assimilation:
The process by which a person takes material into their mind from the environment, which may mean changing the evidence of their senses to make it fit.

Accommodation:
The difference made to one's mind or concepts by the process of assimilation. Assimilation and accommodation go together, one can't have one without the other.

Classification:
The ability to group objects together on the basis of common features.

Class Inclusion:
The understanding, more advanced than simple classification, that some classes or sets of objects are also sub-sets of a larger class. (E.g. there is a class of objects called dogs. There is also a class called animals. But all dogs are also animals, so the class of animals includes that of dogs).

http://www.learningandteaching.info/learning/piaget.htm

▼Data collection:

Piaget's Key Ideas...

Conservation:
The realisation that objects or sets of objects stay the same even when they are changed about or made to look different.

Decentration:
The ability to move away from one system of classification to another one as appropriate.

Egocentrism:
The belief that you are the centre of the universe and everything revolves around you: the corresponding inability to see the world as someone else does and adapt to it. Not moral "selfishness", just an early stage of psychological development.

Operation:
The process of working something out in your head. Young children (in the sensorimotor and pre-operational stages) have to act, and try things out in the real world, to work things out (like count on fingers): older children and adults can do more in their heads.

http://www.learningandteaching.info/learning/piaget.htm

▼Data collection:

Piaget's Key Ideas...

Schema (or scheme):
The representation in the mind of a set of perceptions, ideas, and/or actions, which go together.

Stage:
A period in a child's development in which he or she is capable of understanding some things but not others.

Stages of Cognitive Development:

Stage:	**Characterised by:**
Sensori-motor (Birth-2 yrs)	Differentiates self from objects. Recognises self as agent of action and begins to act intentionally: e.g. pulls a string to set mobile in motion or shakes a rattle to make a noise Achieves object permanence: realises that things continue to exist even when no longer present to the sense (pace Bishop Berkeley).

http://www.learningandteaching.info/learning/piaget.htm

▼Data collection:

Stages of Cognitive Development:

Stage:	Characterised by:
Pre-operational (2-7 years)	Learns to use language and to represent objects by images and words. Thinking is still egocentric: has difficulty taking the viewpoint of others. Classifies objects by a single feature: e.g. groups together all the red blocks regardless of shape or all the square blocks regardless of colour.
Concrete operational (7-11 years)	Can think logically about objects and events Achieves conservation of number (age 6), mass (age 7), and weight (age 9) Classifies objects according to several features and can order them in series along a single dimension such as size.

http://www.learningandteaching.info/learning/piaget.htm

▼Data collection:

Stages of Cognitive Development:

Stage:	Characterised by:
Formal operational (11 years and up)	Can think logically about abstract propositions and test hypotheses systemtically. Becomes concerned with the hypothetical, the future, and ideological problems. The accumulating evidence is that this scheme is too rigid: many children manage concrete operations earlier than he thought, and some people never attain formal operations (or at least are not called upon to use them).

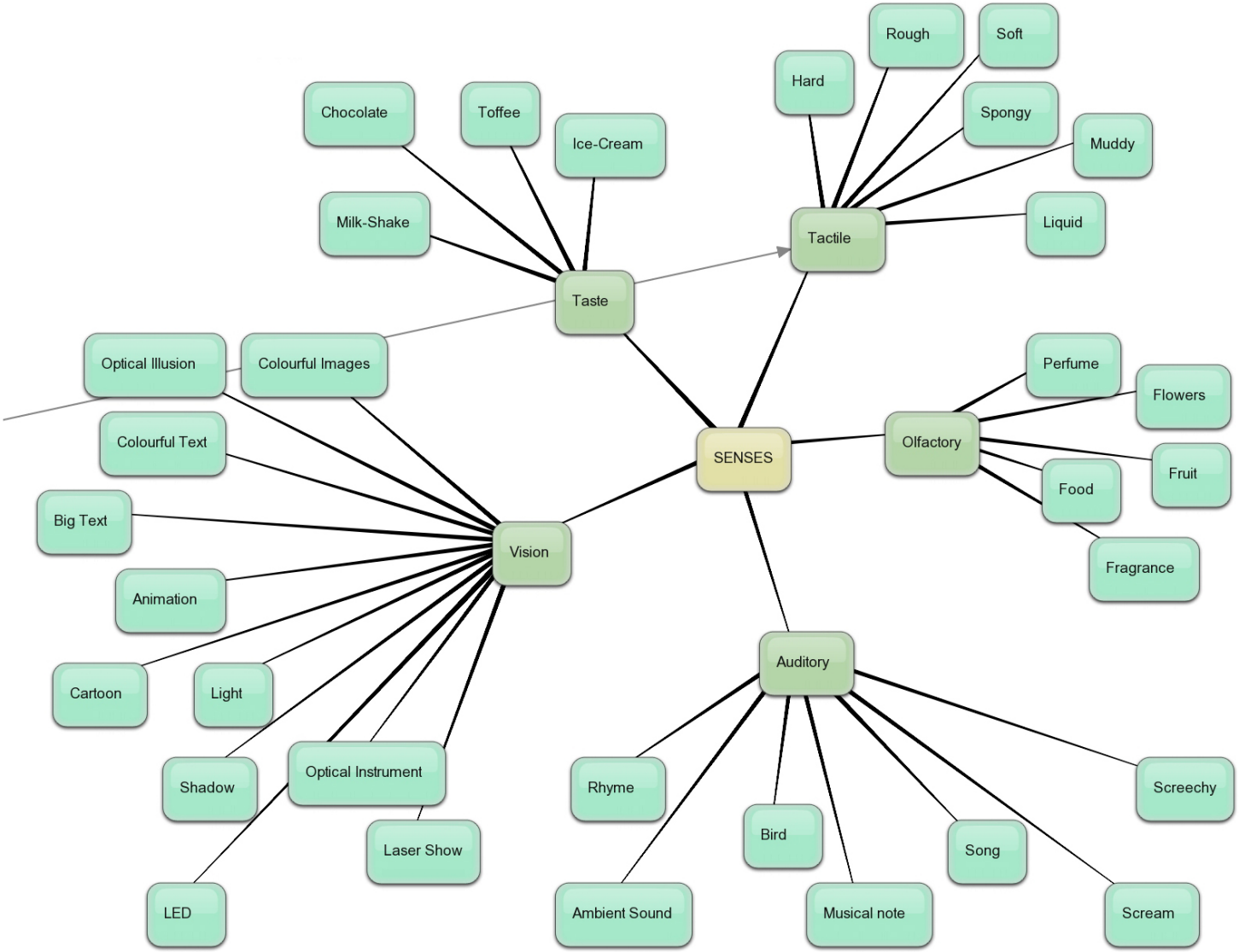
http://www.learningandteaching.info/learning/piaget.htm

▼Mapping:

▼The word associations of ‘User Group’

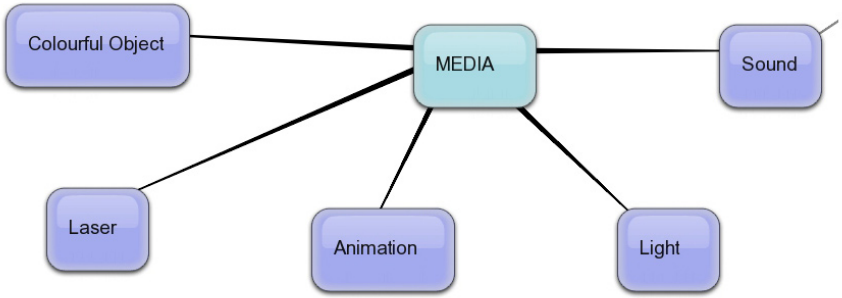
▼Mapping:

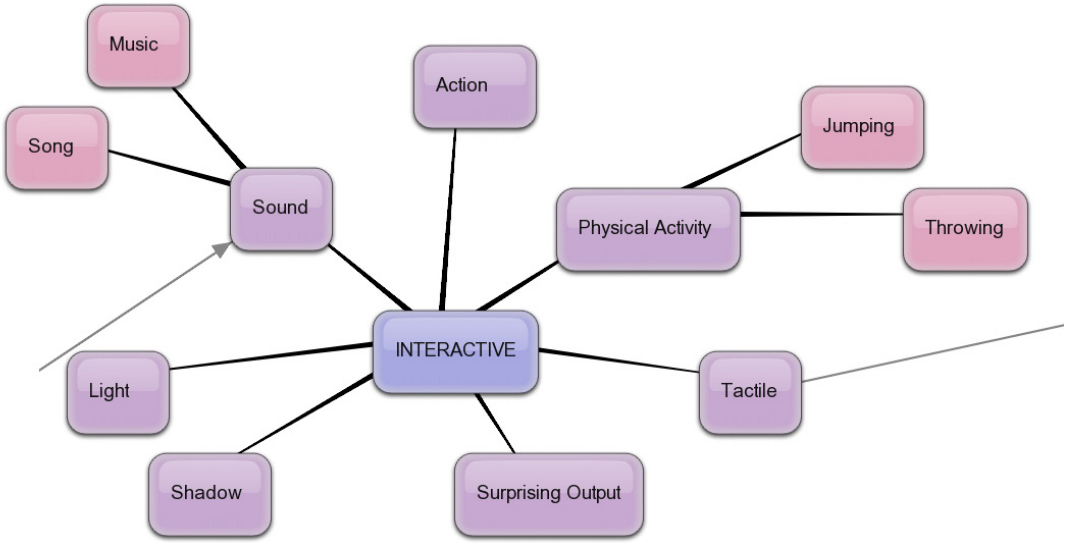
▼The word associations of ‘Senses’

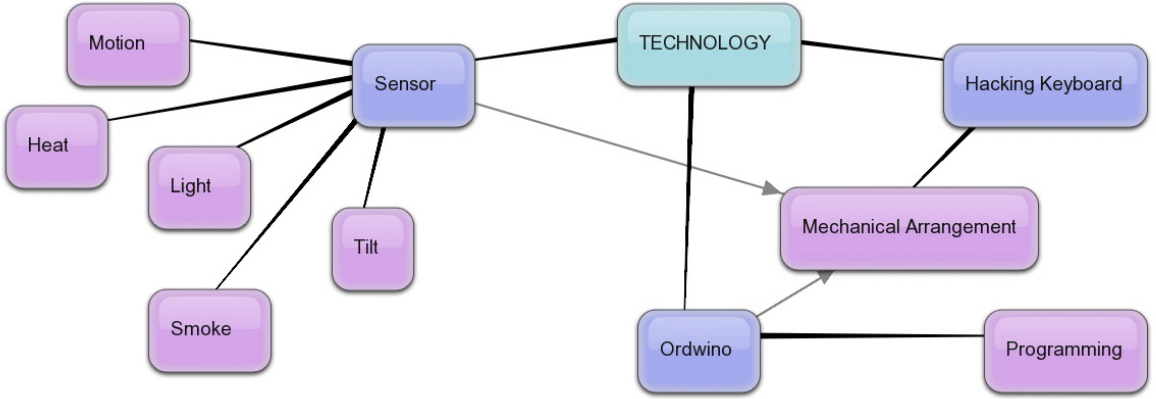


▼Mapping:

▼The word associations of ‘Media’, ‘Interactions’ and ‘Technology’

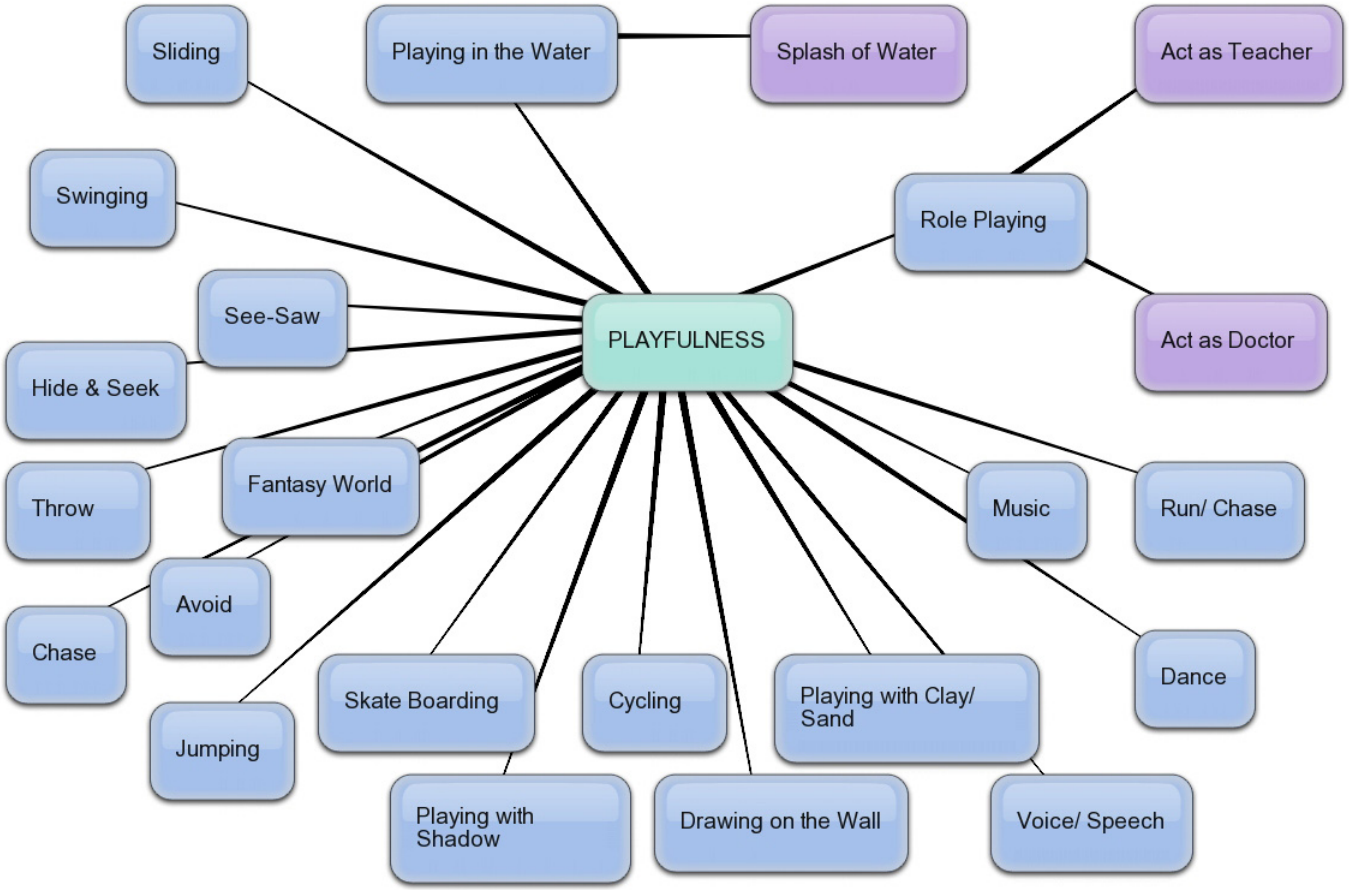






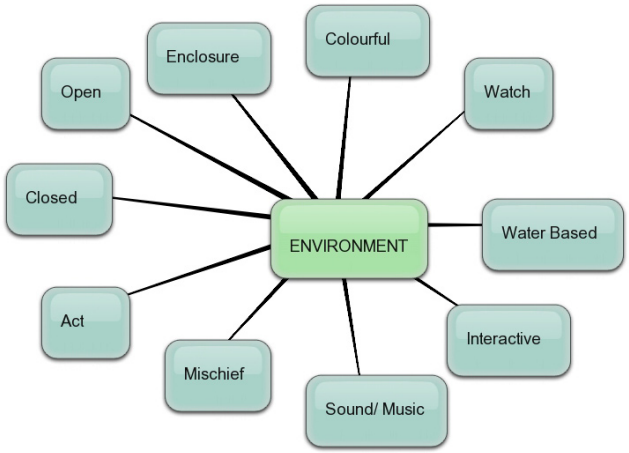
▼Mapping:

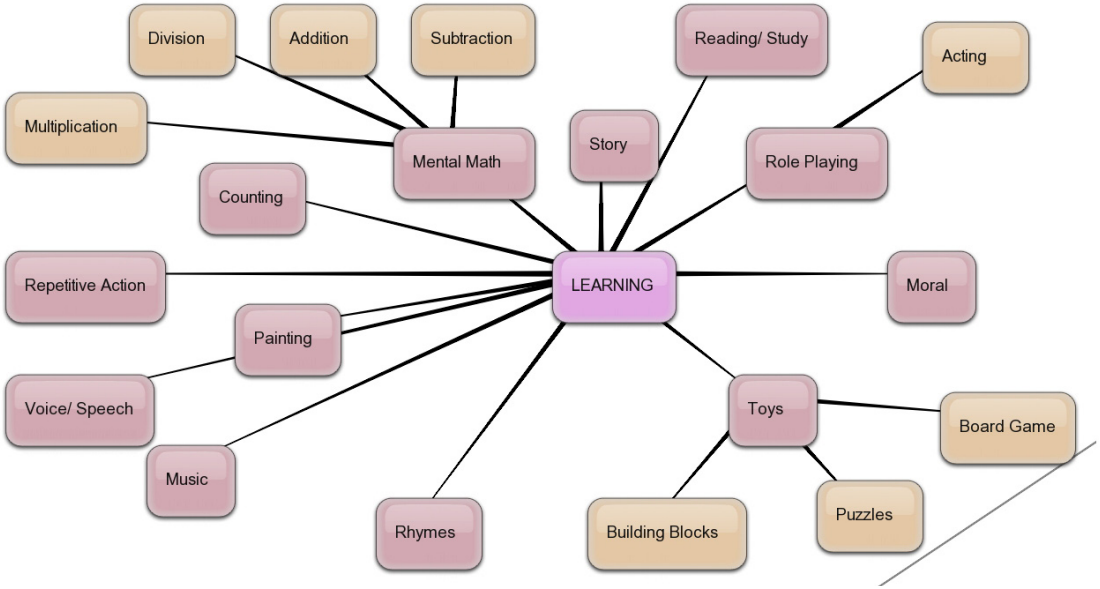
▼The word associations of ‘Playfulness’

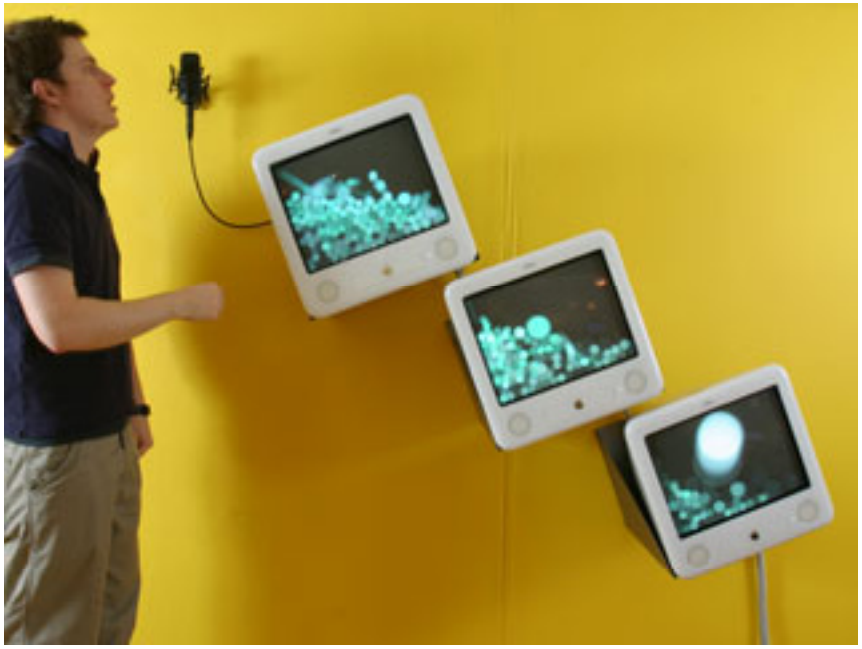


▼Mapping:

▼The word associations of ‘Environment’ and ‘Learning’







▼Case studies of installations:

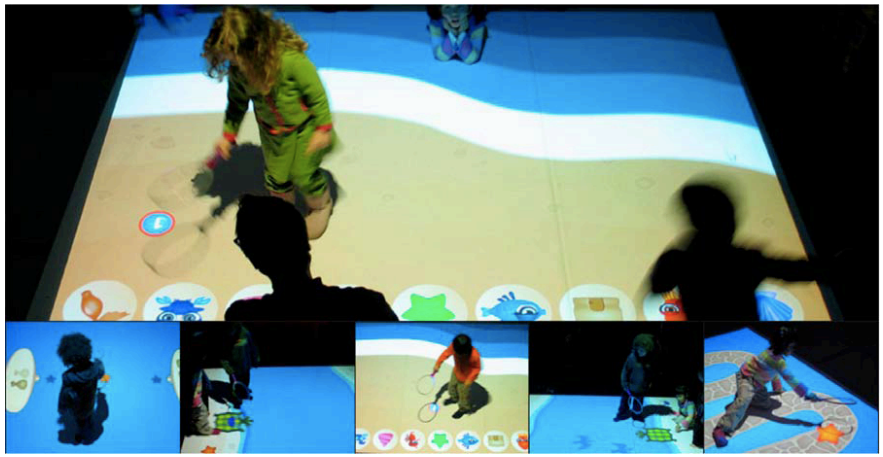
▼Sound fountain:

Sound Fountain is an installation which captures and replays sounds in the space in which it is placed. Sounds are captured using a microphone and introduced into the system as a graphic bubble. The size of the bubble is determined by its length and its volume. Each bubble exists as a unique element, interacting with the other bubbles in the system flowing and overflowing from one container to the next. As the bubbles become older they lose their colour, colour which was determined by the time they were captured. When they fall from the last container they are gone forever.

This piece was developed with Mark Haunstein using MaxMSP and SoftVNS.

Using 3 eMac computers as the containers this has been installed a test system in the Interaction Design Work in Progress show 2005.

Source: http://www.extraversion.co.uk/projects/soundfountain.html



▼Case studies of installations:

▼Paradox beach:

Paradox Beach is a room-sized responsive multimedia installation and learning game for kids 6-10 years. To explore the mystery of numbers, the game begins with projected animated waves rolling across the floor, washing up numbers like sea treasure. Children collect the numbers with a magic net and use them to travel through secrets of age-old riddles. A walk-in video playland, Paradox Beach slides into mathematical whimsy, tickling children into solving problems with dance-floor interaction.

With simple rules a computer animates graphic forms so they react to people. Children make decisions with their bodies and their minds, as they navigate through a story. Our recent experience with learning games tells us that kinds benefit from the sophistication of "adult" work combined with an honest, direct approach to stories and goals.

http://www.paradoxbeach.net

▼Case studies of installations:

▼Versa tiles:

Once you choose a game, the Versa Tiles will guide you step-by-step on how to configure the tiles for that game. If a tile's light goes out, you must move the tile to a different position. Simply fit it into the next layout by attaching it to the glowing edges of a tile that's still 'on'. Though the minimum number of Versa Tiles required for a game is 10, there's no limit to the number of others you can add.

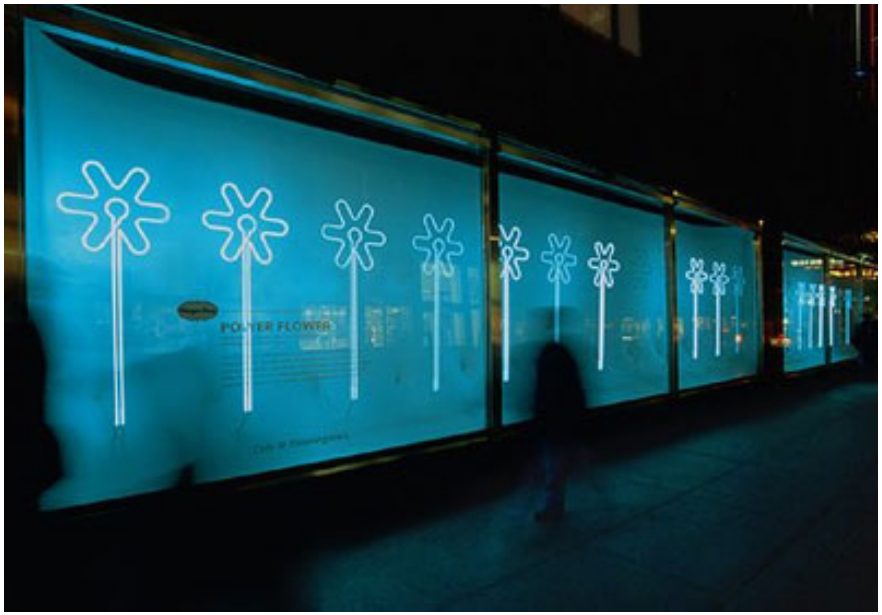
http://www.gadgetcentre.com/news/article/mps/UAN/614/v/1/sp/

▼Case studies of installations:

▼Cherry blossom:

Developed for the Cooper-Hewitt, National Design Museum's second Triennial exhibition, Cherry Blossom was a semi-cylindrical installation on the stairwell. Visitors to the renowned Carnegie mansion, where the museum is housed, triggered sensors on the on the Beaux-Arts staircase that produced a flurry of digital cherry blossoms accompanied by ascending or descending tones from embedded speakers. When the staircase was empty, the swirling blossoms faded into a silent snowfall, suggesting that human interaction alone can animate and warm a space. The experience, jurors agreed, was delightful and transformative-not only of the museum's notoriously overpowering interior, but also of the simple act of climbing stairs. "Really ingenious," said Ockman. "It's so appealing in the way it took over the stairwell from the Tiffany chandelier to the ground."

THE INTERNATIONAL DESIGN MAGAZINE- July/ August 2004

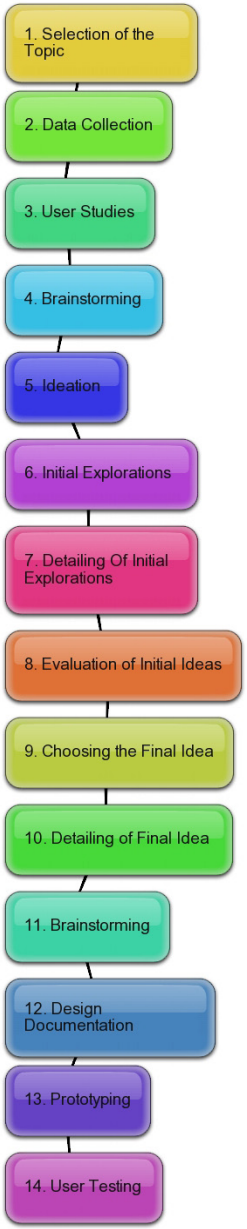


▼Case studies of installations:

▼Antenna design's interactive installation:

In 1876, when John Wanamaker opened America's first departmental store, the design of the window displays played a crucial role in encouraging a skeptical Philadelphia public to participate in America's nascent consumer culture. More than century later, when shopper's reluctance to enter a store has more to do with a lack of time than a lack of will, shop windows are still designed to seduce passerby- which is why Antenna Design's interactive installation in the windows of New York City's Bloomingdale's, a part of initiative sponsored by Haagen-Dazs following 9/11 was so arresting. For three weeks, the windows on Lexington Avenue were abloom with a row of 32 five-foot-tall neon floral sculptures set against a white spandex backdrop. Motion sensor designed to respond to people walking by triggered the flower's illumination and ambient sound. The effect was random enough to make the action seem autonomous. At Staken's put it, "department store windows are designed to lure you in to buy something, so to have an interactive installation that actually gives something back to you, that reflects your motion out on the street, is one reason this piece has merit." One of the particular challenges of street-situated installations is capturing people's attention long enough to engage their imagination. Power Flower did both.

ID 2003 November issue



▼Design methodology

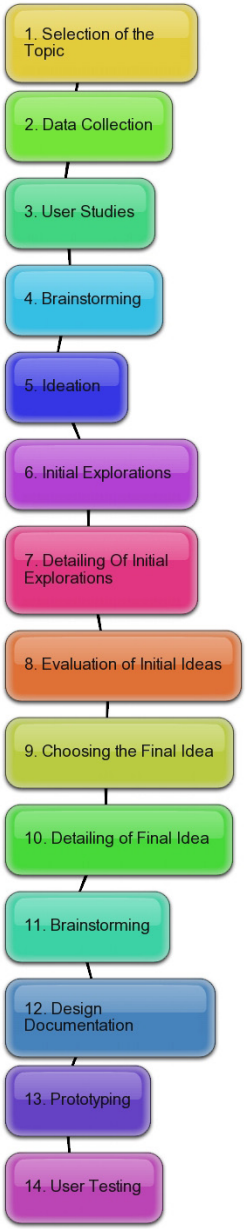
1. Selection of the topic:
according to my interest and skills I chose the topic, which involved an installation for kids. I was quite interested in studying the games related to children and also their different responses, which were quite fascinating.

2. Data collection:
After deciding the topic I studied the interaction designs and especially designs for children, which have been developed from the period of 1990 to 2007. This was studied through magazines like I.D., Scientific American, various e journals, and different websites.

3. User Studies:
I visited video game arcades, shopping malls, beaches, parks, and Science museums to study the different activities, and games, which children like to play.

4. Brainstorming:
After collecting data and user studies in which different photographs were taken I started on brainstorming and came up with about 20 themes for the installation.

5. Ideation: After brainstorming I came up with few ideas for the installation



▼Design methodology

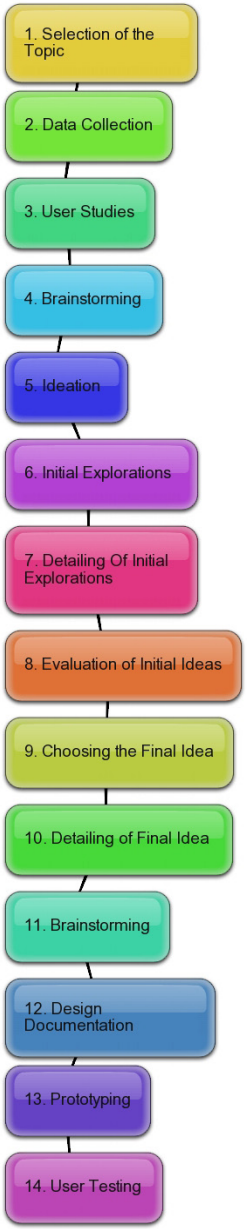
6. Initial explorations:
My initial exploration involved games like
a. Treasure hunt
b. Water war
c. Saving extinct animals

7. Detailing of initial explorations:
After choosing the theme during the initial exploration I detailed each game deciding the scenario, strategy and other game points.

8. Evaluation of initial ideas:
The initial ideas lacked certain points. For example a story was not forming for the game; therefore now I started working on themes which could be supported with a strong story idea.

9. Choosing the final idea:
The final idea which I chose came from saving the environment which was one of my initial themes.

10. Detailing of final idea:
A proper story about the sufferings of a tree and saving it was then detailed out.



▼Design methodology

11. Brainstorming:
Then the stages and the detailed stage according to the various interaction levels were decided. For example tactile, auditory etc.

12. Design documentation:
The whole design was carefully documented using various softwares. The details are described in this documentation

13. Prototyping:
Using the available technology a small prototype would be the next step. A flash simulation will also give the idea of the actual prototype.

14. User testing:
Finally user testing would be the last step to evaluate this installation.

▼Initial explorations:

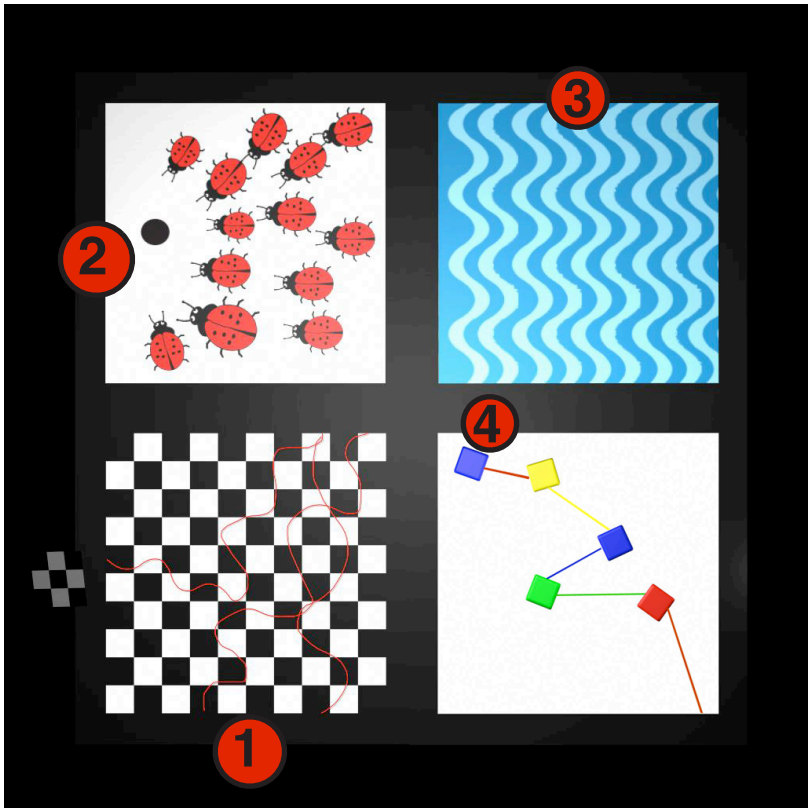
▼Initial theme vs concept:

I took 7-12 yrs age group for my design solution. I went for user studies to several places and talked to kids, watched them and took photographs. I visited Nehru Science Centre, Galleria arcade games, Inorbit shopping mall, Juhu beach, parks and IIT Kendriya Vidyalaya. After visiting those places I sat with the photographs and started brainstorming for ideas. After couple of brainstorming sessions I came up with about 20 different theme and concepts. Then I tried detailing them out.

▼Initial explorations:

▼Initial theme vs concept:

THEME	CONCEPT
Water/ Jungle	Treasure hunt
Water War	Fire fighters
Jungle	Creating awareness about the endangered species
Volcano	Fire in the mountain
Soldiers (Military)	Hide and seek
Pollution	Hide and seek (pollution as a form Monster)
Pollution	Save tree
Character induced game	Mouse finding cheese
Character induced game	Honey bee collecting honey
Space	Saving planet and stars from the attack of aliens
Virus	Virus in the computer
Virus	virus in the body
Water	Save water
Maze	Reach at the destination
Pirates	Treasure hunt
Beach	Collect stone, pearl, oyster/ fish
Circus	Play with joker/ Act like joker
Illusion	Indraprastha-Game of deception/ Mad house
Pinky Pinky what colour?	Interactive giant palette
Wild life	



▼Initial explorations:

▼Concept 1

Treasure hunt:

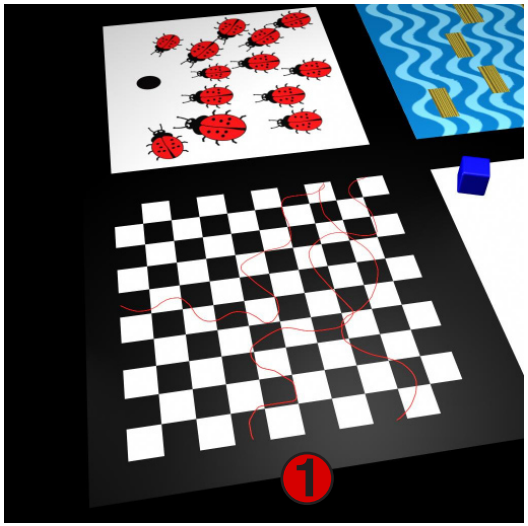
Thought behind this concept was barriers or obstruction which one has to conquer and reach at the final destination where the treasure has been kept.

The four barriers are as follows...

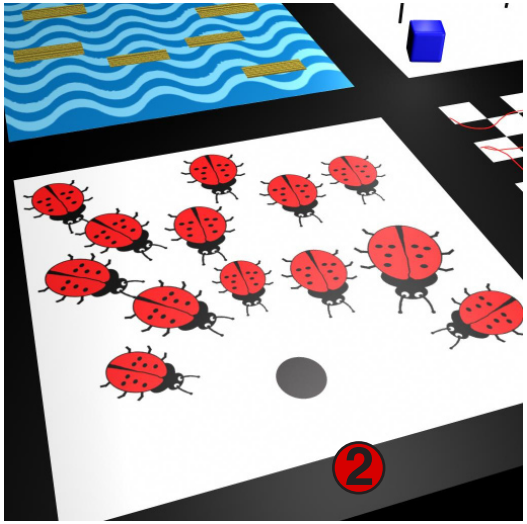
1. Hat trick,
2. Bug trip,
3. Log off,
4. Ray trail

Red coloured numberings are showing the starting points where one has to start with and finally has to reach at the opposite side.

▼Initial explorations:



Hat trick



Bug trip

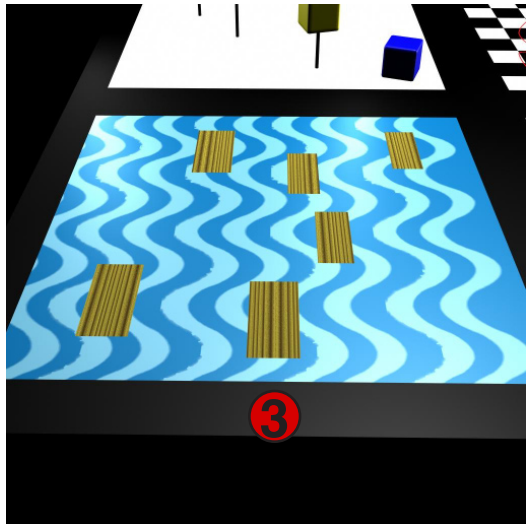
▼Concept 1

1. Hat trick

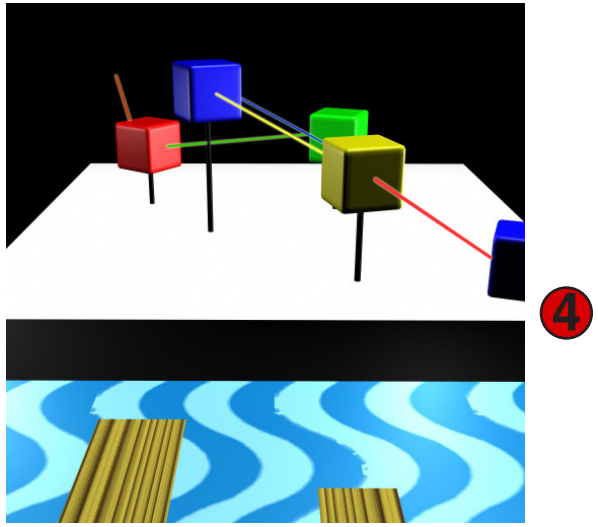
There are some curve red lines on the chequerd floor. One has to wear a HAT of the same pattern and follow the curve path but one has to maintain the pattern of the floor by rotating one's body or hat. The pattern of the floor as well as the hat will be captured by a camera at the top. If the person fails to maintain the pattern more than 5 seconds then the person will be caught and a loud sound will come up. The person who is followin the curve line can see the position in plan by seeing a elevation at side wall.

2. Bug trip

In this game one has to cross from one point to another. The barriers here are bugs of various shapes and sizes who kind of attack you as if you are following a jungle trail for the treasure hunt and are attacked by these bugs in real life. You have to hit the bugs to get them off your path and reach the destination.



Log off



Ray trail

▼Initial explorations:

▼Concept 1

3. Log off

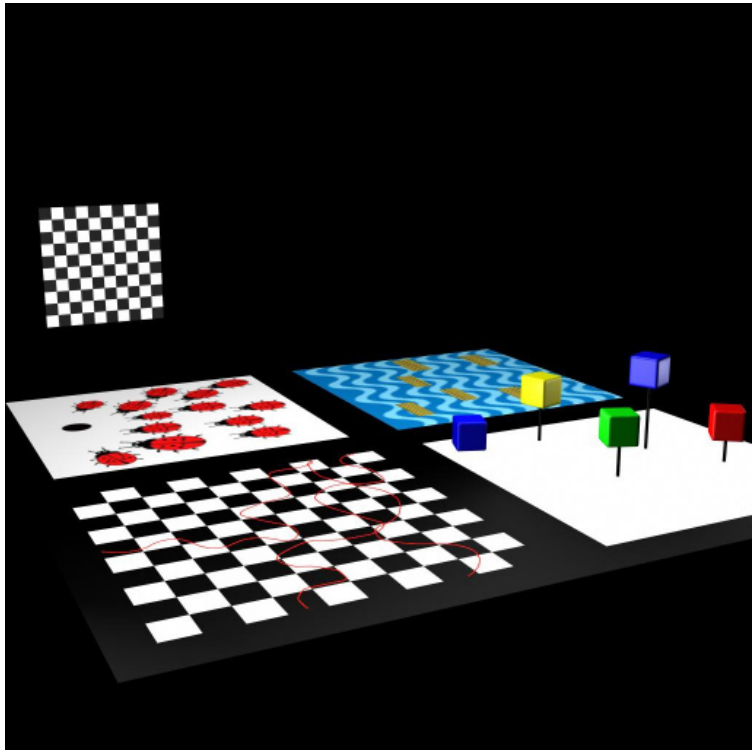
One has to stamp on the wooden log which are actually flowing on the water. Stamping on one log it stays there only for 5 seconds, so within that time period one has to stamp on the other log to cross the river.

4. Ray trail

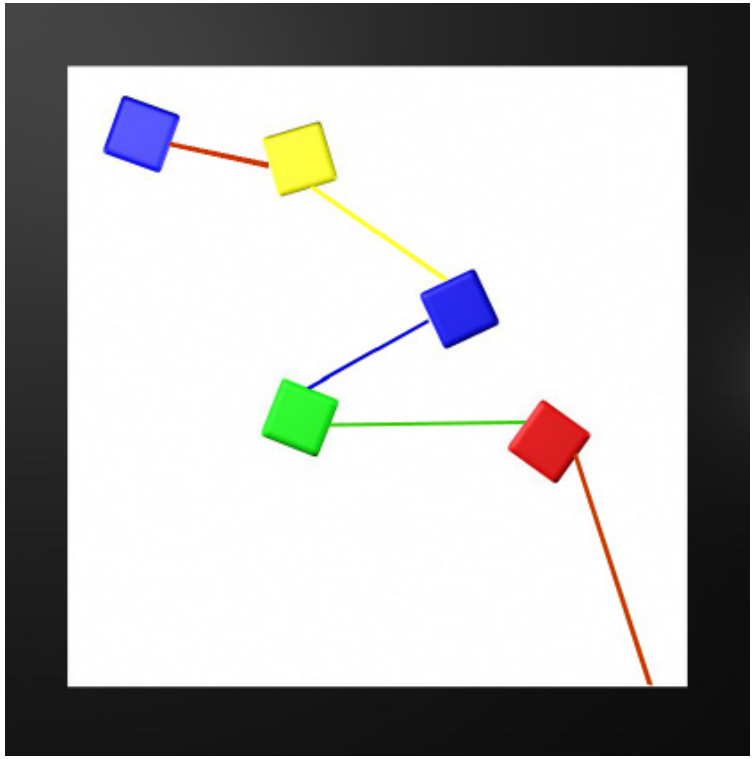
Various cubes are placed in this game at specific points which can rotate in different directions. There is a beam of light passing through them in different direction. From the first cube you need to join a continuous ray of light which can be done by rotating the cubes. In the end where the ray falls the treasure is hidden there.

▼Initial explorations:

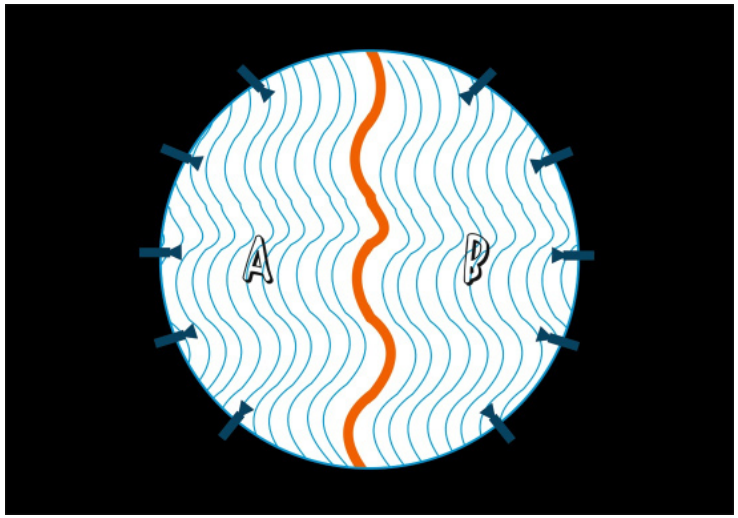
▼Concept 1



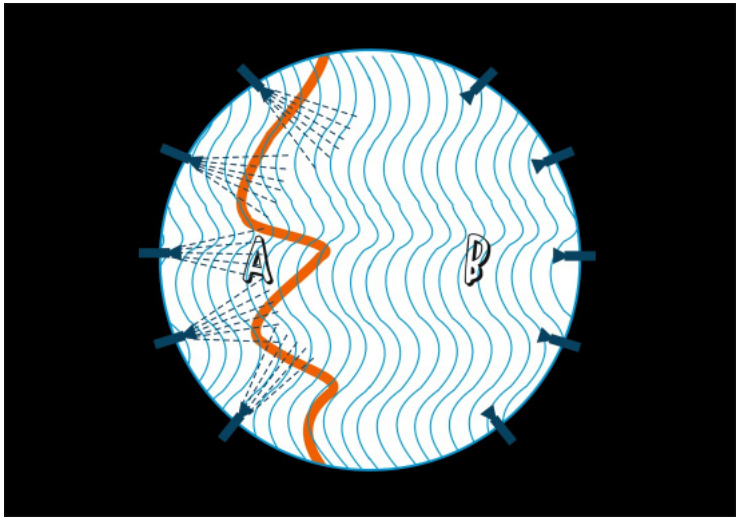
Perspective view



Plan



Both teams are in equilibrium position



Team B is defeating team A, that's why water jet is coming behind the A's area

▼Initial explorations:

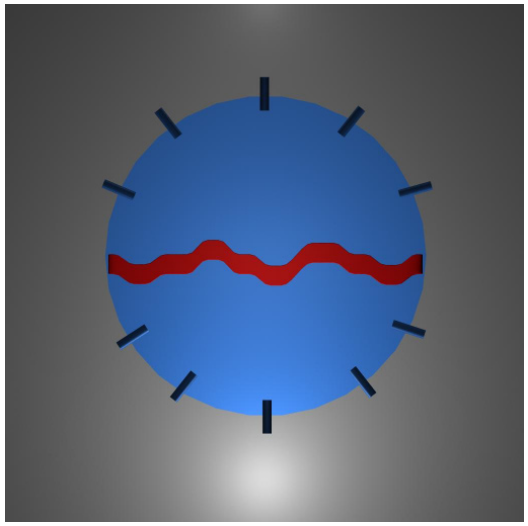
▼Concept 2

Water war:

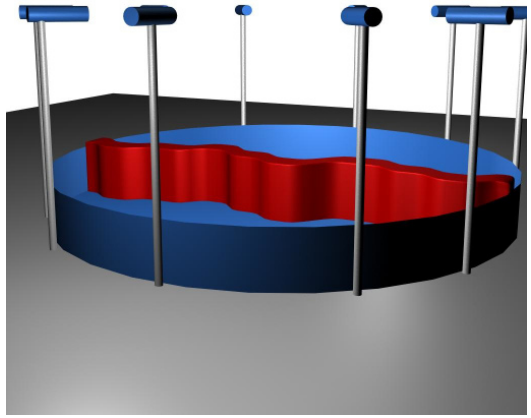
It's a game of two groups who will fight each other. There is a divider of soft material in a circular area, which is a demarcation line between two team's territories. Each team will try to expand their areas by kicking the soft demarcation. While one team kicks hardly on the material then it moves to opponent's area. In this game there are some water spouts also in a circular manner behind the player's head. One team makes their territory bigger then the members of other team get wet by water which comes from the spout from their back.

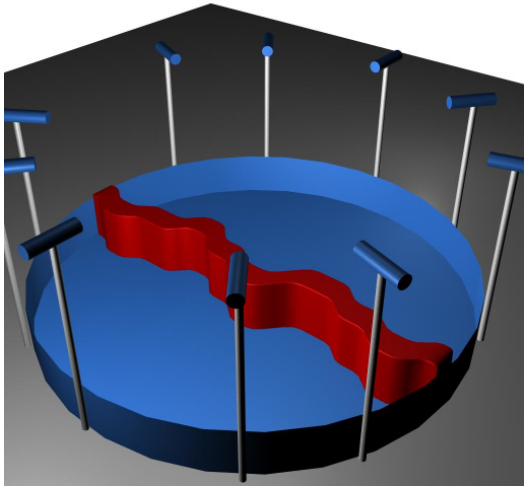
▼Initial explorations:

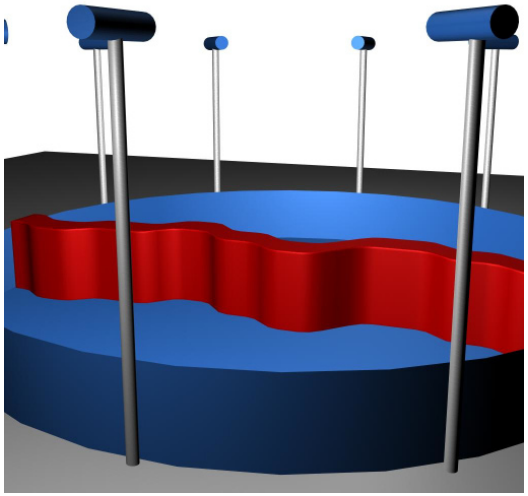
▼Concept 2



Plan







Views from different angle

▼Initial explorations:

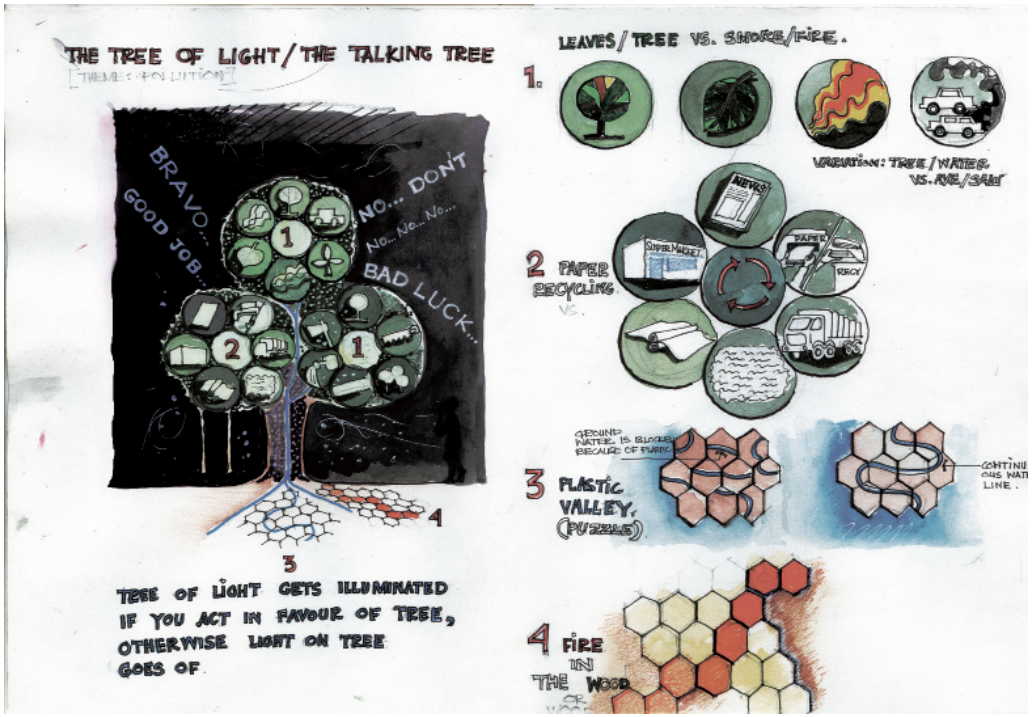
A trap, if any part of the body touches it, an alarm rings and you are out

Camouflaged black and yellow striped suit

▼Concept 3

Exploring wildlife:
Agenda: An installation for creating awareness about the endangered species.
Approach: 1. This installation would be an indirect approach towards current situation of the wildlife.
2. Rather than you getting directly involved in protecting the wildlife, an indirect approach towards the endangered species is what this installation is based on.

In this installation one has pretend to be the animal itself to realise the plight of that particular animal. For example, if a person is playing the part of a tiger; then he has to wear a suit which is striped black and yellow and acts like a camouflage. The goal of the game is to pass safely through the jungle so that the poachers cannot detect you. Thus, an awareness of the endangered species and poaching is created through this installation.



▼Initial explorations:

▼Concept 4

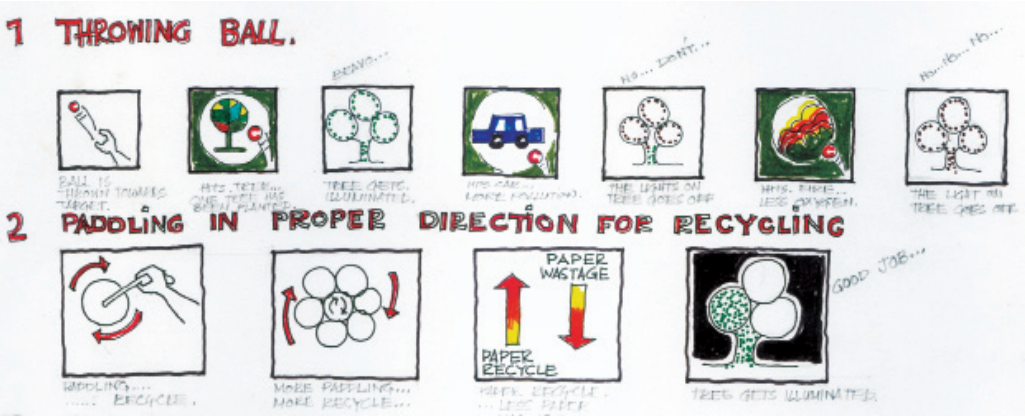
Theme: Pollution

Tree of light:

This tree of light consists of large number of leds. Tree of light gets illuminated if you act in favour of tree, otherwise light on the tree goes off.

It has total four parts.

1. Leaves vs smoke,
2. Paper recycle,
3. Plastic valley,
4. Fire in the wood.



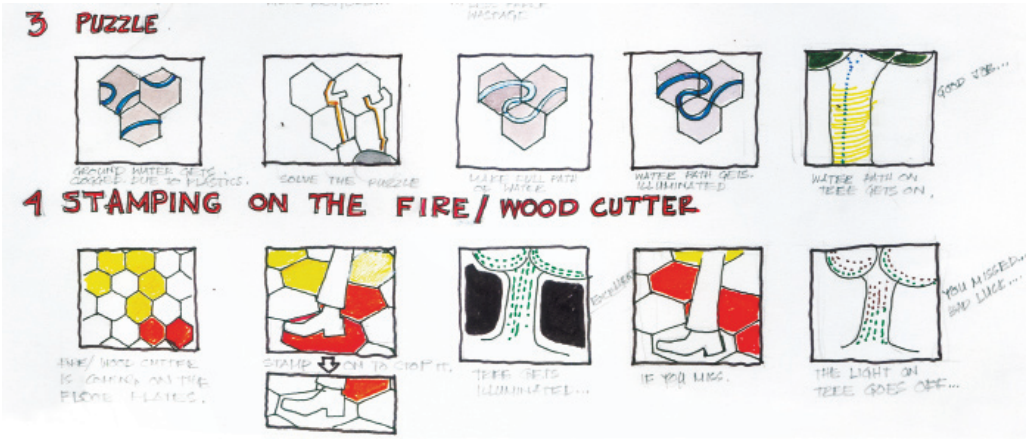
▼Initial explorations:

▼Concept 4

Activities:

1. Leaves vs Smoke
One foliage is meant for leaves vs smoke. There are some graphics for tree, leaves, smoke and fire, etc. One has to throw the ball targeting towards these icons. If one hits the tree or leaves then he is supporting the plantation of tree and the tree gets illuminated. If one hits smoke or fire then the light on tree goes off.

2. Paper Recycle
One foliage is meant for paper recycle where the different icons of paper recycle has been shown. This foliage is connected with a padel which is at bottom of the tree. If one padels then the foliage rotates, which means he is recycling the paper. Tree gets illuminated if the paper recycle is enough.



▼Initial explorations:

▼Concept 4

Activities:

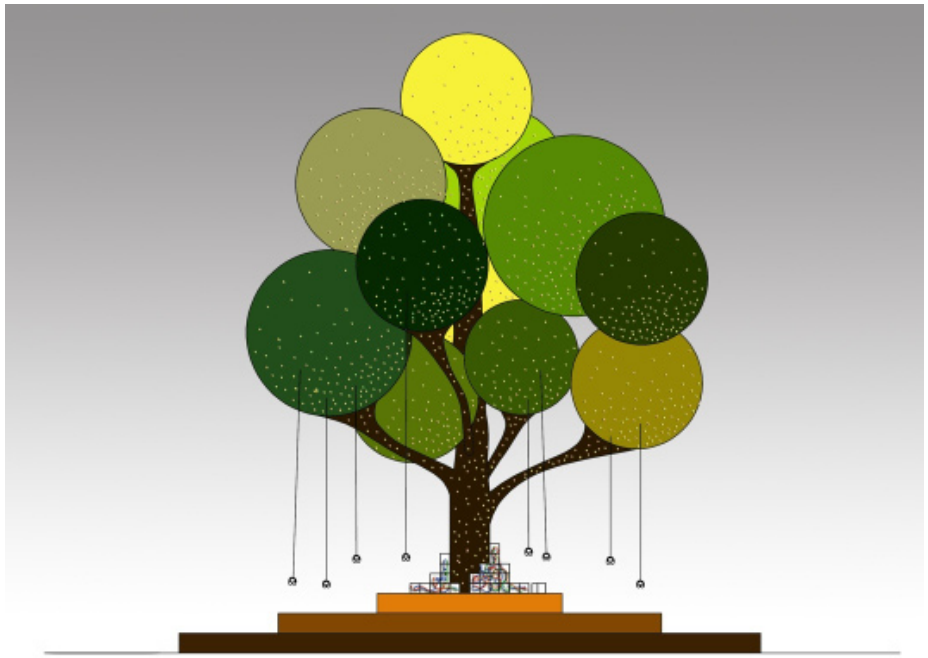
3. Plastic Valley
There are some tiles with some hapazard blue curve lines. Blue curve lines are the entrapped water in the earth. one has to solve the puzzle of tiles and make the blue curve lines continuous so that the water will reach the tree. If it happens then some part of the tree will get illuminated again.

4. Wood Cutter
There will be some other tiles also which are initially non illuminated. Suddenly it will change it's colour into red which is a indication of wood cutter. The light will move towards the tree. Here one has to stamp on it to stop the wood cutter. If it reaches to the stem of the tree then the light on the ree will go off.

▼Initial explorations:

▼Evaluation

On the basis of user studies, initial explorations and following points like technology, feasibility, physical interaction, playfulness and innovation the final installation was designed.



▼Final concept:

▼Details of final concept

Tree of light:

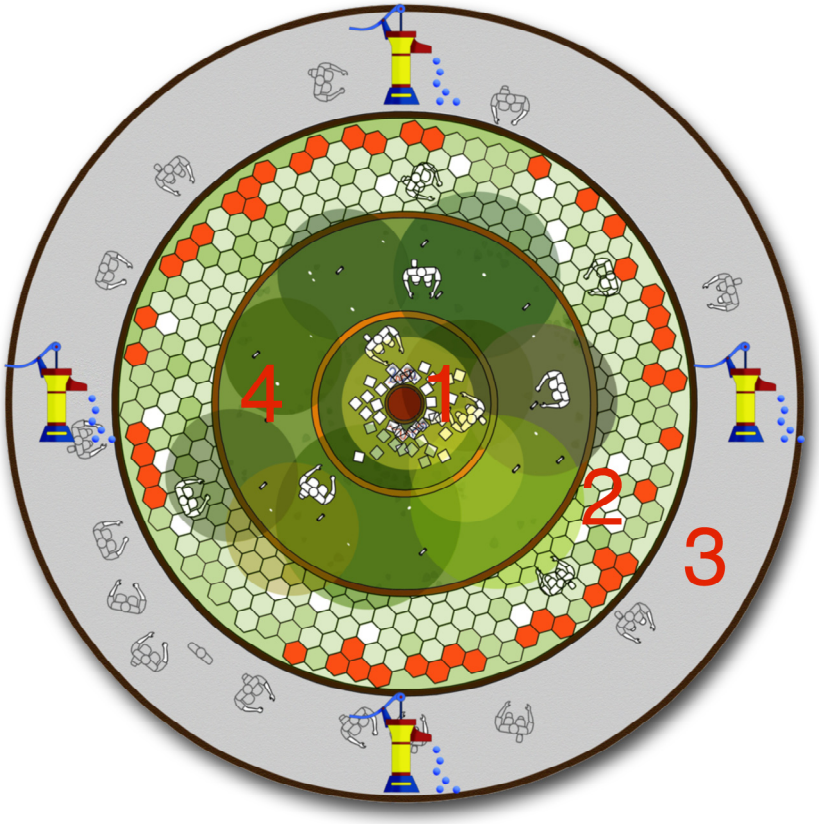
Tree of light is the name of the installation. It symbolises things such as the problem of destroying our ecosystem by cutting trees. It also gives us some knowledge about the hazards which can cause hell for us if we dont throw a light upon the matter of cutting forests. The various games and stages thus suggest that through activities and fun we need to save each tree to save our environment.

All the physical activities in these games are based mainly on three senses - Visual, Auditory and Tactile. Taste and Olfactory senses have been avoided because of health related issues.

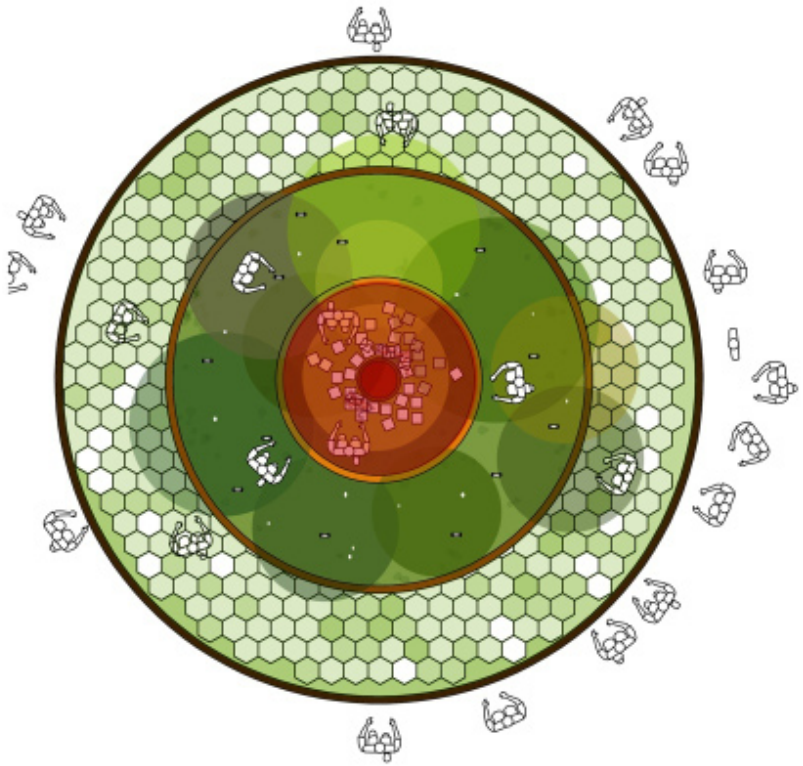
▼Final concept:

▼Details of final concept

Tree of light:



1. Plastic valley: Activities - Puzzle
2. Wood cutter: Activities - Stamp on tiles
3. Fire monster: Activities - Throwing the ball
4. listen to life: Activities - Pull and listen



▼Final concept:

▼Details of final concept

Tree of light:

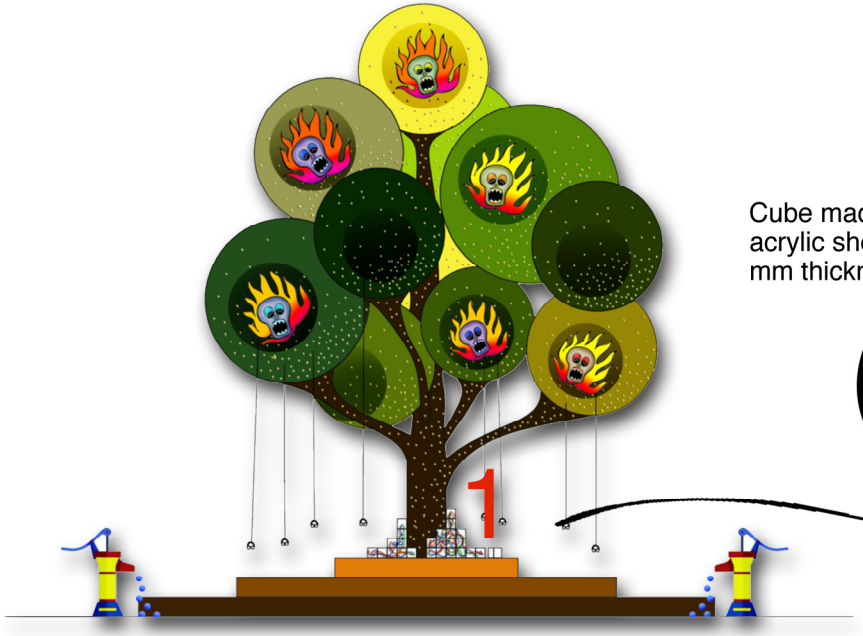
1. Plastic valley

Activities: Puzzle

Plastic valley: The idea behind this game puzzle is to make children aware about the plastic pollution, which is seeping into the earth and is destroying the ecosystem.

The situation in the game is that the water supply to the tree has stopped and it is dying due to lack of water. Therefore the plastic cubes having rays of light passing through different fiber optics are placed at the bottom of the tree in the first circle. One needs to start with a transparent cube by matching the respective light with that colour fiber optic. Then one needs to make the trail, which in the end activates the sensor near the base of the tree and which makes the continuous flow symbolizing the flow of water. After the sensor is activated the tree glows.

▼Final concept:

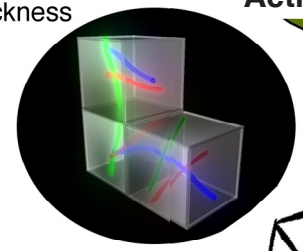


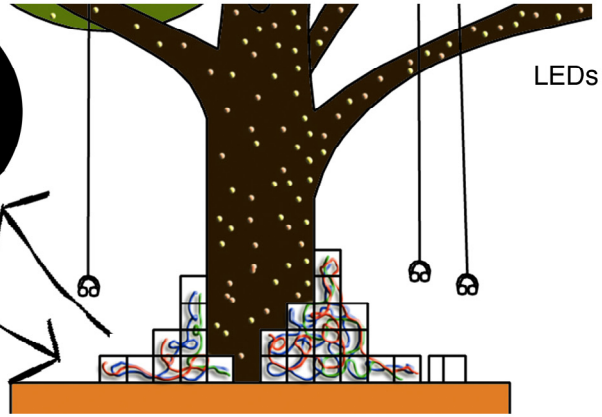
▼Details of final concept

Tree of light:

1. Plastic valley
Activities: Puzzle

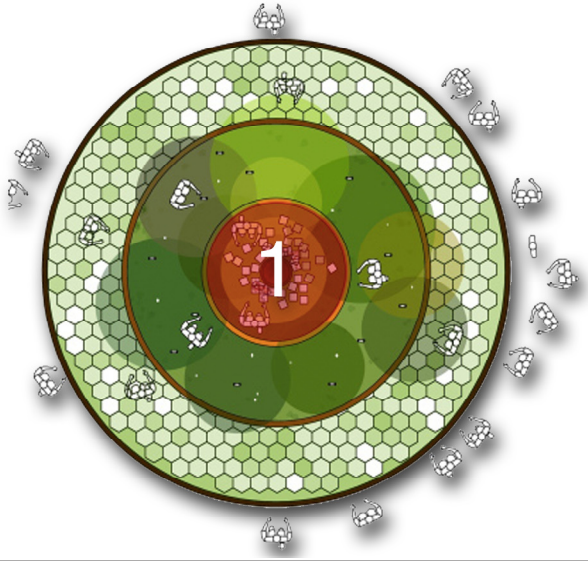
Cube made of acrylic sheet of 2.5 mm thickness

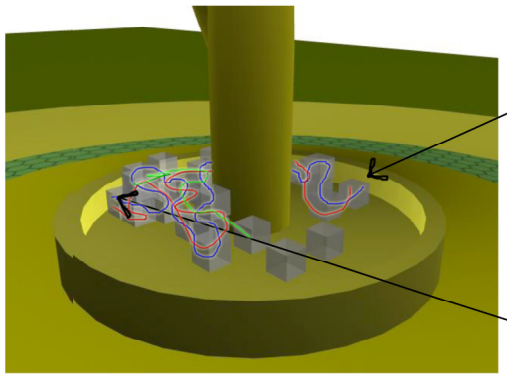


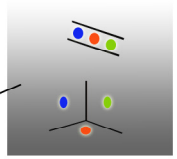


LEDs on the tree

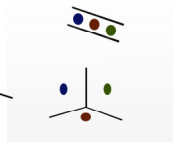
Optical fibre in the acrylic cubes





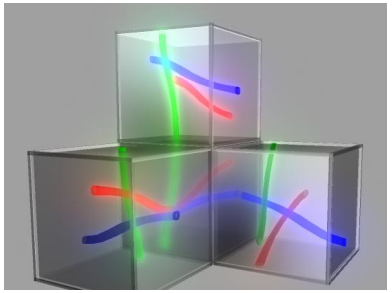


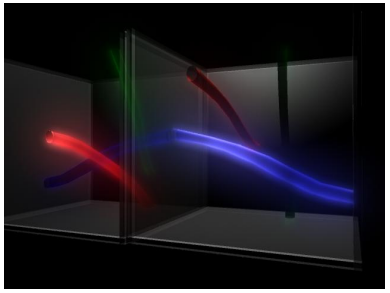
Initial light sources



Final destination point where the light sensor has been kept.

▼Final concept:

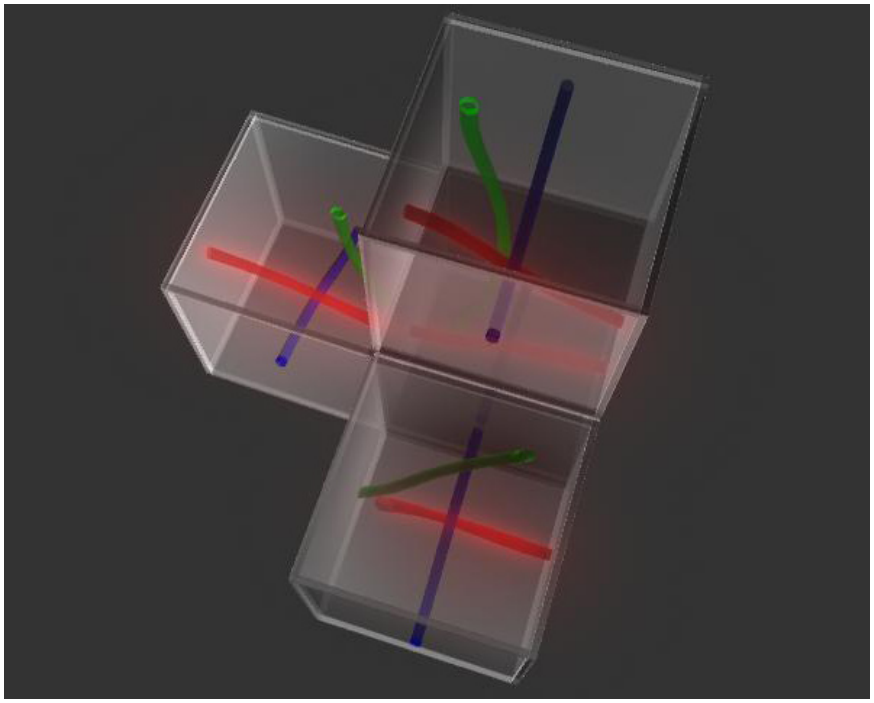


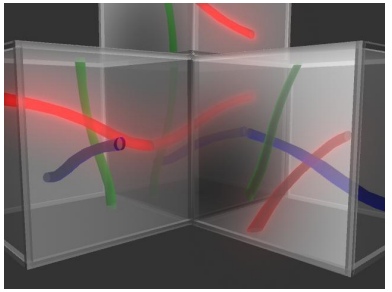


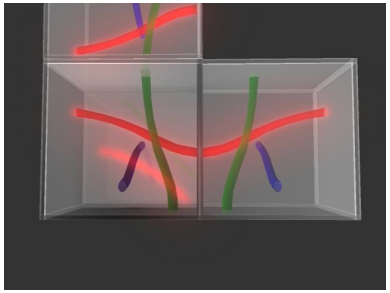
▼Details of final concept

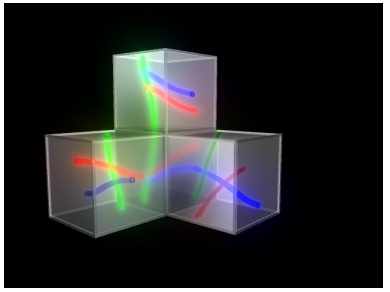
Tree of light:

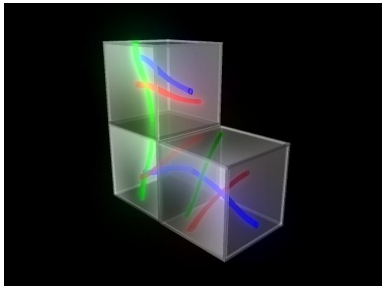
1. Plastic valley
Activities: Puzzle



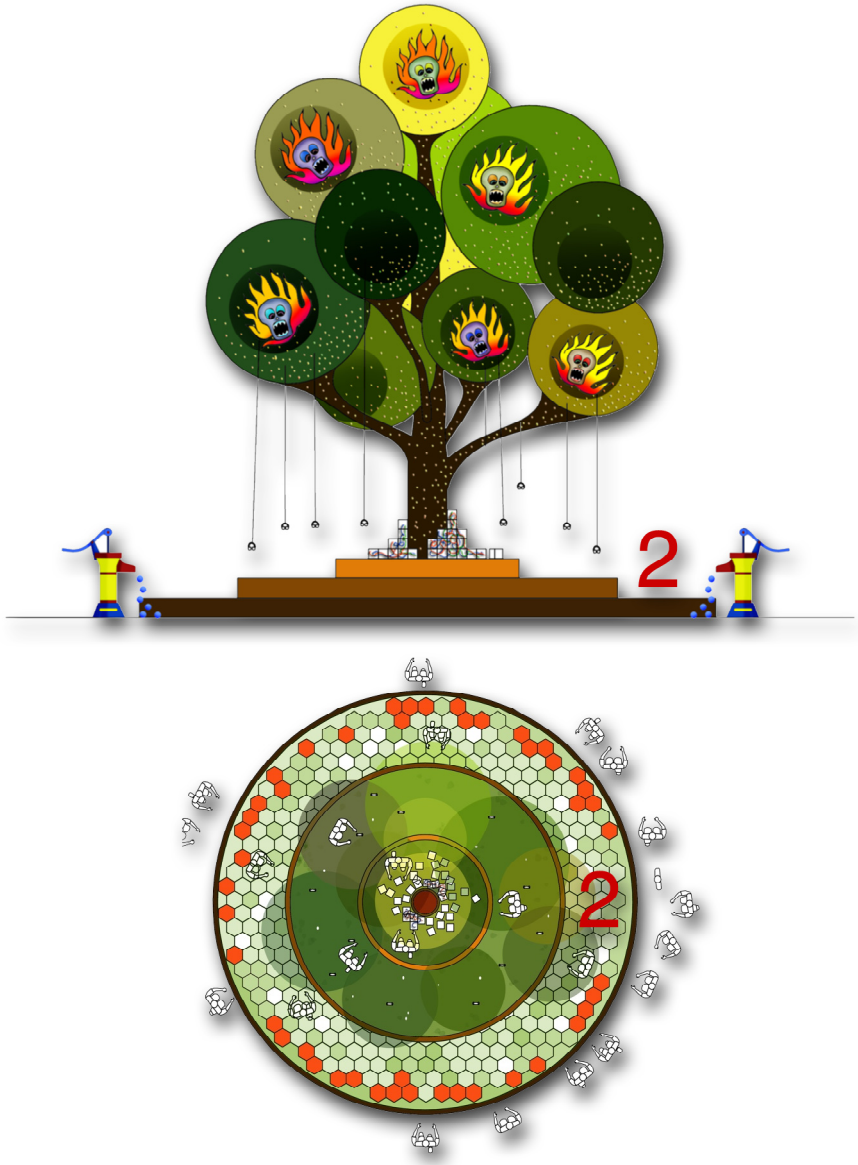








Views from different angle



▼Final concept:

▼Details of final concept

Tree of light:

2. Wood cutter

Activities: Stamping on tiles

The biggest enemy to the tree is we, the humans. Therefore the barrier to win this game is to stop the woodcutter's attack on the tree. There are tiles placed on the floor, which has proximity sensor and pressure sensor in it. The tiles turn red sensing when nobody is around signifying that the woodcutter is attacking. The child has to stamp on these red tiles and due to the pressure the tiles turn green. This means that the woodcutter has been defeated. After the red tiles are cleared you win this game.

▼Final concept:

▼Details of final concept

Tree of light:

2. Wood cutter

Activities: Stamping on tiles

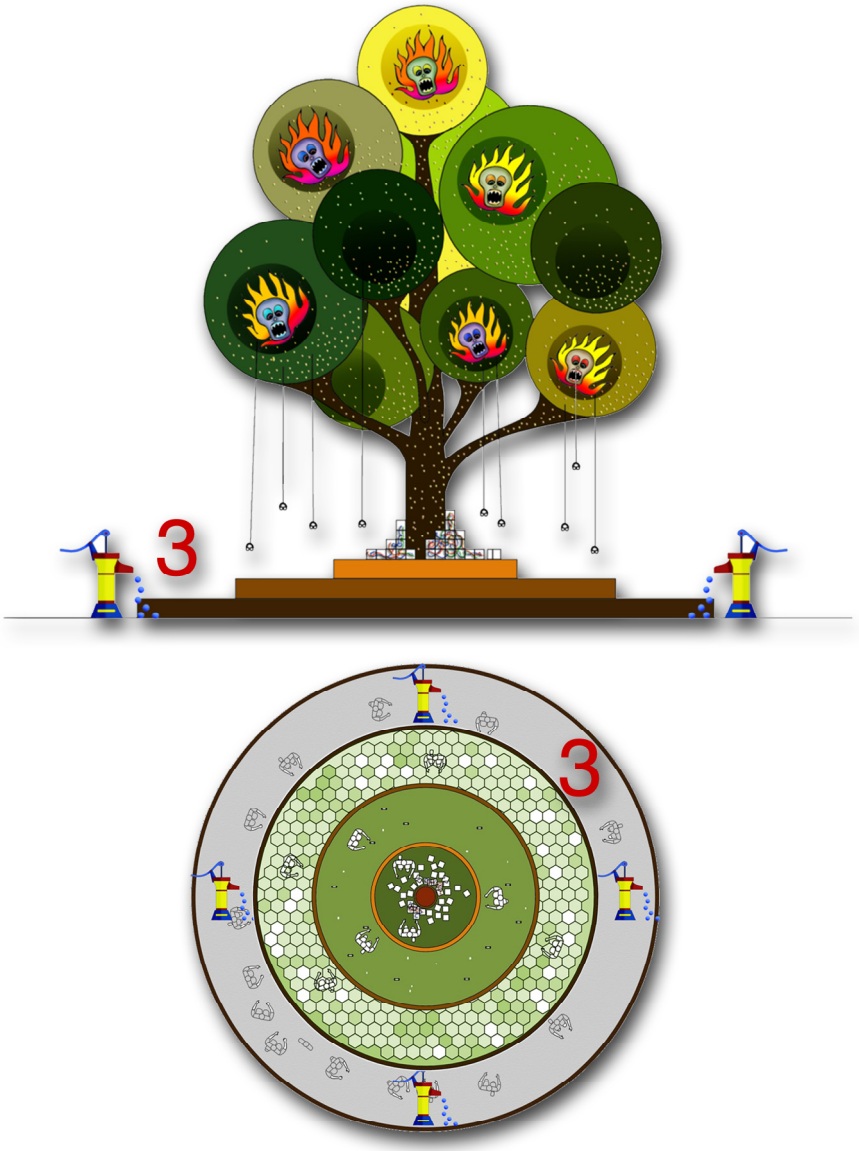
1. Fire is approaching towards the tree through the tiles.

2. Child notices the fire on the tiles.

3. Child starts stamping on the fire tiles.

4.Tiles turn green due to pressure.

5. Child wins the game and the lights on tree start glowing.



▼Final concept:

▼Details of final concept

Tree of light:

3. Fire Monster

Activities: Pumping tap and throwing ball

One of the biggest threats to the trees is the fire. Due to various reasons some of which are mistakes done by humans, every year thousands of trees are burnt. This activity makes the children aware of this crisis.

There are four hand pumps provided, which when pumped throw up blue balls. This actually signifies water, which will be used to extinguish the fire. The children need to collect these balls. The foliage on the tree is provided with touch sensors, which becomes red as the game starts and when the ball hits it with a specific force it turns green again and it starts glowing. The tree turning green and glowing means that you have saved the tree from the fire, if you are unsuccessful in the attempt that part of the tree remains red and you lose. You need to start again.

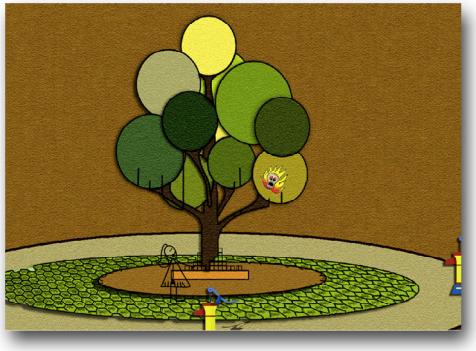
▼Final concept:

▼Details of final concept

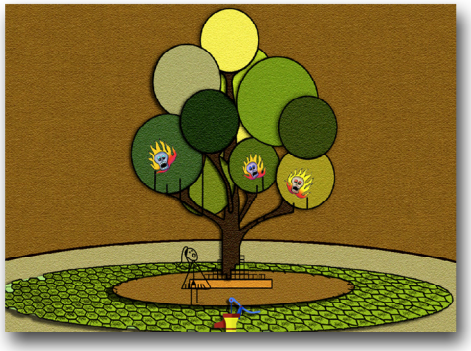
Tree of light:

3. Fire Monster

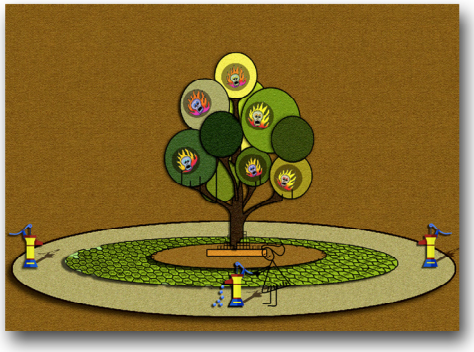
Activities: Pumping tap and throwing ball



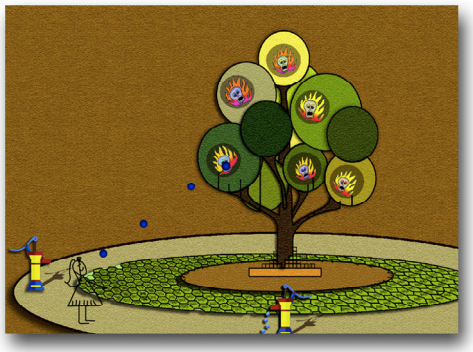
1. Fire monster starts appearing on the tree foliage.



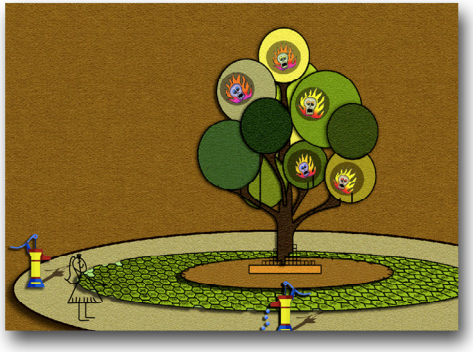
2. Fire monster spreads from one foliage to other foliage.



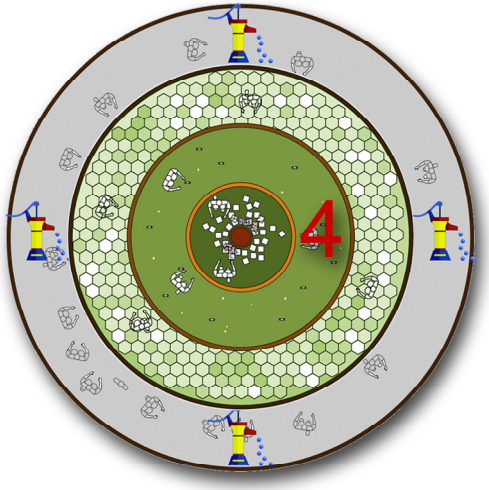
3. Child starts pumping hand pump which throws out blue balls (blue balls metaphor of water).



4. Child starts throwing the water balls on the fire monster, which after hitting vanishes.



5. Child continues throwing water balls, the fire monster vanishes and the tree starts glowing.



▼Final concept:

▼Details of final concept

Tree of light:

4. listen to life

Activities: Pull and listen

Headphones are hanging from the tree, which look like vines of the tree. There is a switch provided in it which when the vines are pulled gets activated. The child needs to put the headphones and when the vines are pulled, interesting facts about the trees; valuable information about the importance of saving the tree can be heard through it.

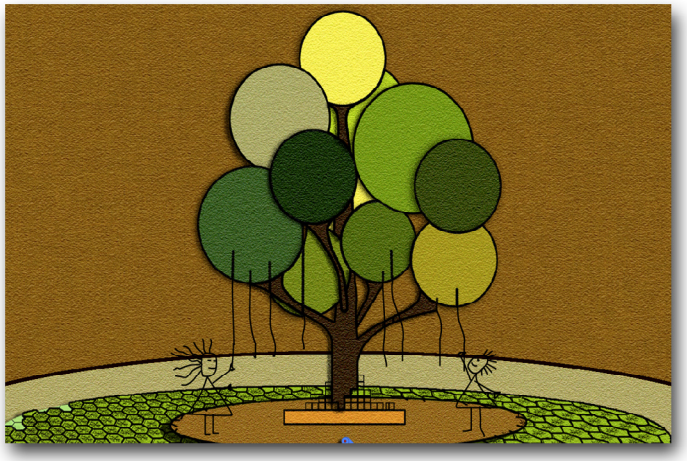
▼Final concept:

▼Details of final concept

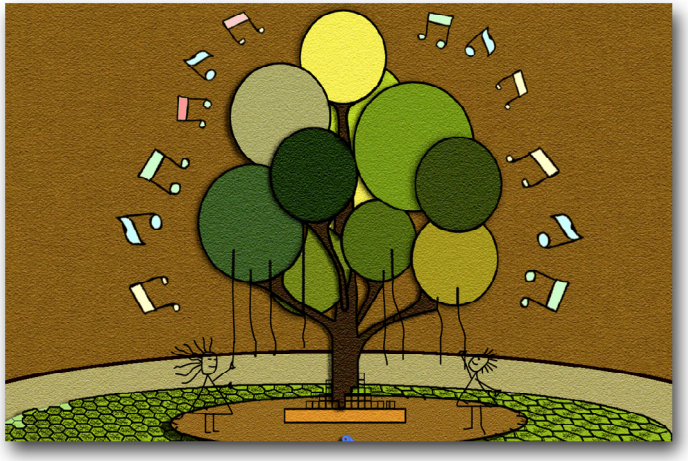
Tree of light:

4. listen to life

Activities: Pull and listen



1. Vines are pulled down by the curious kids. Microphones are provided at the end of the vines.

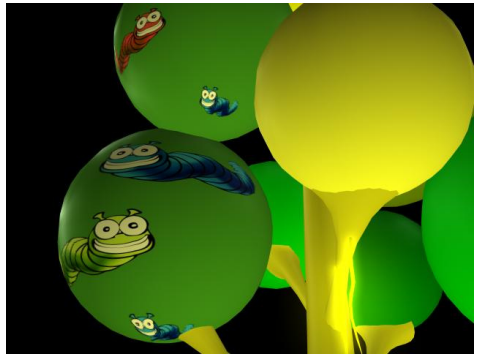


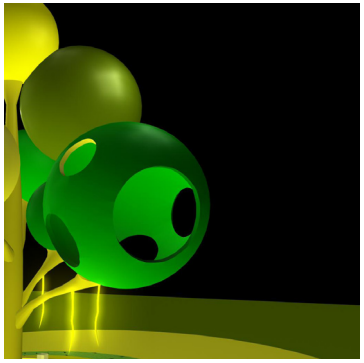
2. Interesting facts about the trees; valuable information about the importance of saving the tree can be heard through the microphones

▼Final concept:

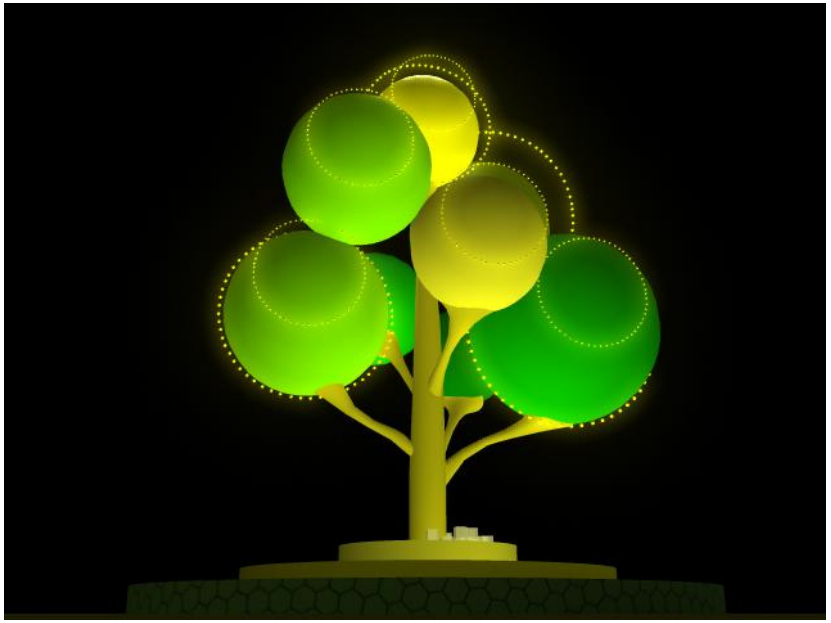
▼Details of final concept

Tree of light:





Views from different angle



▼Future scope:

1. Nature park- nature trails: This kind of installation would be very useful for nature trails in nature park. As this can teach children in a playful manner.

2. Children's Museum: As this installation is incorporated with lots of physical activities and intellect, it will be appropriate for children's museum.

3. Kit- for existing trees: Small kits can be produced for this installation which would be installed on existing trees.

4. Schools: Kindergarden schools can adopt the installation to engage small kids.

5. Shopping mall- atrium: As this installation has a great attraction value in terms of visual and auditory it could be installed in the free space of atrium in a shopping mall. It would attract kids to spend quality time.

▼Bibliography:

1. Behavior and Development from 5 to 12
2. http://www.aec.at/en/center/index. asp
3. http://www.arvindguptatoys.com
4. http://www.exploratorium.edu/seeing/ideas
5. http://www.siggraph.org/artdesign/gallery
6. http://www.plw.media.mit.edu/people/maeda
7. http://www.wikipedia.com
8. http://www.funderstanding.com/vygotsky.cfm
9. http://www.paradoxbeach.net/
10. http://portal.acm.org/citation.cfm
11. http://www.infonoise.net/Gordana/presentation.html
12. http://www.mimetics.com/
13. http://garancs.net/projects/projectlist.html
14. http://portal.acm.org/citation.cfm
15. http://garancs.net/projects/projectlist.html
16. http://www.feedtank.com/quicktime
17. http://www.sport4minus.de/loopArena
18. http://www.junksoup.com
19. http://camilleutterback.com
20. http://camilleutterback.com/untitled5.html