Title

Cymaitc Fountain-by Manuel Antonio Ramirez

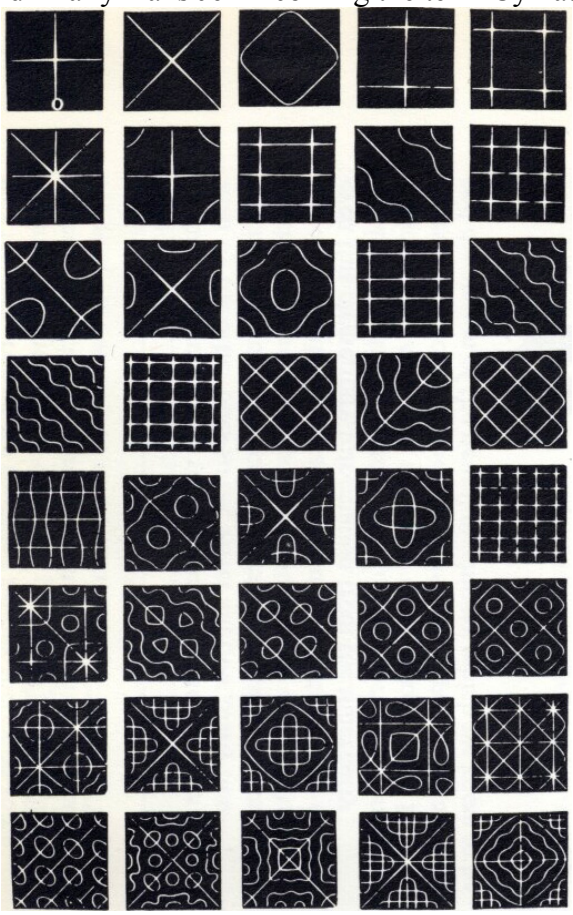
Keywords

Synesthesia, Cymatics, LED, LRAD acoustic cannon, hypersonic sound, Magnetic Fuild, Morpho towers,Glass Speaker Technology

Description:

-Intro-

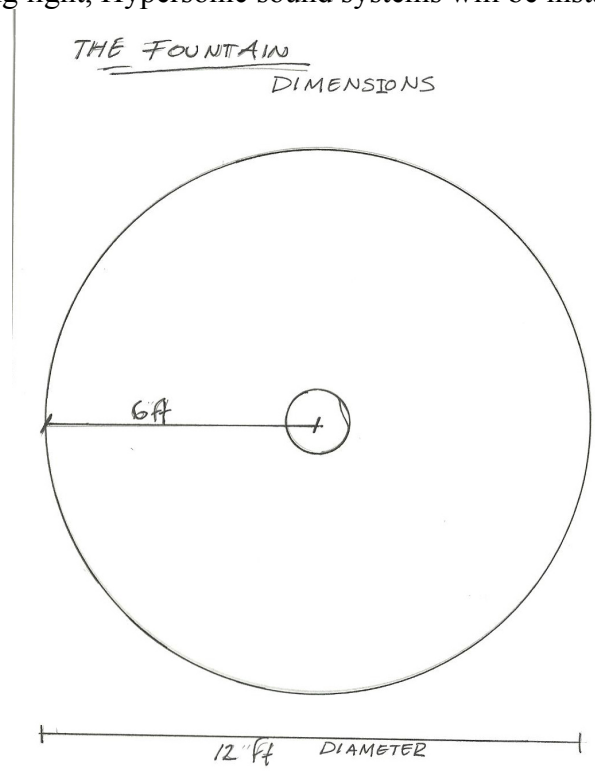
The origin of this project is from my interests in synesthesia and cymatics. What is synesthesia? What is cymatics? The word Synesthesia comes from the ancient greek words syn and aethesia, syn-meaning together and aethesia-meaning sensing. It is a neurological condition by which stimulation of one sensory or cognitive pathway leads to automatic and involuntary experiences in a second sensory or cognitive pathway. Examples are things like being able to see sound, to taste sound, and to taste colors or numbers. Cymatics is the art and science of visualizing sound through any physical medium (a computer software, liquid, sand, salt). Cymatics analyzes the process by which sound manipulates and changes a medium. The field of Cymatics has a long history, from Da Vinci and Galileo with their observations of resonance, to English scientist Robert Hook and his modes of vibration. Also Ernst Chladni publishing "Discoveries and Theories of Sound" discussing how during his experiments with metal and sand he was able to produced geometrical patterns using sound, and finally Hans Jenni coining the term Cymatics.

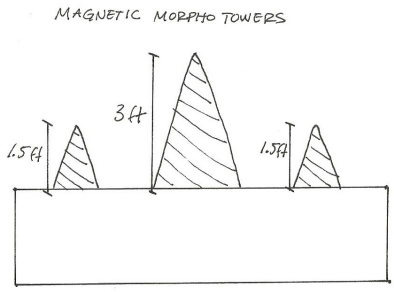


-Goals of the project-

The Purpose of the project is to create a synesthetic interactive experience through the use of sound and light.

The installation of this project will be in open space, preferably in a museum where spectators will interact and perceive sound, color, and light in unison. A fountain twelve feet in diameter and filled with a special magnetic fluid (ferro fluid) will be installed in the center of the open space. The fountain will also be equipped with sound, magnets and light technology; this is where sound will be translated into colors, lights and shapes. All Technology and its function will be discussed in greater detail in the next section. The ground around the fountain will be equipped with scattered camouflaged ground sensors with pulsating LED lights. All the sensors in the ground will be connected to each other through LED lights as well (symbolizing neurons). In the ceiling, located exactly over each sensor of pulsating light, Hypersonic sound systems will be installed.

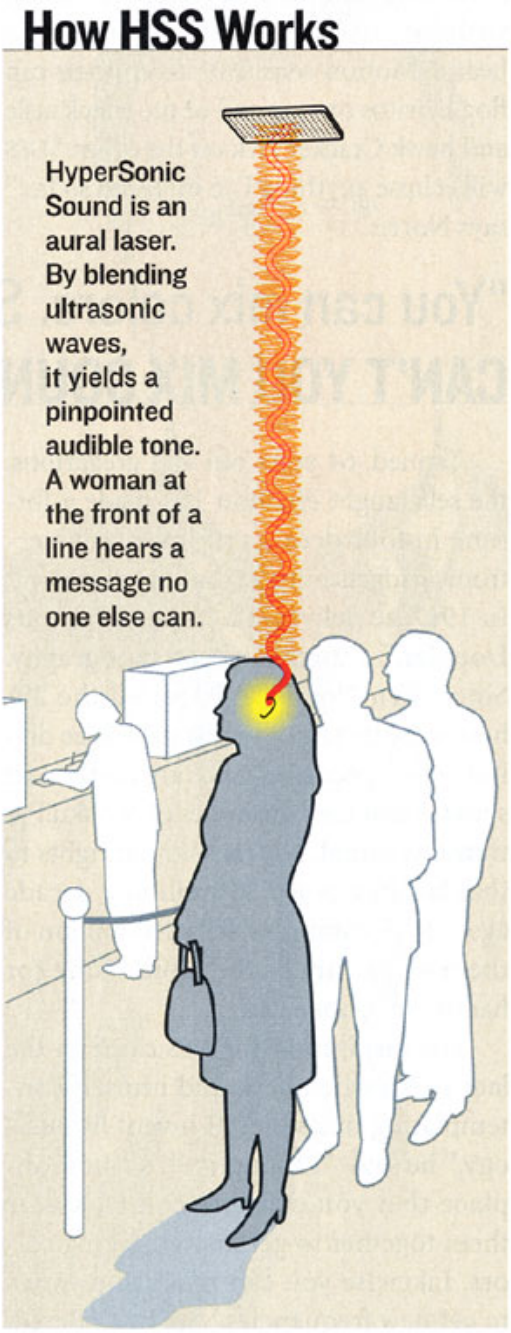




-The Tech-

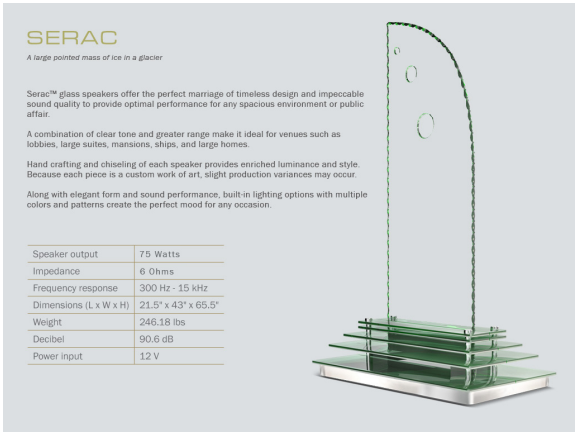
LED- LED lighting will be used the most throughout the installation. Interactive LED lights will be installed within the glass speakers that surround the fountain, an in the ground sensors and the connections of each. The way these lights will be controlled will be through a centralized computer that will be processing data to produce the whole synesthetic experience. The color of each light will depend on the note that the speaker or pulsating ground sensor will be playing.

Hypersonic sound systems-This technology is used to give each person a unique sound experience. The LRAD acoustic cannon produces sound that is inaudible unless the cannon is pointed at you. By placing this technology directly in top of the ground sensor, the person standing there will be able to hear a specific note in unison with the pulsating LED lights on the ground sensor. This technology will also be controlled by the computer that controls the LED lights, and this computer will be responsible for keeping the light and sound synced.



Magnetic Liquid-The fountain will be filled with magnetic fluid, even through the computer cannot control or manipulate the liquid itself, magnets will be utilized to manipulate the liquid, the computer will move the magnets which in turn manipulate the liquid into different shapes.

Glass Speaker Technology-This technology will be installed on the exterior of the fountain to create the sound that everyone can hear. It will also incorporate LED lights that correspond to each note the speaker is playing. Since the glass speakers use a different technique for reproducing sound compared to that of regular speakers, the LED lights installed on them will accentuate this feature while distinguishing the how different colors belong to different sou



Links-

-Glass Speaker technology- integrating this tech with LED lights inside the glass

http://www.youtube.com/watch?v=cDHLDmeXCEA

http://gstspeakers.com/speakers.html

-Sound waves represented through sand-Applying this on the sensors.

http://www.youtube.com/watch?v=s9GBf8y0lY0&feature=related

-Liquid magnet for the fountain- enabling the liquid to represent sound with the use of magnets
http://www.youtube.com/watch?v=OsW8zctD7CM&feature=related
http://www.youtube.com/watch?v=fpI4EiGACo8
-Interactive LED pannels-I want to incorporate light synchronized with sound like in the video.
http://www.youtube.com/watch?v=fMwOSM_G1Ys&feature=related
http://www.youtube.com/watch?v=Y3ulBf7NIl8&feature=related
-LRAD acoustic cannon-incorporate this to experience sound in different ways through different areas
http://www.ted.com/talks/lang/eng/woody_norris_invents_amazing_things.html
-Cymatics
http://www.ted.com/talks/evan_grant_cymatics.html
-Morpho Towers
http://www.kodama.hc.uec.ac.jp/spiral/
-Sonar on Vemoe
http://vimeo.com/5324878