Sound Sense of Spaces

Design Research Seminar

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Approval Sheet

The Design Research Seminar Project being done by Keerti Chowdhry, M.Des Animation (136340001) is approved, in partial fulfillment of requirements of the Masters of Design degree in Animation in Industrial Design Center of the Indian Institute of Technology, Bombay.

Guide:

Examiner:

Acknowledgement

For the completion of this Design Research Seminar Project, I am extremely grateful to my guide Prof. Ravi Poovaiah. Without his support and counsel I would not have been able to figure out how to go about this project. I would also like to thank Prof. CP Narayan for giving his precious feedback and also providing me the state of the art technology recorder. I would also like to thank my classmates especially Mridul Basumotari for extending all their help.

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Abstract

Every place has its own distinct acoustic environment that is made up of several sounds emanating from sources peculiar to that particular place. To study these sounds and analyze how they build the immersive soundscape of a place was the aim of this project. Recording, categorization, and comparisons were done for a better understanding of this. I have also attempted visualization of the recorded sounds with the images they paint in an observer's mind.

Introduction

What gives a city, locality or any place its identity? Just like the visual impressions of a place are integral to its identity, ambient sounds of the environment are also crucial in giving that place a character of its own.

Even the silences are made of layers of unobtrusive ingrained sounds that permeate our minds and give texture to our perceptions of a place. Often people don't realize how the embeddedness of acoustic ecology is the invisible constituent of an environment.

Acoustic ecology is a discipline that studies in terms of sounds, the relationship between living beings and their environment; also known as study of 'soundscapes'. A soundscape is a term for all the collective sounds that form or arise from an immersive environment.

In a city like Mumbai, which is known for its variegated texture, the study of soundscapes has huge exciting potential. The city is pulsating with urgency of the daily grind in some places while at others, gentle murmurs mixed with sea breeze soothe out the senses.

Projects that chart out the sounds of different places by recording, categorizing and studying them have been done in various instances in the past. The World Soundscape Project started by R. Murray Schafer in 1960s at the Simon Fraser University is probably the oldest and most popular one. The project aimed at recording and cataloguing of international soundscapes with a focus on preservation of Sound marks and dying sounds and sound environment. The project has studied sounds from Canada and Europe, and its

results comprise the World Soundscape Library. Similarly extensive is the London Sound Survey by Ian Rawes, capturing everyday sounds of the capital and mapping them. From recordings of London's busy thoroughfares and quieter corners to recording birdsongs in back gardens to an intricate waterways soundmap that collects sounds from along side London's canals, lesser rivers and streams, the London Sound Survey does a fascinating study of soundscapes.

Mumbai offers a plethora of ambiences and moods to study for the project. I've done recordings at local train stations, malls and the marine drive to capture the bustle, the energy and the ceaseless spirit of the city. Although the time given for the project and working alone was a limitation, I have studied and categorized sounds of a place on temporal basis, with the local train station of Chhatrapati Shivaji Terminus being my main grounds for study.

Analyses and comparisons have been done on the basis of various criteria, e.g. sounds of human origin vs. machine sounds; commercial sounds vs. non commercial/personal sounds etc. I have also experimented with the visual interpretations of the sounds recorded.

Soundscapes: Secondary Study

The term ‘soundscape’ was coined by the Canadian composer and environmentalist, R. Murray Schafer, the founder of the research project the ‘World Soundscape Project’. As mentioned before, the project started in the late 1960s at the Simon Fraser University. It was this project that initiated the modern study of acoustic ecology. Publications titled ‘The Book of Noise’ (1968) and ‘The Tuning of The World’ (1977) have emerged from the findings of this project, both written by Schafer.

The project came into existence when Schafer felt a growing concern about the noise pollution degrading Vancouver’s soundscape. He taught a course about noise pollution at the Simon Fraser University in an attemot to draw attention to the sonic environment, the course soon attracted a small group of young composers and communication students, giving birth to the project.

The project recorded soundscapes from Vancouver, Canada and European villages in Germany, Sweden, France, Italy and Scotland, filling up the World Soundscape Library. Today, though the project has not undertaken any recent tours, the online catalogue is being updated and the library is being digitized to bring the findings & recordings to student access.

Another project worth mentioning is ‘Listen to Africa’. On a 24,000 kilometer expedition, these people record and catalogue sounds and voices across Africa. Every thing from music to wildlife to the majestic African soundscapes is updated on their travel blog. The project brings the aboriginal and rustic elements of Africa to the world not just through static pictures but by painting the

‘Jugni’ singer Rabbi Shergill

Image source: canindia.com

‘Nakashi’ of Taiwan

Image source: movableparts.org

sensory experience with soundscapes.

The link of acoustic ecology with rootedness is also explored in the Sound and Story Project of the Hudson Valley. They record the people of Hudson Valley talking about different things and update the online project with the stories. In their words on the site they “build community memory and sense of place by recording and sharing our stories and regional sounds.”

I stumbled across a good example of the same link in the Indian context in a song by Rabbi Shergill. The song, primarily in Punjabi, uses the technique of sonic representation of a place to convey an aboriginality and sense of space. The song is titled ‘Jugni’ after the legendary muse of all Punjabi folk songs by the same name. In this song, Jugni sets out to see India and visits places like Mumbai, Delhi, Kashmir and Punjab and each place has a stanza describing it. Before each stanza and at some other places in the song, there are short soundclips of the news pertaining to that place with sometimes recognizable voices of politicians. For example, when Jugni goes to Kashmir, and the stanza describing the current scenario of Kashmir begins, it is preceded by recordings of people of Kashmir talking about peace. It is a deeply moving and disturbing song, with the authentic sonic bits effectively lending it a feeling of pertinence.

Other interesting projects of sound ethnography that I read about were some done by Wendy Hsu, a Ph.D. in Critical and Comparative Studies in Music, University of Virginia studying ethnomusicology. One such experiment involved re-creating the Taiwanese custom of ‘Nakashi’ performance complete with speakers, singers and a mobile ‘sound-truck’ in an attempt to see how that motley soundscape would engage with the sound and place of downtown LA.

I also found sound projects like ‘Cinco Cidades Soundmap’ a project from Portugal with a variety of sounds recorded in five cities; and ‘Silence of the Lands’ a UK based project researching acoustic cartography, very interesting.

Documentation

For this project I went trigger-happy with the recorder looking for places that would ‘describe’ the spirit and pace of Mumbai. The pulse of the city lies more or less in the rush of traffic and the famous (or infamous?) local trains. They signify the hard-working restless, ceaseless, ubiquitous crowd of Mumbai, always huffing-puffing towards their offices and homes, traveling long hours, living in the smallest of quarters, nurturing the largest of dreams.

I began with a set of trial recordings of roadside traffic. Cartography is usually linked with soundscaping to give the listener a sense of time and space and also letting them choose which place’s sound they want to hear, like it is in the London Sound Survey and the Stanley Park Soundmap. So I decided an area and recorded soundscapes from multiple points, somewhat like a ‘Sound walk’.

I started with the world that is immediately outside and selected three locations to record at the Main gate of IIT Bombay along the same road. The place seemed correct for a trial Soundwalk. With a temple, bus stop a mosque and peak-time traffic along the same stretch of the road, the locations had all the elements to make it aurally interesting.

I recorded 6 minute snippets from the three points selected at around 4.30 pm on a week day. The results were very interesting. The amount of variety and contrast in the soundscapes just some meters away was surprising. The bustle of the bus-stop with people waiting, talking to each other and on phone, periodically punctuated with buses

wheezing in and the bus-bells signals- was starkly in contrast with the calmer soundscape of the SBI ATM by the roadside.

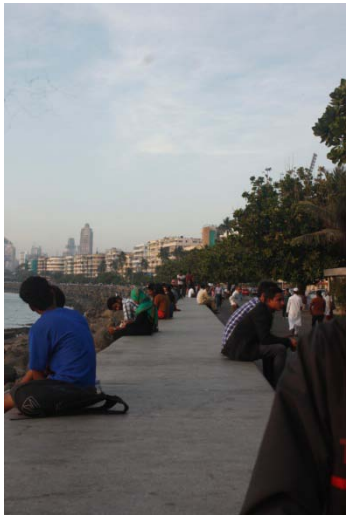
Another place where I did my preliminary recordings was the Kanjurmarg Station. This time I took a more temporal approach to recording the soundscapes.

As in, instead of recording at different locations at the same time, I decided to choose one place and record at different times.
This way it comparing the sounds and sonic patterns in terms of different times of the day becomes possible. It allows us to examine the role of time on soundscapes and also how the human interactions with a place change over the day.

A local train station is the perfect example of such a place. The recordings I did were at morning at 9am, at noon around 12.30 and at evening at 7.30 pm.

The mornings are usually best for studying the ambient sounds as the human sounds are lesser at those times. Thus the machine sounds and other nature sounds are more noticeable. For example, in the morning soundscape the crows and the beeping sound indicator for the visually impaired are the sounds that stand out the most along with the sounds of the train announcements. In the afternoon recording, the sounds are still apparent but sounds of human footfall and voices have pushed those to the background. Whereas, in the evening recording, the rising babble has almost completely overshadowed the beeping sound indicator.

I did a temporal soundscape study of the Marine Drive as well, with the ceaseless drone of the sea waves on one side and the sounds of traffic on the other side and a row of people sitting on the edge between the two. I recorded once at 11 am when the traffic is sparse and it's too sunny for the people to come out and enjoy the seaside. The second soundscape is of 7 pm when the sound of the sea is drowned out by conversations and leisurely laughter filling the air and vendors vying for attention with traffic toiling away in the background.



Marine Drive: People come out to enjoy as the sun starts setting.

The final and most immense soundscape I studied for this project was at CST- Chhatrapati Shivaji Terminus local train station. It is a huge place and the last stop for all the local trains on the Central and Harbour lines. Its historic building is a UNESCO World Heritage site and its exterior is a thing of beauty. It is designed in the High Victorian Gothic style of architecture.

I selected a spot on platform 1 to record as it is one of the busy ones with lots of human activity. It is also quite close to the outside so the sounds of the traffic outside are also audible inside, making for an interesting soundscape. I did recordings at 9.20 in the morning, 1.00 pm in the afternoon and at 5.30 in the evening. I chose a weekday as that is when the presence of Mumbai's working class is most palpable.

Interior and exterior of CST

Analysis

Soundscapes have a tendency of changing drastically with time or with distances as little as few meters. For analysis of soundscapes on temporal basis, one needs to break down the basic components of the whole acoustic environment and set them in a time frame. Sounds in a soundscape need to be identified, and classified as per the type, function and means. Loudness, repeat pattern, sharpness, purpose, human/machine etc.
Here is the classification of sounds at the CST local train station at platform 1.

Legend (In Amplitude)

- Low
- Medium
- High

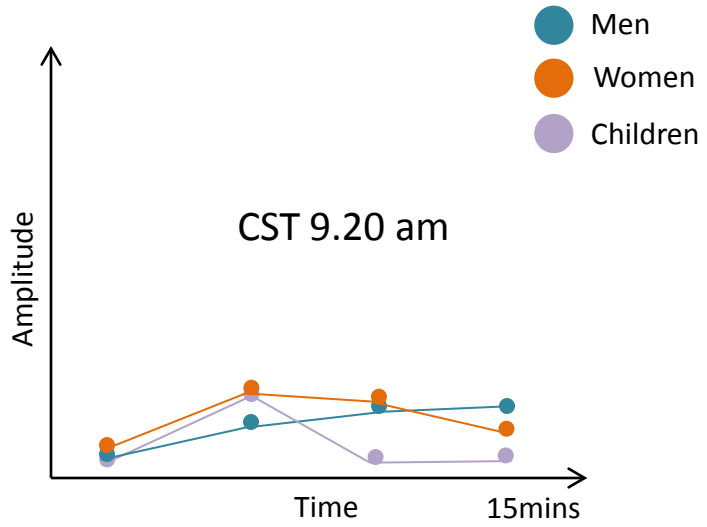
	CST Morning	CST Afternoon	CST Evening
Human/ Nature Sounds	footsteps, shuffling feet, crows, men & women talking, shouting out, coughing, bangles, anklets, Cleaners brooming	footsteps, shuffling feet, Crows, men & women talking loudly, calling out to each other, haggling, shouting out, kids' playful sounds, coughing, spitting bangles, anklets.	footsteps, shuffling feet, crows, men & women talking, shouting out, coughing, bangles, anklets, Cleaners brooming
Machine Sounds	Train Announcements, Beeping Indicator for visually impaired, screeching of trains, Train horns, traffic horns and sounds, bus bells, freight cart moving, whir of train engines	Train announcements, Beeping Indicator for visually impaired, screeching of trains, Train horns, traffic horns and sounds, bus bells, freight cart moving, metal carriers, whir of train engines	Train announcements, Beeping Indicator for visually impaired, screeching of trains, Train horns, traffic horns and sounds, bus bells, freight cart moving, whir of train engines
Repetitive Sounds	Train announcements, Trains pulling in and going, Beeping indicator for visually impaired	Train announcements, Trains pulling in and going, Beeping indicator for visually impaired	Train announcements, Trains pulling in and going, Beeping indicator for visually Impaired
Talking (personal)	People speaking to each other, mumbling, people on phone	People speaking to each other, shouting to each other from farther, children calling out, leisurely discussions	People speaking to each other, mumbling, people on phone
Attention Seeking	People shouting out (to strangers)	People shouting out (to strangers), commercial calls	People shouting out (to strangers), commercial calls

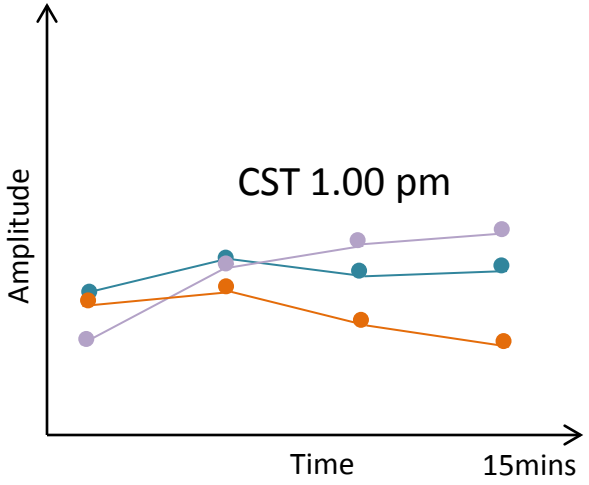
What a place sounds like has the greatest bearing on the character or ‘mood’ of a place. But simply classifying the sounds or breaking them down is not enough to ascertain which elements are instrumental in it. One also has to look closely at the tone and tension of the human voices in that environment. It is the people’s behaviour and interactions with that place that give it its character.

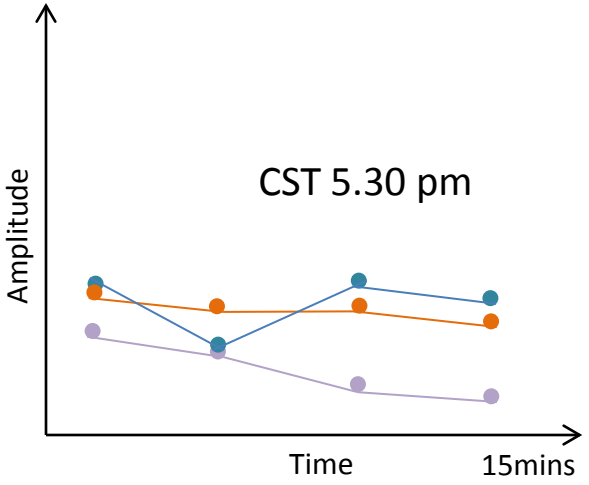
At CST Morning, the human conversations were less and low in volume. Sounds of people’s footsteps exceeded the sounds of people’s voices. At afternoon, the whole mood changed, while people’s voices louder but not in a harsh way, in a more relaxed

way. Children's playful irreverent shouts could be heard as it was the time for them to return from school. Their buoyancy on feeling free after the school-day translates into a mood of liberty to the whole experience of the places including the soundscape. At evening, the voices are mostly those of people going back home after work and though, the amplitude levels are almost as high as the ones in the afternoon, the mood is definitely different. There is a sense of urgency and pragmatism this time.

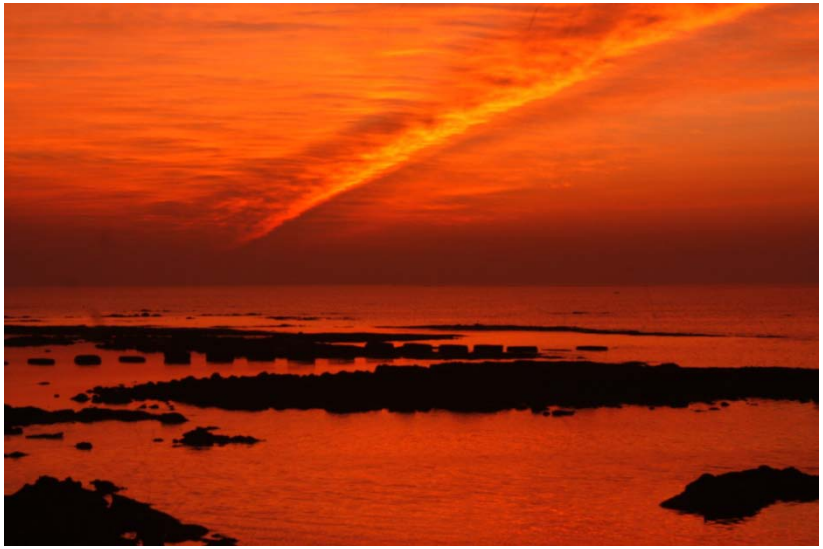
Below I've charted out the amplitude of men, women and children's voices at the different times of day recorded by me.

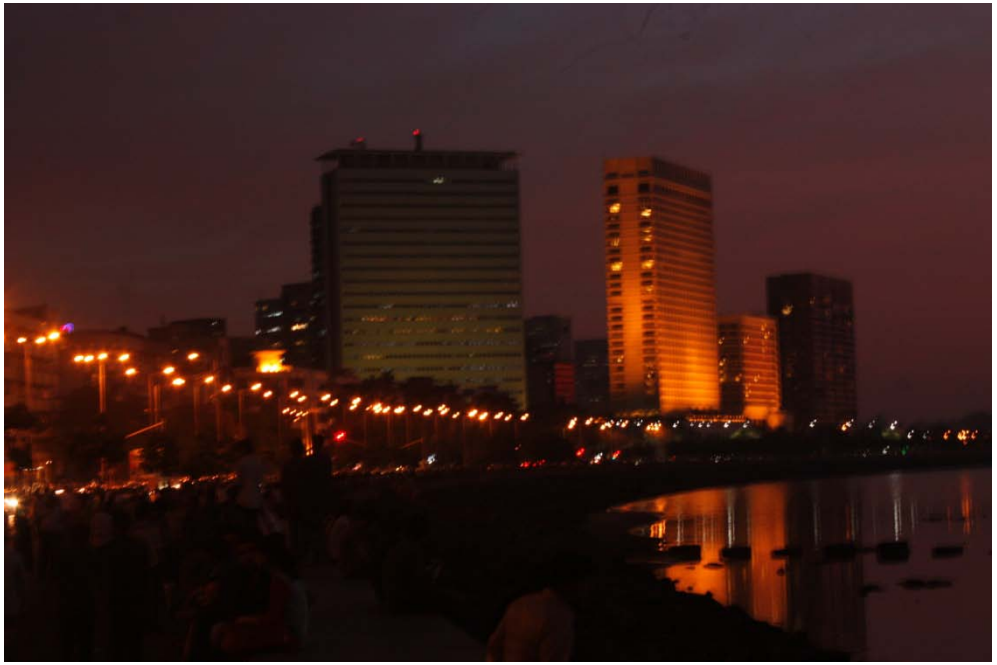






In comparison with CST local train station, the mood of Marine Drive is completely different. Where one stands for the hustle bustle of Mumbai, the other stands for the respite and personal moments of the people of Mumbai. Marine Drive is a ‘C’ shaped concrete road along the coast which is a natural bay. Its official name, rarely used, is Netaji Subhash Chandra Bose Road. Around evening as it becomes dark the whole stretch of the road lights up and given its ‘C’ shape it’s also called the Queen’s Necklace. Evening is also the time when the people of Mumbai come out of their homes and offices to enjoy the sea breeze and share some light moments.





The soundscapes of Marine Drive at two different times of the day was quite interesting as the place transforms entirely as the sun starts to set. The place begins bubbling with laughter and carefree conversations float around. Voices are very expressive and unfettered. People come, find a good spot and stay put for a couple of hours. Whereas, in the daytime, people mostly come alone, sit for some time and go away with in minutes.

	Marine Drive Daytime	Marine Drive Evening
Machine Sounds	Moving traffic, traffic horns, Bus bells	Moving traffic, traffic horns, Bus bells
Birds	Birds chirping, crows cawing	Crows cawing
Human Sounds	People talking, People on phone	People talking, laughter, whispers, people on phone, beggars, vendors
Wind/Water	Occasional sounds of moving water, gusts of wind	Occasional sound of wind
Commercial Sounds	-	Vendors calling out for 'chai', 'mineral water', 'samosa' etc.
Repetitive Sounds	Traffic, horns	Traffic, horns, vendors calling out, people talking

Legend (In Amplitude)

- Low
- Medium
- High

Findings

By breaking down and analyzing the sounds of a soundscape, it became possible to identify how some sounds are extremely characteristic of a place and are responsible for building the entire ambience of that place. Also links between contextual co-relations between the sounds and people's interactions with a place were highlighted. I also understood how much does the socio-cultural scenario of the city affect people's behaviour in a place, which in turn affects the acoustic ecology.

Indians have always been very vocal people. The same stretch of Marine Drive where people only came alone and sat few and far between, looking blankly at the sea wordlessly becomes a place seething with life as soon the all pervasive working class of Mumbai gets free from their offices.

Representation

After collecting some really amazing soundscapes, I decided to try some visual explorations of the same.
Following some thought and experimentation, I decided to stick to the advice given by Prof. CP Narayan sir about the representation part of my project and following his advice I tried painting everything black, gray and white. According to him, the soundscapes are already very vivid and majestic, the visuals I make should not clash with them and only aid them.
So I did some painting and made have tried depicting the different places I recorded soundscapes of, as abstract collages.

I have used some of the sketches I had made on the spot while recording and others I sketched anew, simply by memory while listening to the recordings later.

In the representations, I have tried to montage the visuals like the layered quality of the soundscapes. Sounds from different sources come together and constitute the soundscape, similarly, I have depicted the various sources of the sounds in a packed and complex composition.

Like the first two collages were populous with visuals as they depicted the bustling soundscape of CST station, the last two are calmer as they show the Marine Drive soundscape.

I’ve selected to depict only those elements, the sounds of which were highly characteristic to that particular soundscape, in no specific order, somewhat like what a blind person might imagine the place to be like by just listening to the sounds.

There is scope in the visualizations to be made into an animation or slowly moving motion graphic. The soundscapes are perfect to be made into background scores. The detail of the sounds would help the viewer read detail into the cryptic stylized visuals.

Application

The application of this project was not just understanding the smaller constituents of greater soundscapes but also understanding how much they are affected by the human behaviour. The study has been important in gaining insight into the fabric, tone and character of a place. Anyone who wishes to delve deep into studying the ambient identity of a place must study the soundscapes of the place at different times of the day to comprehend it fully.

The resultant study and recordings are greatly useful for dramatic visual explorations. As a film-maker, I find the role of this project crucial in understanding how to construct the background scores for a film. All the elements that go into the making of a grand and authentic acoustic environment have been examined at length and can help any animator and film-maker come up with better sounds for their films.

Conclusion

Working on this project was a great experience. Not only did it increase my understanding of the sonic perceptions of a place, but it also instilled a strange stillness and a knack for observing, dissecting sounds in my head. Simply collecting the data for this project was like a zen exercise. One has to switch on the recorder and place it nearby, but thereafter, not move, not speak just sit still. I couldn't read a book because the page flips would get recorded too, I couldn't even sneeze. But in this compulsory silence I suddenly woke up to all the myriad sonic quirks that we miss each day.

Our eyes do a great job of describing a place to us, but there exist those small beautiful details that only sound can elucidate. It feels great to know and capture the essence of a place, what actually gives it its character and identity. Studying sounds is really the key to understanding a place.

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