

INSIGHT

A retreat for synaptic symbiosis and self-autonomy

by

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This project is dedicated to my father, Late Mir Md. Iqbal Hossain, who was one of the biggest inspirations of my life. It's because of his departure from this world, I was inspired to create a project like this, because until you feel the sorrows of life this personally, you never really realize what life demands from you.

This project is for all those who has faced life's bitterness and think that they are not good enough for the world. It's a message to you all, "you are special" and believe that you have the power over your mind more than anyone else.

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Chapter 01

Background of the project

1.1 Project Brief

1.2 Project Introduction

1.3 Rationale of the project

1.4 Aims and Objectives of the project

1.5 Major programs

Background of the Project

This project is unique in a sense that there is no existing as such. Also implying there is no given site or program. It is an architectural response to the existing socio-cultural scenario of Dhaka city. The goal is to engage all sorts of people in a collective space and thus in the process uplift the society through sharing and learning about how one can control their inner self only by controlling their brain in the right direction.

1.1 Project Brief:

Title: INSIGHT_a retreat for synaptic symbiosis and self-autonomy

Project type: An Experiential Edutainment Center

Site location: As there is no proposed project as such there is no specific site for the project as well. But it demanded a central location, well connected to the rest of the city, situated around a variety of functional zones so as to attract and include as much people as possible. Thus the Aarong, 346 Tejgaon I/A, selected as the site as it connects different functional areas around Dhaka City.

Site area: 5.93 acres/ 258183 sq ft

Client: Bangladesh Psychological Society/MQ Mission

1.2 Project Introduction:

INSIGHT, will be a multidisciplinary platform that will provide an experiential edutainment center which will act as place of learning about one's own self that is it will deal will functions related to human brain and how it works.

Humans are consider as the greatest of all creation because of their ability to imagine and use their brain in many different ways which any other creation fails to do. Brain is that part of the human body which helps a man to perform, sense, perceive, realize and visualize. So basically, what's, how's and why's of man are totally and completely related to his brain. A person whose brain functions normally is considered to have a healthy brain, whereas the terms autistic, psycho, retard and mad are used for the people who are suffering from actual nerve and connection problem in there brain. Even though it is thought that other than people with psychological problem, the rest of the normal people doesn't face any neuron and psychological problem is not a right thing to say, because anyone and everyone of has autistic symptoms or psychological problems. The mental feeling like depression, frustration, anxiety, trauma, numbness, over excitement are all signs of people suffering from psychological imbalance.

The present situation and statistics of human behavior and nature clearly states that each and every one of us is and will be suffering from brain related problems, may be not major to turn to a mad person but may be major that might influence them to committing suicide.

So the idea behind the project is to create a space for these so-called normal people who actually suffer from disabilities and yet don't know how to face them and come out of them. Moreover they'll be able to learn many unlearned things as well as unlearn many learned things. The spaces can be as such that people can explore themselves and their surroundings. The research zone will deal with the psychological factors and will come up with ideas and techniques as to how these people can enhance themselves. The library and audio-visuals will provide various books related to brain games and insightful knowledge that will further add to it.

1.3 Project Rationale:

Psychology is that field of medical science that deals with the brain, most critical part of human body in a more abstract way. It deals with the problems of human brain and behavior without help of any medication. Psychological illness are something that anyone and everyone face in our day today life. It's not something unusual that one has to be ashamed to come up with it.

The idea of the project is to create a nature of acceptance that anyone suffer from even slightest bit of mental/ psychological distress and it is not a difficult task to control it if only one knows the whole scenario of how to deal with one's inner powers. Brain is that very essence any human being possess that try to give signals and signs as to how to cope with all the problems. So if the notion of understanding the difficulties become clear, there will be a possibility that people will be able to bring good to themselves as well as their surroundings.

In context of Bangladesh, a project like this is necessary in order to uphold the glory of being Bangladeshi. As a nation we have a very glorious background. With the passage of time and with the idea of a "Digital Bangladesh" which is not being used in a fruitful way, the new generation is not focusing on how to improve themselves. In a city where the idea of an open field is on the verge of being a myth, where new generations are focusing on fast food rather than homemade food, where children are focusing on who has got the most expensive toy cars, and who has got the most expensive smart phone, so in a city like that which is trying adopt to all the western cultures other than holding onto one's own culture, the rate of depression and mental disorder will rise no matter what. So in order to make the young generation, kids and adults of the present situation understand the importance of self-insight and self-development, and how to deal with the slightest possible psychological disorder, a center like this is an absolute necessary.

1.4 Aims and Objectives of the Project:

Aims:

1. Create a platform for the people who are hesitant as well as unaware of their potentials and abilities.
2. Understanding the impulse and credibility of the human brain
3. Making it easy for people to grasp their power over themselves.
4. Creating a platform that will help oneself to overcome initial stages of mental disorder.

Objectives:

1. To explore human capacity
2. To understand the strength of human brain
3. To normalize the idea of having psychological disorders.
4. To ease it out how to control one's inner self.

1.5 Program:

Psychological zone:

Research center for brain synapses and psychological analysis.
Therapy and counseling facilities through Cognitive Behavioral Facilities.

Meditation zone:

Meditation facilities by Silva Ultra Mind System
Religious facilities

Museum:

Basics of the human brain
Display area for how synapsis work
Spaces that create a journey for exploring oneself

Others:

Library for audio visuals.
Conference and Seminar rooms
Recreational open, semi-open and closed spaces
Administration
Food zones
Parking

Chapter 02

Site Appraisal

2.1 Location of site

2.2 Site and Surroundings

2.2.1 Existing site

2.2.2 Adjacent land use

2.2.3 Road network urban connection

2.3 Climatic and Environmental consideration

2.4 SWOT Analysis

2.5 Photographs

Site Location

As there is no allocated site for the project, a number of potential sites were initially chosen that complies with the conditions required for such project.

2.1 Site location

The site to be chosen had to be very strategic. The site had to attract as much people as possible. As a result the site that was taken is located right at the center of the city. The site required a location that is surrounded by mixed use development and public spaces of different scales.

The exact site chosen is the Gulshan-Tejgaon-Badda nodal point, presently location of BRAC Aarong. The reason for taking this part is that it is surrounded by major roads, various standards of housing and most importantly it is surrounded by major civic spaces.



Fig 2.1 Dhaka City Map to show the site

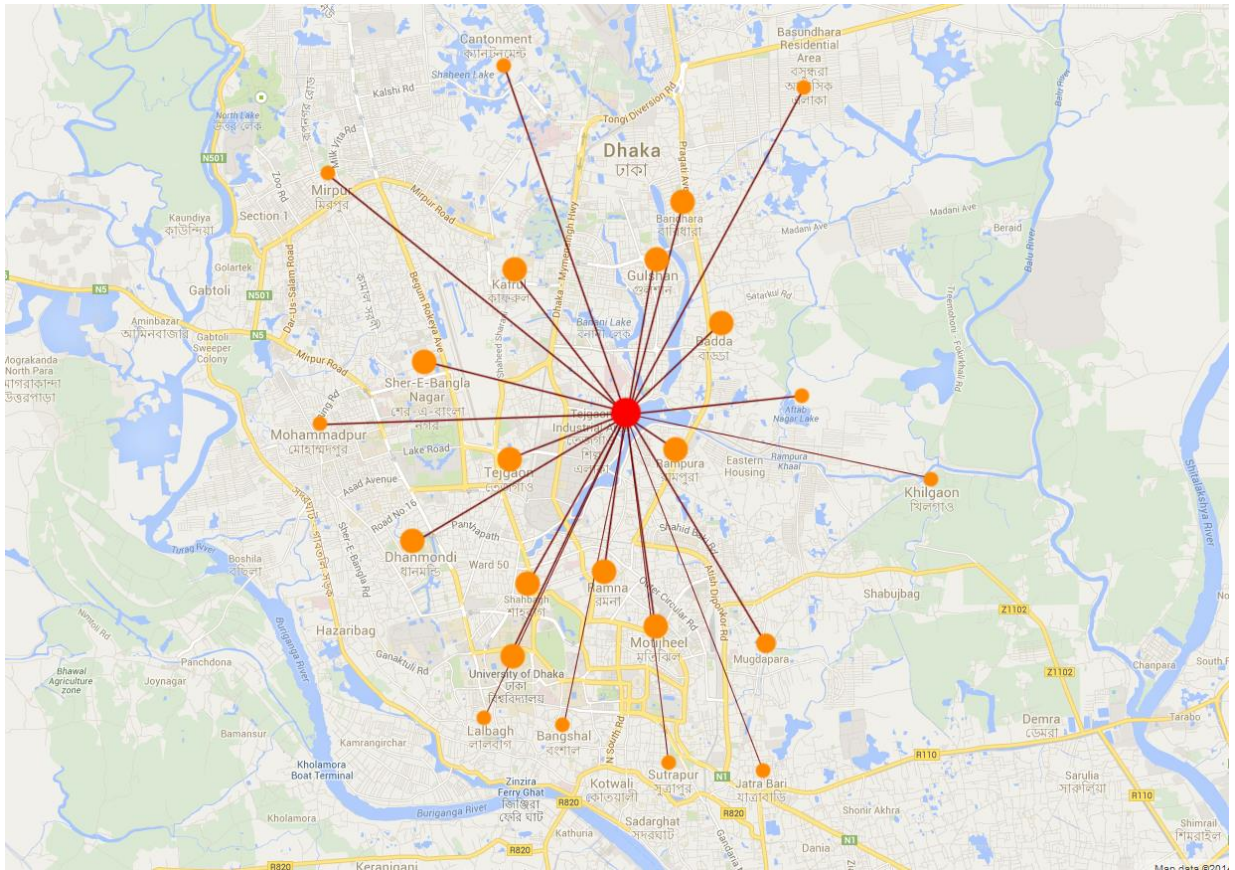


Fig 2.3 Proximity from different location of Dhaka City. Source: Google Maps

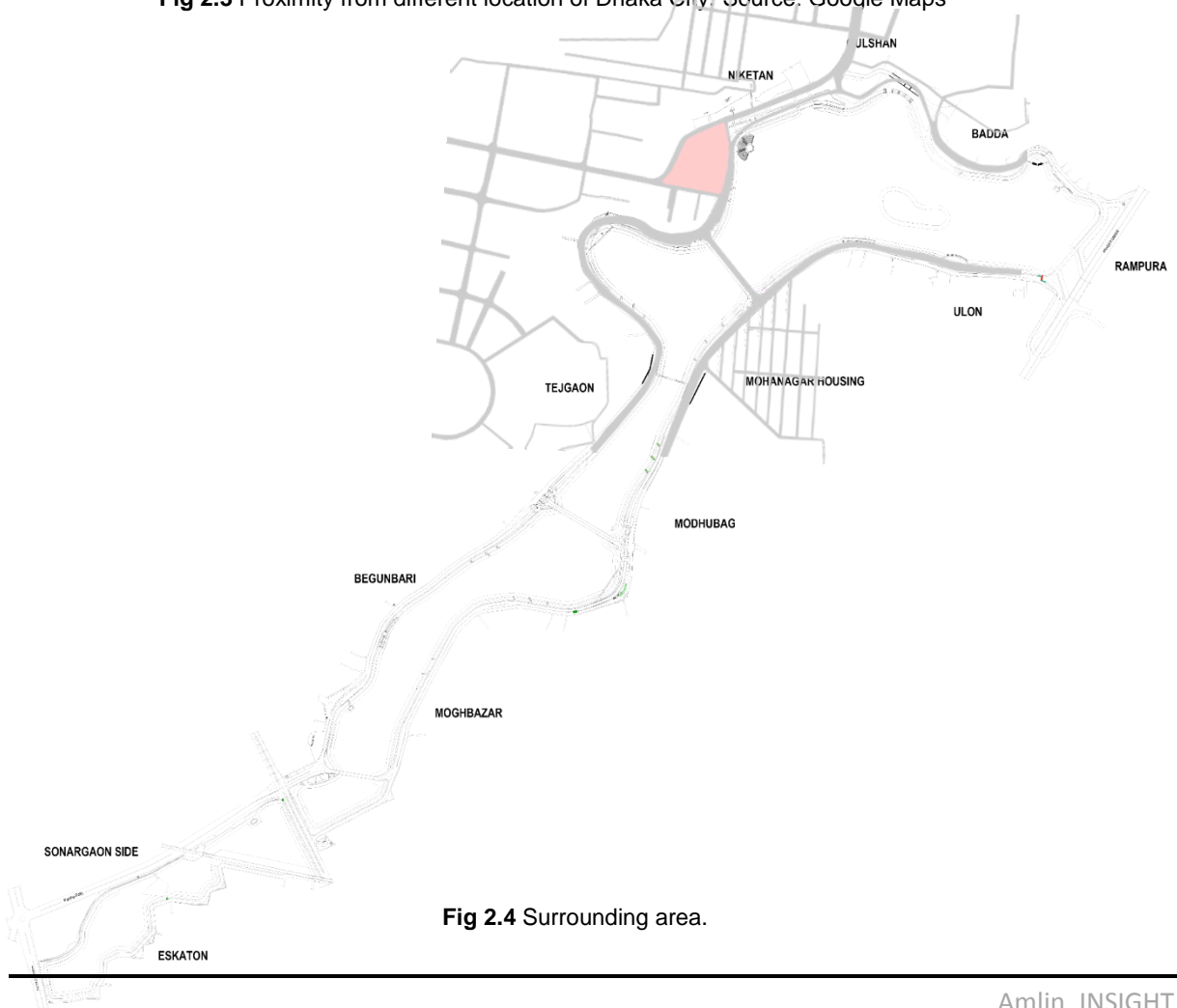


Fig 2.4 Surrounding area.

2.2.2 Adjacent land use

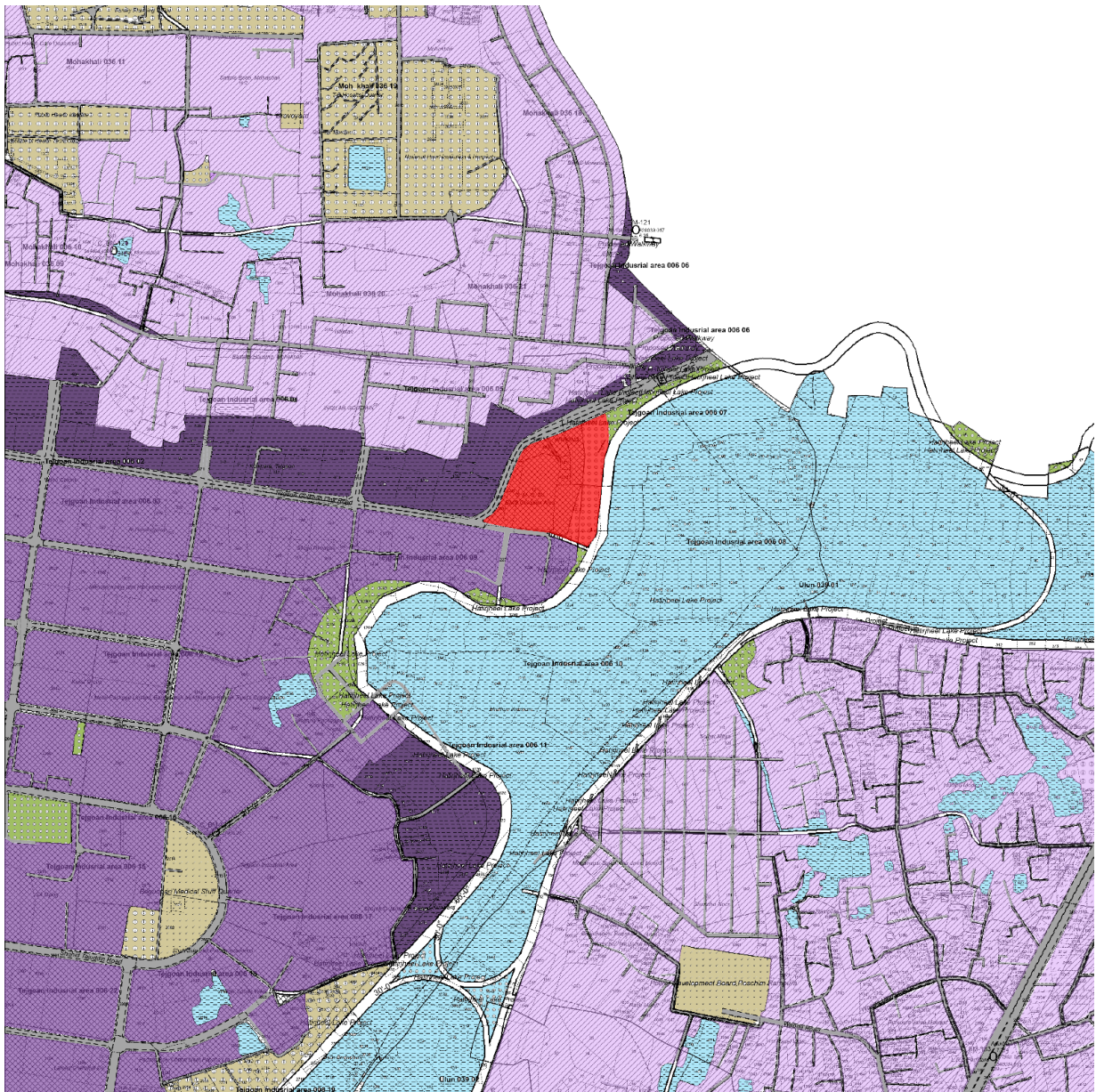
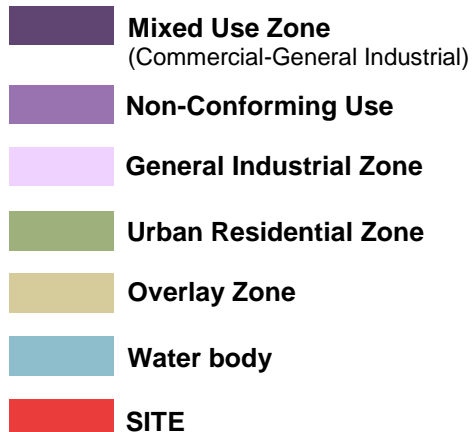


Fig 2.3 Land use pattern, DMDP

Detailed Area Plan for **DMDP** Area



Currently the site falls under the 300ft future development zone of Hatirjheel-Begunbari development project. The site is surrounded by the residential zones of the Niketon housing and few industries and car shops. The site is a potential and strategic zone for creating a project like this, since it can attract all kinds of audience from all over Dhaka city. Since the target audience was mainly city dwellers, who can't take a break from their normal life and relax. Thus the site was chosen to provide a convenient access and the existing water body of Hatirjheel will add to the design.

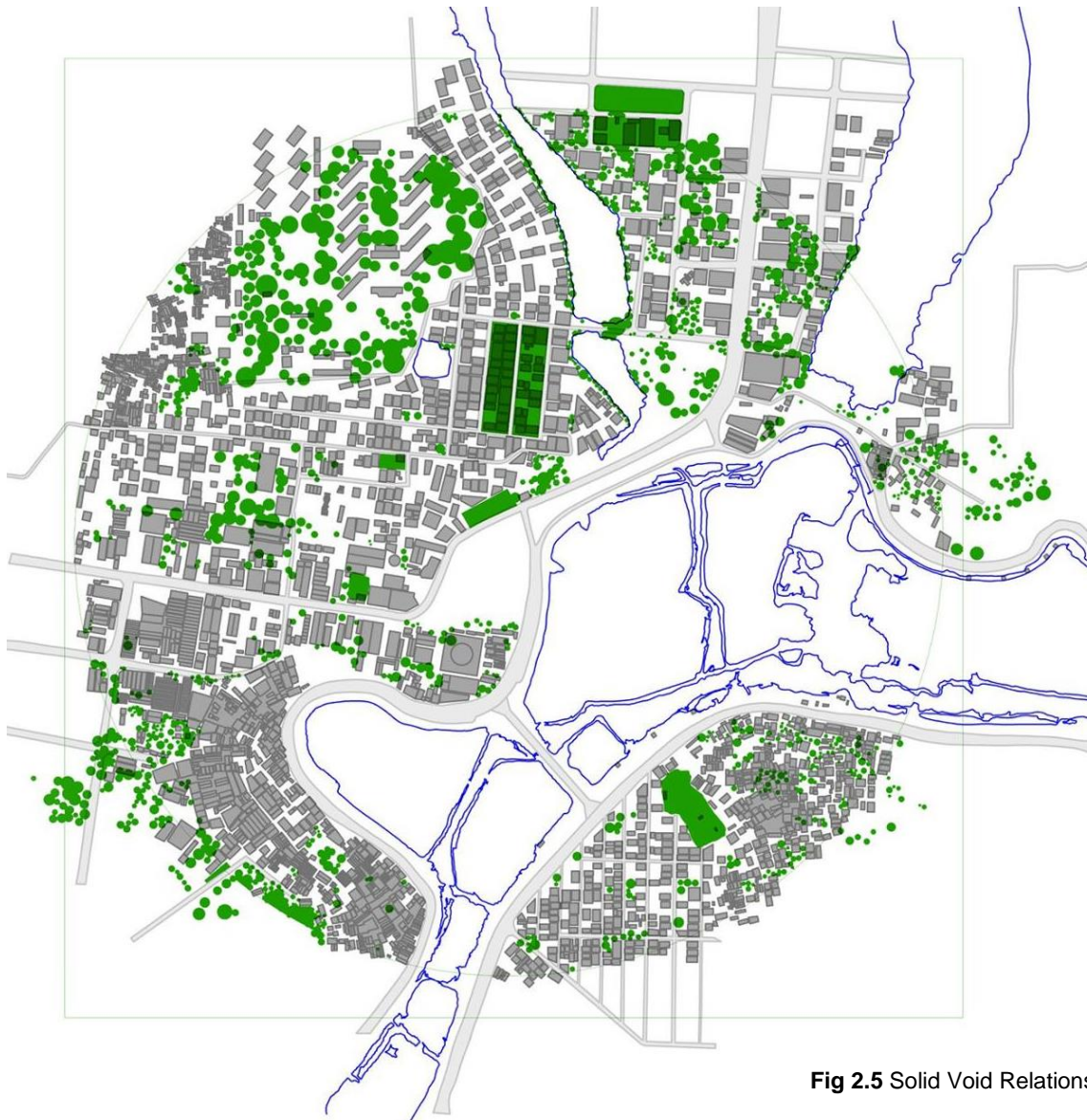


Fig 2.5 Solid Void Relationship



2.2.3 Road network urban connection

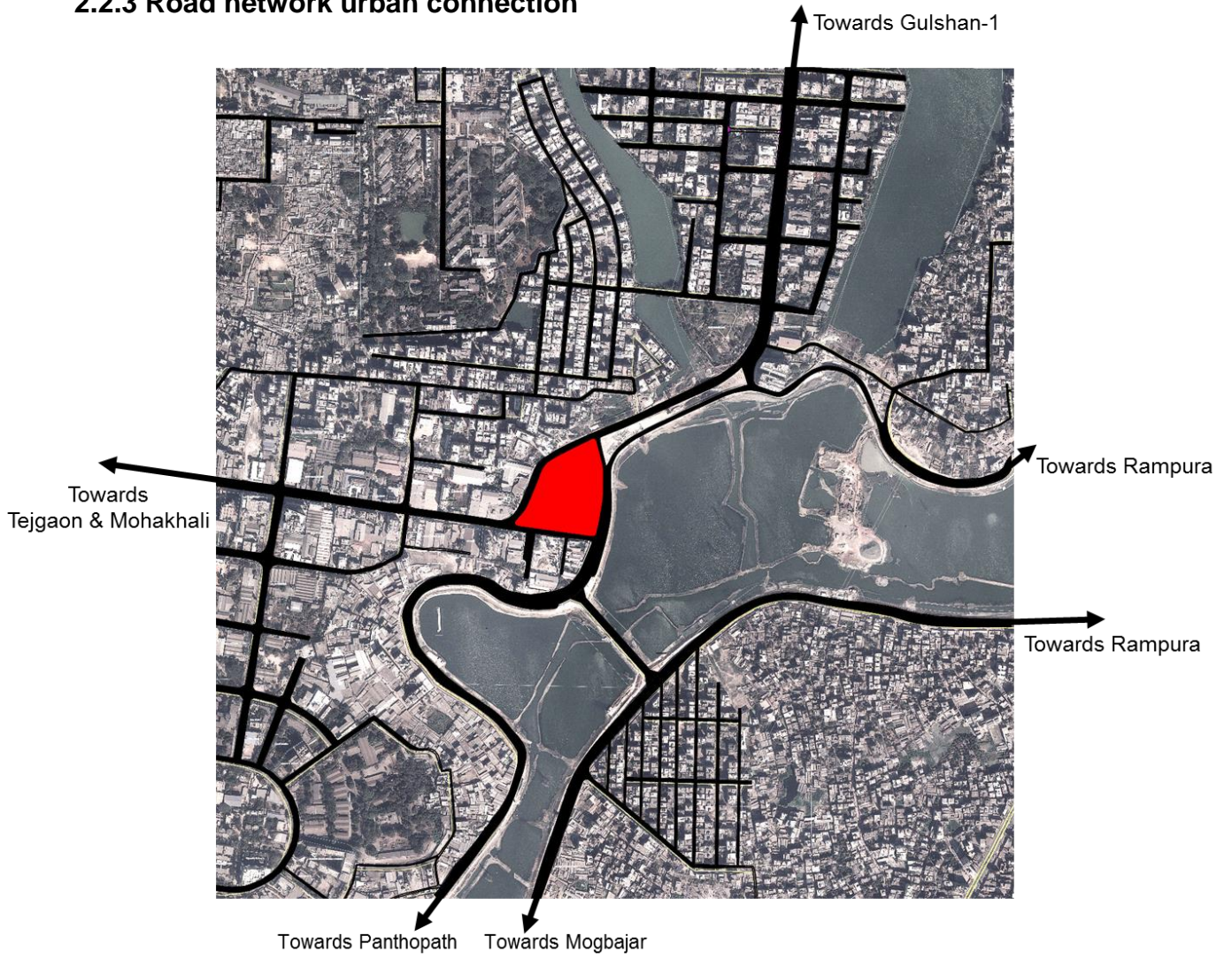
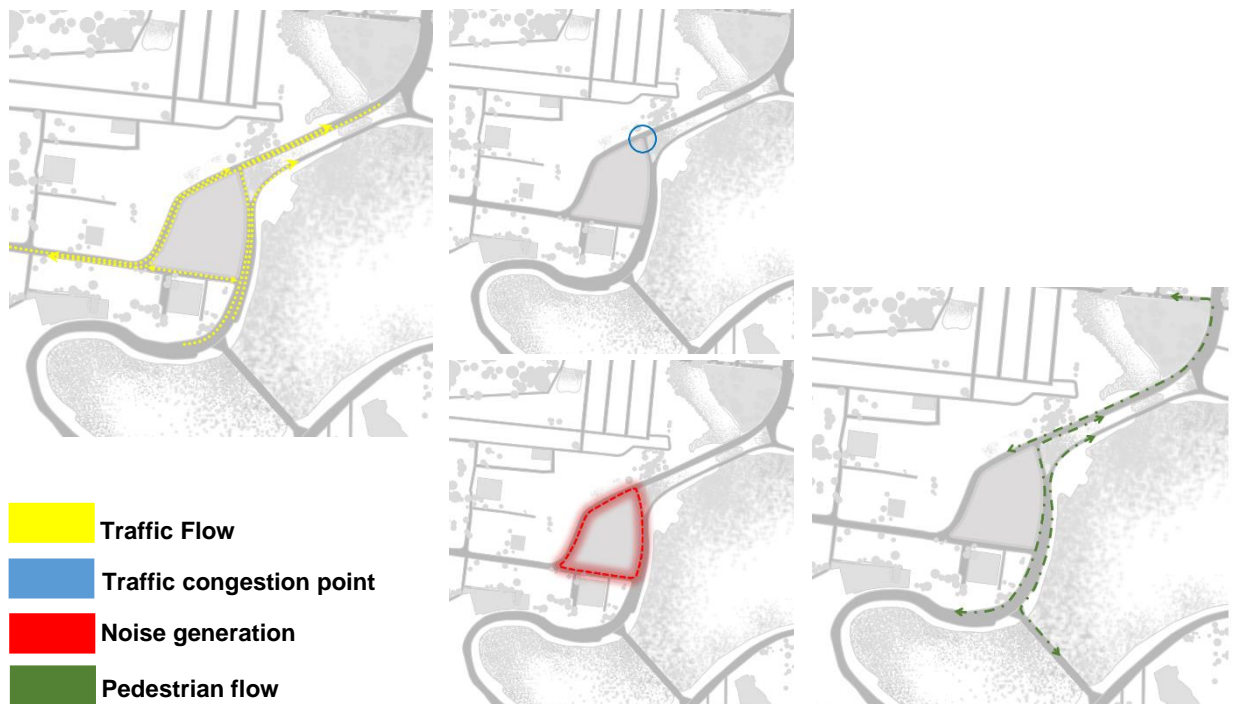


Fig 2.6 Road network



- Traffic Flow
- Traffic congestion point
- Noise generation
- Pedestrian flow

2.3 Environmental considerations

In many research studies the Tejgaon area is significantly mentioned as the most polluted area of Dhaka city in terms of sound, air and soil pollution. Tejgaon as it is an industrial area and Gulshan as a missed use and residential zone. But the gradual development of the city is making this Tejgaon a mix of commercial and industrial use. Many industries are being moved from this area to the out skirts of Dhaka city for reducing the environmental damage caused by them.

As a fabric of mixed use contents, the temperature of Tejgaon/Gulshan is slightly different from the rest of the Dhaka. The air is more carbonated and hotter. On the other hand the presence of Hatirjheel is relatively better as it has a lot more green, water and open space. As the site is located in the transition between these two different environments it is always a challenge to flow the positive environment and defeat the negative one.

Climate Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max Temperature °C (°F)	28 (82)	28 (82)	32 (90)	34 (93)	33 (91)	32 (90)	31 (88)	31 (88)	31 (88)	31 (88)	29 (84)	26 (79)	31 (87)
Average Temperature °C (°F)	22 (72)	21 (70)	26 (79)	28 (82)	29 (84)	29 (84)	29 (84)	29 (84)	29 (84)	27 (81)	24 (75)	20 (68)	26 (79)
Average Min Temperature °C (°F)	16 (61)	15 (59)	20 (68)	23 (73)	24 (75)	26 (79)	26 (79)	26 (79)	26 (79)	24 (75)	19 (66)	14 (57)	22 (71)

Fig 2.4 Solid Void Relationship

Average Precipitation mm (in)	8 (0)	32 (1)	61 (2)	137 (5)	245 (10)	315 (12)	329 (13)	337 (13)	248 (10)	134 (5)	24 (1)	5 (0)	1875 (74)
Number of Wet Days (probability of rain on a day)	2 (6%)	3 (11%)	5 (16%)	9 (30%)	15 (48%)	21 (70%)	26 (84%)	25 (81%)	19 (63%)	8 (26%)	2 (7%)	1 (3%)	136 (37%)

Average Daylight Hours & Minutes/Day	10h 50'	11h 19'	11h 58'	12h 40'	13h 15'	13h 33'	13h 25'	12h 55'	12h 15'	11h 33'	10h 58'	10h 41'	12h 00'
Sun altitude at solar noon on the 21st day (°).	46.4	55.7	66.5	78.2	86.5	89.6	86.5	78.5	67.1	55.5	46.4	43	66.6

Fig 2.7 Climatic chart Source: www.dhaka.climatemps.com

2.4 SWOT Analysis

Strength:

- Has a surrounding water body which will provide for pleasant views and a source of fresh wind.
- It will act as integrating point in between the surrounding industrial Tejgaon area and the more commercial cum residential area covered by the Gulshan-I and Gulshan-II

Weakness:

- Influx of traffic during the office opening and closing hours.
- Surrounding street acts as a source of noise.
- Surrounding urban landuse has an absence of adequate vegetation

Opportunity:

- Presence of Hatirjheel-Begunbaari canal project

Threat:

- In the future there could be an increased rate of traffic due to interconnection with the Hatirjheel-Begunbaari Canal Project.
- Increased population.
- Pollution.

2.5 Photographs



Chapter 03

Literature Review

3.1 What is Insight, a retreat for synaptic symbiosis and self-autonomy?

3.2 Anatomy of the Brain and the Nervous System

3.2.1 Different parts of Human Brain

3.2.2 The Parts of the Nervous System

3.2.3 The Neuron and Synapses

3.4 A Walk through Human Mind

3.4.1 How they work together

3.4.2 The Difference between the Mind and the Brain

3.4.3 Why it's important to add the mind to the equation

3.5 Psychology Basics

3.6 This Is Your Brain on Music

3.6.1 Our music choices can predict our personality

3.6.2 How does Music affect your Mood?

3.6.3 Negative Effects that Music Can Have

3.7 Silva Ultra Mind Meditation Method

3.7.1 Technique and Brain frequencies

3.7.2 Capabilities

3.1 What is Insight, a retreat for synaptic symbiosis and self-autonomy?

The phrase “silver lining” is a metaphor for optimism, which is complimented by the word “retreat”, meaning a quiet or secluded or solitude place in which one can rest and relax. So the idea is to create a secluded place within the city that can help people to obtain optimistic human nature.

The world has come to a place where we take about global warming, corruption, natural calamities, world wars, and what not. For once have we thought of what can actually bring a change to all this disasters? The focus of all these problems, notions and worries is Man. There are place for the autistic children to overcome their shortcomings besides the asylums for the mentally crippled people, but the sufferings and difficulties that a so-called human being faces is mostly overlooked. There are psychological treatments and what not for them. But do we really feeling encouraged to open up to someone with our problems? There is always a bump feeling that one might get judged for their weaknesses.

Thus the center will help and encourage anyone and everyone to come out and focus on their well-being and try to attain inner peace.

In science the definition of energy is, “Energy is neither created nor destroyed, it can only be transformed form one form to another”. Human thought and feeling are also a kind of energy. Basically everything in this world is a form of energy, so one form of energy attracts another form easily. Whatever we think, want and desire is transmitted through these energy levels surrounding us and exactly that same thing happens to us. Newton’s laws of attraction is the key point to be noted here. He said, “Every action has an equal and opposite reaction”. Our thoughts and desires are our mental action, so these action will have an equal impact on our lives one way or other.

Life will treat us with difficulties and problems, which will affect our personalities and attitude tremendously, that is, it will affect our brain nerves, so this center will be able to make them realize these shortcomings and will help to overcome.

Japanese scientist, Masaru Emoto has done an experiment with different positive and negative



words and the impact of the energy they create on molecules of water. The result shows what astonishing examples of molecules reacting according to the word they have been told.

Fig 3.1 Experiment Result of Masaru Emoto, Source: Google

3.2 Anatomy of the Brain and the Nervous System

The brain is the body's control center, managing just about everything we do. Whether we're thinking, dreaming, playing sports, or even sleeping, the brain is involved in some way. A wonder of evolutionary engineering, the brain is organized into different parts that are wired together in a specific way. Each part has a specific job (or jobs) to do, making the brain the ultimate multitasker. Working in tandem with the rest of the nervous system, the brain sends and receives messages, allowing for ongoing communication.

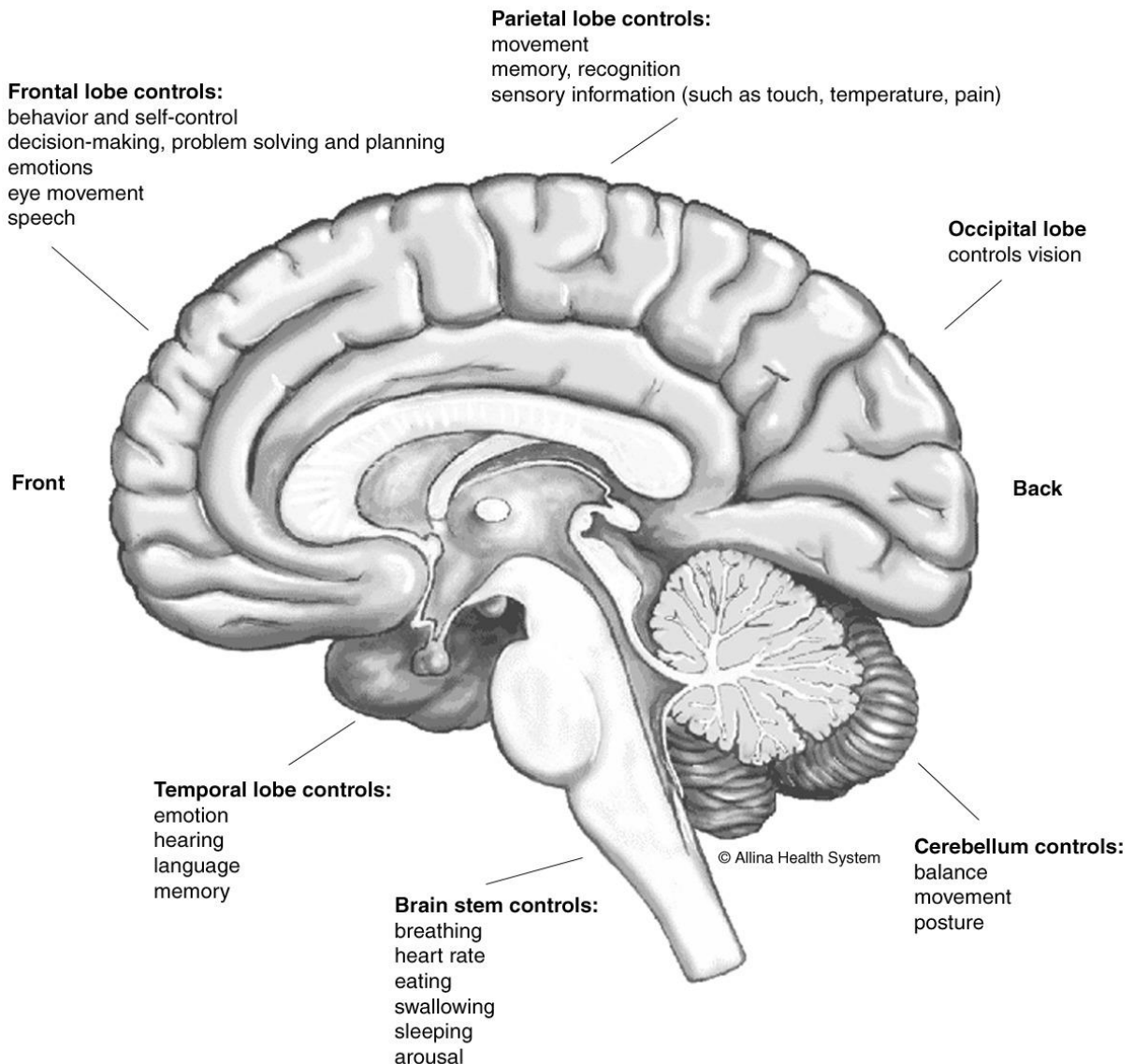


Fig3.2 Different parts of a human brain, Source: Google

3.2.1 Different parts of Human Brain

The cerebrum, the largest part of the human brain, is associated with higher order functioning, including the control of voluntary behavior. Thinking, perceiving, planning, and understanding

language all lie within the cerebrum's control. The cerebrum is divided into two hemispheres — the right hemisphere and the left hemisphere. Bridging the two hemispheres is a bundle of fibers called the corpus callosum. The two hemispheres communicate with one another across the corpus callosum.

Covering the outermost layer of the cerebrum is a sheet of tissue called the cerebral cortex. Because of its gray color, the cerebral cortex is often referred to as gray matter. The wrinkled appearance of the human brain also can be attributed to characteristics of the cerebral cortex. More than two-thirds of this layer is folded into grooves. The grooves increase the brain's surface area, allowing for inclusion of many more neurons.

The function of the cerebral cortex can be understood by dividing it somewhat arbitrarily into zones, much like the geographical arrangement of continents.

The frontal lobe is responsible for initiating and coordinating motor movements; higher cognitive skills, such as problem solving, thinking, planning, and organizing; and for many aspects of personality and emotional makeup.

The parietal lobe is involved with sensory processes, attention, and language. Damage to the right side of the parietal lobe can result in difficulty navigating spaces, even familiar ones. If the left side is injured, the ability to understand spoken and/or written language may be impaired.

The occipital lobe helps process visual information, including recognition of shapes and colors.

The temporal lobe helps process auditory information and integrates information from the other senses. Neuroscientists also believe that the temporal lobe has a role to play in short-term memory through its hippocampal formation, and in learned emotional responses through its amygdala.

All of these structures make up the forebrain. Other key parts of the forebrain include the basal ganglia, which are cerebral nuclei deep in the cerebral cortex; the thalamus; and the hypothalamus.

The cerebral nuclei help coordinate muscle movements and reward useful behaviors; the thalamus passes most sensory information on to the cerebral cortex after helping to prioritize it; and the hypothalamus is the control center for appetites, defensive and reproductive behaviors, and sleep-wakefulness. The midbrain consists of two pairs of small hills called colliculi. These collections of neurons play a critical role in visual and auditory reflexes and in relaying this type of information to the thalamus.

The midbrain also has clusters of neurons that regulate activity in widespread parts of the central nervous system and are thought to be important for reward mechanisms and mood.

The hindbrain includes the pons and the medulla oblongata, which control respiration, heart rhythms, and blood glucose levels.

Another part of the hindbrain is the cerebellum which, like the cerebrum, also has two hemispheres. The cerebellum's two hemispheres help control movement and cognitive processes that require precise timing, and also play an important role in Pavlovian learning.

The spinal cord is the extension of the brain through the vertebral column. It receives sensory information from all parts of the body below the head. It uses this information for reflex responses to pain, for example, and it also relays the sensory information to the brain and its cerebral cortex. In addition, the spinal cord generates nerve impulses in nerves that control the muscles and the viscera, both through reflex activities and through voluntary commands from the cerebrum.

3.2.2 The Parts of the Nervous System

The forebrain, midbrain, hindbrain, and spinal cord form the central nervous system (CNS), which is one of two great divisions of the nervous system as a whole. The brain is protected by the skull, while the spinal cord, which is about 17 inches (43 cm) long, is protected by the vertebral column.

The other great division of the human brain is the *peripheral nervous system* (PNS), which consists of nerves and small concentrations of gray matter called ganglia, a term specifically used to describe structures in the PNS. Overall the nervous system is a vast biological computing device formed by a network of gray matter regions interconnected by *white matter* tracts.

The brain sends messages via the spinal cord to peripheral nerves throughout the body that serve to control the muscles and internal organs. The somatic nervous system is made up of neurons connecting the CNS with the parts of the body that interact with the outside world. Somatic nerves in the cervical region are related to the neck and arms; those in the thoracic region serve the chest; and those in the lumbar and sacral regions interact with the legs.

The *autonomic nervous system* is made of neurons connecting the CNS with internal organs. It is divided into two parts. The *sympathetic nervous system* mobilizes energy and resources during times of *stress* and arousal, while the *parasympathetic nervous system* conserves energy and resources during relaxed states, including sleep.

Messages are carried throughout the nervous system by the individual units of its circuitry: neurons. The next section describes the structure of neurons, how they send and receive messages, and recent discoveries about these unique cells.

3.2.3 The Neuron

Cells within the nervous system, called neurons, communicate with each other in unique ways. The neuron is the basic working unit of the brain, a specialized cell designed to transmit information to other nerve cells, muscle, or gland cells. In fact, the brain is what it is because of the structural and functional properties of interconnected neurons. The mammalian brain contains between 100 million and 100 billion neurons, depending on the species. Each mammalian neuron consists of a *cell body*, *dendrites*, and an *axon*. The cell body contains the nucleus and cytoplasm. The axon extends from the cell body and often gives rise to many smaller branches before ending at *nerve terminals*. Dendrites extend from the neuron cell body and receive messages from other neurons. *Synapses* are the contact points where one neuron communicates with another. The dendrites are covered with synapses formed by the ends of axons from other neurons.

When neurons receive or send messages, they transmit electrical impulses along their axons, which can range in length from a tiny fraction of an inch (or centimeter) to three feet (about one meter) or more. Many axons are covered with a layered myelin sheath, which accelerates the transmission of electrical signals along the axon. This sheath is made by specialized cells called *glia*.

The brain contains at least ten times more *glia* than neurons. *Glia* performs many jobs. Researchers have known for a while that *glia* transport nutrients to neurons, clean up brain debris, digest parts of dead neurons, and help hold neurons in place. Current research is uncovering important new roles for *glia* in brain function.

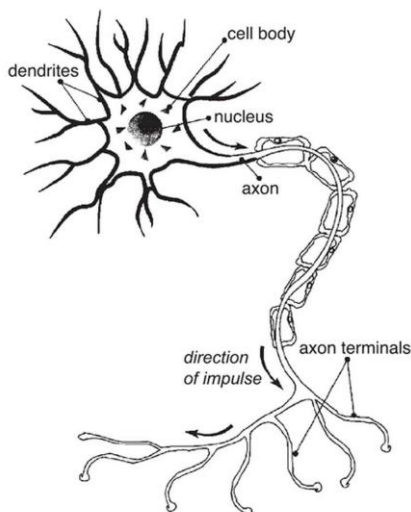


Fig3.3 Neuron, Source: Google

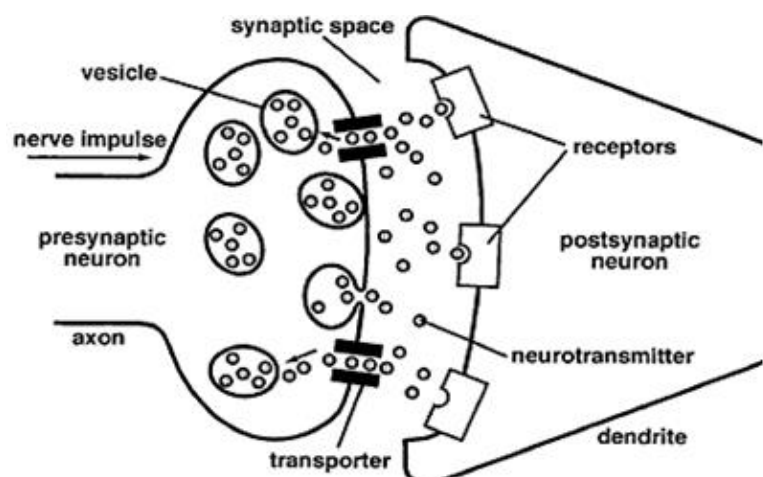


Fig3.4 Synaptic functioning, Source: Google

Nerve impulses involve the opening and closing of ion channels. These are selectively permeable, water-filled molecular tunnels that pass through the cell membrane and allow ions — electrically charged atoms — or small molecules to enter or leave the cell. The flow of ions creates an electrical current that produces tiny voltage changes across the neuron's cell membrane.

The ability of a neuron to generate an electrical impulse depends on a difference in charge between the inside and outside of the cell. When a nerve impulse begins, a dramatic reversal in the electrical potential occurs on the cell's membrane, as the neuron switches from an internal negative charge to a positive charge state. The change, called an action potential, then passes along the axon's membrane at speeds up to several hundred miles per hour. In this way, a neuron may be able to fire impulses multiple times every second.

When these voltage changes reach the end of an axon, they trigger the release of neurotransmitters, the brain's chemical messengers. Neurotransmitters are released at nerve terminals, diffuse across the synapse, and bind to receptors on the surface of the target cell (often another neuron, but also possibly a muscle or gland cell). These receptors act as on-and-off switches for the next cell. Each receptor has a distinctly shaped region that selectively recognizes a particular chemical messenger. A neurotransmitter fits into this region in much the same way that a key fits into a lock. When the transmitter is in place, this interaction alters the target cell's membrane potential and triggers a response from the target cell, such as the generation of an action potential, the contraction of a muscle, the stimulation of enzyme activity, or the inhibition of neurotransmitter release.

3.3 A Walk through Human Mind



The concept of three levels of mind is nothing new. Sigmund Freud, the famous Austrian psychologist was probably the first to popularize it into mainstream society as we know it today. Even though his theories have subsequently been widely disputed in Psychology circles because they are very hard to scientifically prove, Freud nonetheless created a useful model of the

mind, which he separated into 3 tiers or sections – the conscious mind or ego, the preconscious, and the unconscious mind.

The best way I have found to illustrate the concept of the three minds is by using a triangle. If you imagine at the very tip of the triangle is your conscious mind. It occupies only a small portion of space at the top, a bit like an iceberg where only a fraction of it is showing above the water. It probably represents about 10% of your brain capacity. Below this is a slightly larger section

that Freud called the preconscious, or what some refer to as the subconscious. It is much larger than the conscious mind and accounts for around 50-60% of your brain capabilities.

The section below this is the unconscious mind. It occupies the whole width of the base of the triangle and fills out the other 30-40% of the triangle. It is vast and deep and largely inaccessible to conscious thought, a bit like the dark depths of the ocean.

3.3.1 How they work together

Your conscious mind is what most people associate with who you are, because that is where most people live day to day. But it's by no means where all the action takes place.

Your conscious mind is a bit like the captain of a ship standing on the bridge giving out orders. In reality it's the crew in the engine room below deck (the subconscious and the deeper unconscious) that carry out the orders. The captain may be in charge of the ship and give the orders but it's the crew that actually guides the ship, all according to what *training* they had been given over the years to best do so.

The conscious mind communicates to the outside world and the inner self through speech, pictures, writing, physical movement, and thought.

The subconscious mind, on the other hand, is in charge of our recent memories, and is in continuous contact with the resources of the unconscious mind.

The unconscious mind is the storehouse of all memories and past experiences, both those that have been repressed through trauma and those that have simply been consciously forgotten and no longer important to us. It's from these memories and experiences that our beliefs, habits, and behaviors are formed.

The unconscious constantly communicates with the conscious mind via our subconscious, and is what provides us with the meaning to all our interactions with the world, as filtered through your beliefs and habits. It communicates through feelings, emotions, imagination, sensations, and dreams.

3.3.2 The Difference between the Mind and the Brain

Depression is the smallest tip of a huge iceberg. The fad for focusing on the brain has overwhelmed science and society as a whole. It perfectly suits our materialistic belief system.

As a result, science acts as if the mind is a fiction, a ghost or a superstition, very much like the soul. That is a straw man of the most obvious sort because how your life turns out depends very little on whether you believe in the soul—it depends a great deal on how you use your mind.

This seems like an abstract or lofty debate to ordinary people. Brain or mind? It's all the same to them. But consider it a bit more deeply.

God: Researchers have been striving (in vain) to show that there is a faith gene, or that religion was a survival mechanism to protect our species, or that God is a holdover from ancient brain responses that used fear to keep people alert to danger when they lived in caves. Thus, fear of saber-toothed tigers morphed into fear of a punishing God. That there might actually be a God who lies outside the purview of science. This doesn't prevent scientists from thinking they are about to disprove God.

Love: There is a ceaseless campaign to posit a love gene or, lacking that, a brain response that roots love in chemistry. Insofar as people deem love to be noble, uplifting or even meaningful, they are being fooled by a meaningless brain secretion. Once again, as with God, evolutionary biologists presume that primitive humans needed to bond together for survival and what they call love depends upon an atavistic holdover.

Psychology: The basis of psychology is that the self can be normal or abnormal, healthy or sick. Brain researchers haven't found any location for such a self, however. Therefore, since the brain holds all the answers, there's a strong camp that declares the self to be a total illusion. If you feel like a person having experiences that matter to yourself, you are being deluded by clouds of chemical reactions in the brain that are so complex you cannot fathom them all. Therefore, you take the easy, and primitive, way out by telling yourself that you have a self.

These are three big topics, but the brain is also given primacy in many other fields, including emotions (more chemical secretions), relationships (an evolutionary holdover), morality, aesthetics, philosophy and spirituality in general (all of these fields are illusory compared to the brain responses that cause them). It's as if someone discovered the radio and declared, "Good, now we know where music comes from. We can ditch all this nonsense about composers and genius."

3.3.3 Why it's important to add the mind to the equation

Just as a radio picks up the signals that transmit music, so the brain functions to bring mind into everyday reality. If the radio is smashed, the music goes away. If the brain is ill, defective or damaged, some aspect of mind will go away. But to use this reasoning as proof that the brain

is the mind or more real than the mind, is utter folly. Throwing mind out of the equation is done for only one reason: it's useful in the short run. Science takes messy, complex reality and steps outside it, turning experience into elegant numbers and manageable data. That's quite practical. There's a lot of knowledge to be gained by looking at data. But when science holds out numbers to claim that they are reality or that ordinary experience is an illusion, a huge mistake has been made.

How will this mistake be reversed? It won't happen by calling religion back into the picture. What people need isn't a divine mystery; they need knowledge that accepts science while going beyond it. So, what does "beyond" mean? It means returning to messy, complex reality and understanding it more deeply. Science has always been a tool, not an end unto itself. When technology is allowed to trump morality, horrors like the atom bomb happen. When genetics is allowed to wipe out spirituality, a mass sense of futility and emptiness occur. Science can't give life a purpose any more than a reality television show set in Samoa can substitute for going out to the beach.

Ultimately, the current brain fetish will reach a dead end, if it hasn't already. Society will return to the concept of the mind, and something startling but obvious will emerge and become accepted. Consciousness is primary, the brain is secondary. This is like saying that music is primary, the radio is secondary. Whatever is primary comes first and holds the essence of life.

It's my personal conviction that the brain was created by consciousness. There is no other viable explanation, because our current explanation that the human brain evolved through random mutations simply doesn't hold water. Our brains are the single most complex structures in the universe. To say that they were randomly created is a million times more unlikely than having 10 monkeys sitting at typewriters produce all of Shakespeare. But that's a topic for deeper thought. It will be good enough if coming generations turn back to the mind and stop reducing the richness of experience to a mushy machine made of meat.

3.4 Psychology Basics

Brain and Behavior

Every year, millions of people are affected by disorders of the brain and nervous system including Alzheimer's, Parkinson's disease, strokes, and traumatic brain injuries. These illnesses and injuries highlight the importance of the biological bases of behavior.

States of Consciousness

An altered state of consciousness (ASC), also named altered state of mind, is any condition which is significantly different from a normal waking beta wave state. The expression was used

as early as 1966 by Arnold M. Ludwig and brought into common usage from 1969 by Charles Tart: it describes induced changes in one's mental state, almost always temporary.

Learning

From the day we are born, we begin a process of learning that lasts throughout life. Learning has been defined in a number of different ways, but many psychologists describe learning as a relatively permanent change in behavior as a result of experience.

Memory

The ability to create, store and access memories is an essential part of day-to-day life. From remembering where you left your keys to learning a language to memorizing information for a class, your memory allows you to function and interact meaningfully with others.

Personality

What makes people think and act the way they do? Are individual characteristics stable throughout life, or do they change? These are just a few of the questions that personality psychologists seek to answer. Personality is made up of the characteristic patterns of thoughts, feelings, and behaviors that make each person unique. This area has become one of the most studied areas in psychology, spawning well-known theories designed to describe and explain how and why people develop certain personality characteristics.

Social Psychology

Social psychology is the study of human thought and behavior in social situations. Many topics are studied by social psychologists, including attitudes, aggression, prejudice, prosocial behavior and self-identity.

Abnormal Psychology

One of the major goals of psychology is to understand and treat psychological disorders. In this section, about the field of abnormal psychology including some of the different types of therapeutic treatments used by psychologists as well as some of the major types of psychological disorders.

Human Development

The study of human development is a rich and varied subject. We all have personal experience with development, but it is sometimes difficult to understand how and why people grow, learn, and act as they do. Developmental psychology seeks to understand, explain, and predict behaviors that occur throughout the lifespan. In order to understand human development, a number of different developmental theories have arisen to explain various aspects of human growth.

3.5 This Is Your Brain on Music

“Without music, life would be a mistake” – Friedrich Nietzsche

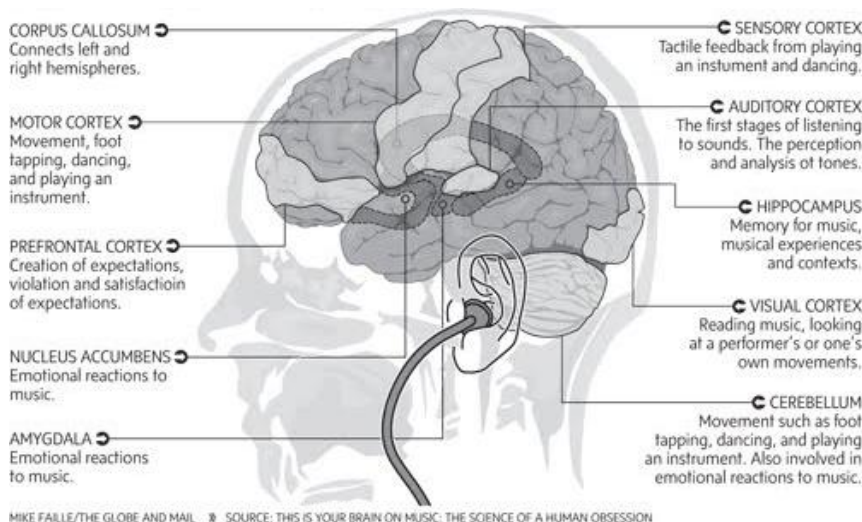
Of course, music affects many different areas of the brain, as you can see in the image below, so we're only scratching the surface with this post, but let's jump in.

Happy/sad music affects how we see neutral faces:

We can usually pick if a piece of music is particularly happy or sad, but this isn't just a subjective idea that comes from how it makes us feel. **In fact, our brains actually respond differently to happy and sad music.**

Even short pieces of happy or sad music can affect us. One study showed that after hearing a short piece of music, participants were more likely to interpret a neutral expression as happy or sad, to match the tone of the music they heard. This also happened with other facial expressions, but was most notable for those that were close to neutral.

Something else that's really interesting about how our emotions are affected by music is that there are two kind of emotions related to music: perceived emotions and felt emotions.



MIKE FAILLE/THE GLOBE AND MAIL SOURCE: THIS IS YOUR BRAIN ON MUSIC: THE SCIENCE OF A HUMAN OBSESSION
Fig3.5 Music On mind, Source: www.lifeadvancer.com

This means that sometimes we can understand the emotions of a piece of music without actually feeling them, which explains why some of us find listening to sad music enjoyable, rather than depressing. Unlike in real life situations, we don't feel any real threat or

danger when listening to music, so we can perceive the related emotions without truly feeling them—almost like vicarious emotions.

Ambient noise can improve creativity

We all like to pump up the tunes when we're powering through our to-do lists, right? But when it comes to creative work, loud music may not be the best option.

It turns out that a moderate noise level is the sweet spot for creativity. Even more than low noise levels, **ambient noise apparently gets our creative juices flowing**, and doesn't put us off the way high levels of noise do.

The way this works is that moderate noise levels increase processing difficulty which promotes abstract processing, leading to higher creativity. In other words, when we struggle (*just enough*) to process things as we normally would, we resort to more creative approaches.

In high noise levels, however, our creative thinking is impaired because we're overwhelmed and struggle to process information efficiently.

This is very similar to how temperature and lighting can affect our productivity, where paradoxically a slightly more crowded place can be beneficial.

3.5.1 Our music choices can predict our personality

Take this one with a grain of salt, because it's only been tested on young adults (*that I know of*), but it's still really interesting.

In a study of couples who spent time getting to know each other, looking at each other's top ten favorite songs actually provided fairly reliable predictions as to the listener's personality traits.

The study used five personality traits for the test: openness to experience, extraversion, agreeableness, conscientiousness and emotional stability.

Interestingly, some traits were more accurately predicted based on the person's listening habits than others. For instance, openness to experience, extraversion and emotional stability were the easiest to guess correctly. Conscientiousness, on the other hand, wasn't obvious based on musical taste.

Here is also a break-down of how the different genres correspond to our personality, according to a study conducted at **Heriot-Watt University**:

To break it down, here is the connection they have found:

Blues fans have high self-esteem, are creative, outgoing, gentle and at ease

Jazz fans have high self-esteem, are creative, outgoing and at ease

Classical music fans have high self-esteem, are creative, introvert and at ease

Rap fans have high self-esteem and are outgoing

Opera fans have high self-esteem, are creative and gentle

Country and western fans are hardworking and outgoing

Reggae fans have high self-esteem, are creative, not hardworking, outgoing, gentle and at ease

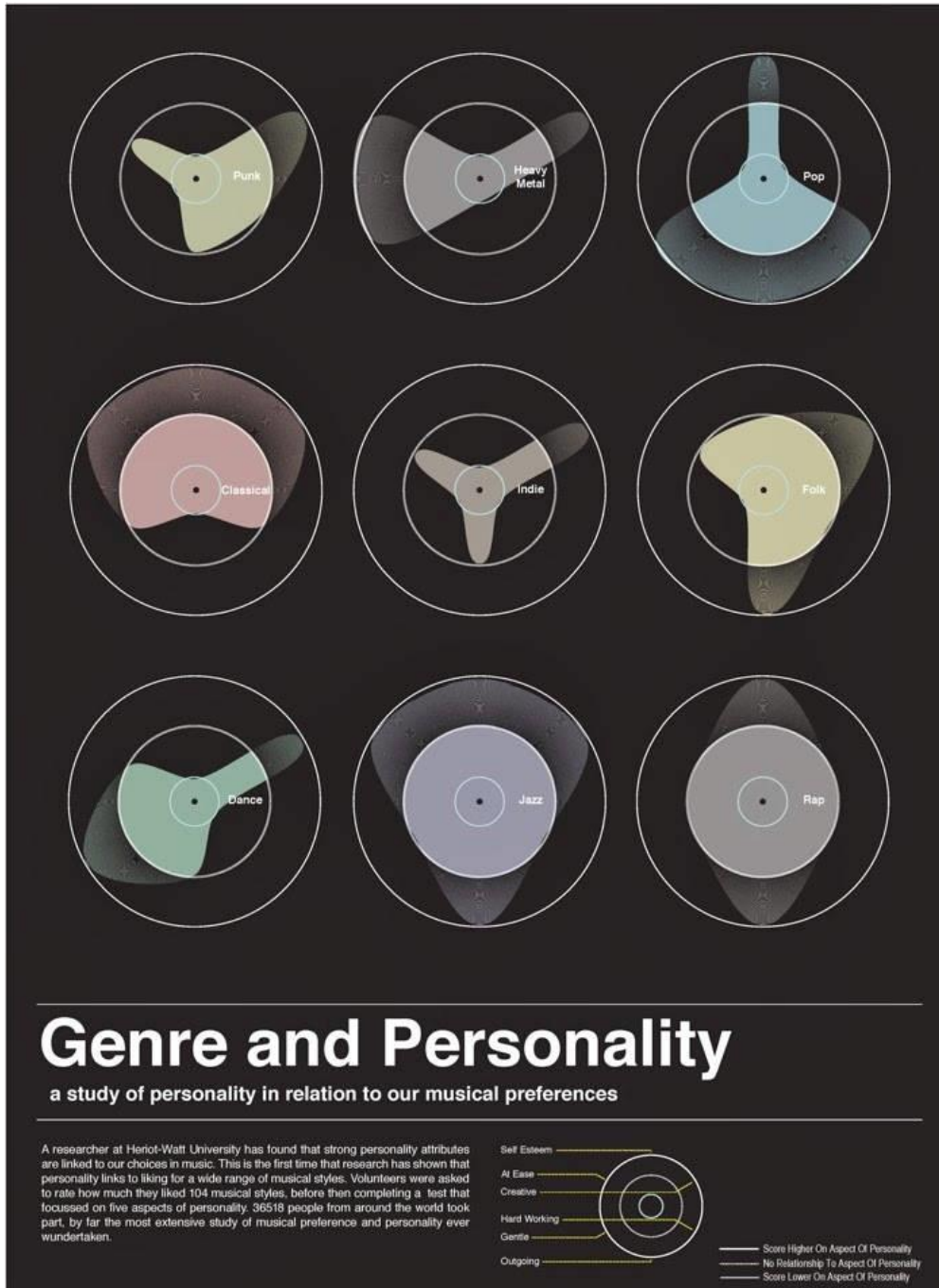


Fig3.6 Genre And Personality, Source: www.lifeadvancer.com

Dance fans are creative and outgoing but not gentle

Indie fans have low self-esteem, are creative, not hard working, and not gentle

Bollywood fans are creative and outgoing

Rock/heavy metal fans have low self-esteem, are creative, not hard-working, not outgoing, gentle, and at ease

Chart pop fans have high self-esteem, are hardworking, outgoing and gentle, but are not creative and not at ease

Soul fans have high self-esteem, are creative, outgoing, gentle, and at ease

Of course, generalizing based on this study is very hard. However looking at the science of introverts and extroverts, there is some clear overlap.

Music can significantly distract us while driving (*contrary to common belief*)

Another study done on teenagers and young adults focused on how their driving is affected by music.

Drivers were tested while listening to their own choice of music, silence or “**safe**” music choices provided by the researchers. Of course, their own music was preferred, but it also proved to be more distracting: drivers made more mistakes and drove more aggressively when listening to their own choice of music.

Even more surprising: music provided by the researchers proved to be more beneficial than no music at all. It seems that unfamiliar, or uninteresting, music is best for safe driving.

Music training can significantly improve our motor and reasoning skills

We generally assume that learning a musical instrument can be beneficial for kids, but it's actually useful in more ways than we might expect. One study showed that children who had three years or more musical instrument training performed better than those who didn't learn an instrument in auditory discrimination abilities and fine motor skills.

They also tested better on vocabulary and nonverbal reasoning skills, which involve understanding and analyzing visual information, such as identifying relationships, similarities and differences between shapes and patterns.

These two areas in particular are quite removed from musical training as we imagine it, so it's fascinating to see how learning to play an instrument can help kids develop such a wide variety of important skills.

Similar research shows this correlation for exercise and motor skills in the same way, which is also fascinating.

Classical music can improve visual attention

It's not just kids that can benefit from musical training or exposure. Stroke patients in one small study showed improved visual attention while listening to classical music.

The study also tried white noise and silence to compare the results, and found that, like the driving study mentioned earlier, silence resulted in the worst scores.

Because this study was so small, the conclusions need to be explored further for validation, but I find it really interesting how music and noise can affect our other senses and abilities—in this case, vision.

One-sided phone calls are more distracting than normal conversations

Another study focused on noise, rather than music, showed that when it comes to being distracted by the conversations of others, phone calls where we can only hear one side of the conversation are the worst offenders.

After a survey showed that up to 82% of people find overhearing cellphone conversations annoying, Veronica Galván, a cognitive psychologist at the **University of San Diego**, decided to study why these are such a pain.

In the study, participants completed word puzzles while one half of them overheard one side of a mundane phone conversation in the background. The other half of the volunteers heard the entire conversation as it took place between two people in the room.

Those who heard the one-sided phone conversation found it more distracting than those who heard both people speaking. They also remembered more of the conversation, showing that it had grabbed their attention more than those who heard both sides and didn't remember as much of the discussion.

The unpredictability of a one-sided conversation seems to be the cause of it grabbing our attention more. Hearing both sides of a conversation, on the other hand, gives us more context which makes it easier to tune out the distraction.

Then again, as we've explored before, getting distracted is often not such a bad thing for various reasons.

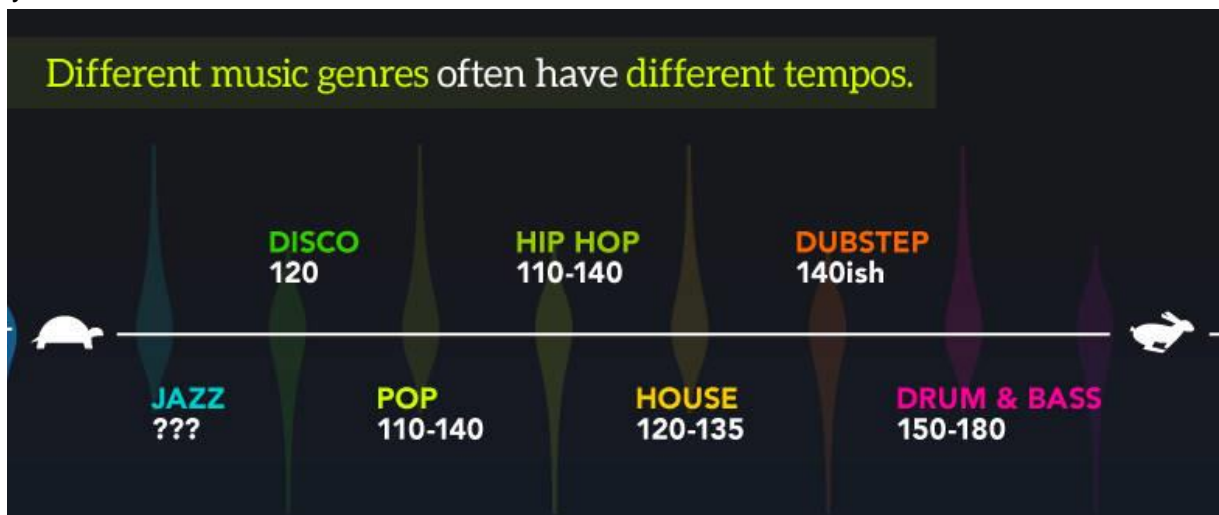
Music helps us exercise

Back to music again, and we can see that just like silence doesn't help us to be more creative or better drivers, it's not much use when we're exercising, either.

Research on the effects of music during exercise has been done for years. In 1911, an American researcher, Leonard Ayres, found that cyclists pedaled faster while listening to music than they did in silence.

This happens because listening to music can drown out our brain's cries of fatigue. As our body realizes we're tired and wants to stop exercising, it sends signals to the brain to stop for a break. **Listening to music competes for our brain's attention**, and can help us to override those signals of fatigue, though this is mostly beneficial for low- and moderate-intensity exercise. During high-intensity exercise, music isn't as powerful at pulling our brain's attention away from the pain of the workout.

Not only can we push through the pain to exercise longer and harder when we listen to music, **but it can actually help us to use our energy more efficiently**. A 2012 study showed that cyclists who listened to music required 7% less oxygen to do the same work as those who cycled in silence.



Some recent research has shown that there's a ceiling effect on music at around 145 bpm, where anything higher doesn't seem to add much motivation, so keep that in mind when choosing your workout playlist. Here is how this breaks down for different genres:

Now if we team up these different “**tempos**” with the actual work-out we’re doing, we can be in much better sync and find the right beat for our exercise. If you match up the above with the graphic below it should be super easy to get into a good groove:

So in the same way that exercising makes us happier, it’s not surprising that music adds significantly to our work-out success.

Music processing is distributed throughout the brain. The figures on the following two pages show the brain’s major computational centers for music. The first illustration is a view of the brain from the side. The front of the brain is to the left. The second illustration shows the inside of the brain from the same point of view as the first illustration. These figures are based on illustrations by Mark Tramo published in Science in 2001, but are redrawn and include newer information.



Fig3.7 Tempo and Human Body, Source: www.lifeadvancer.com

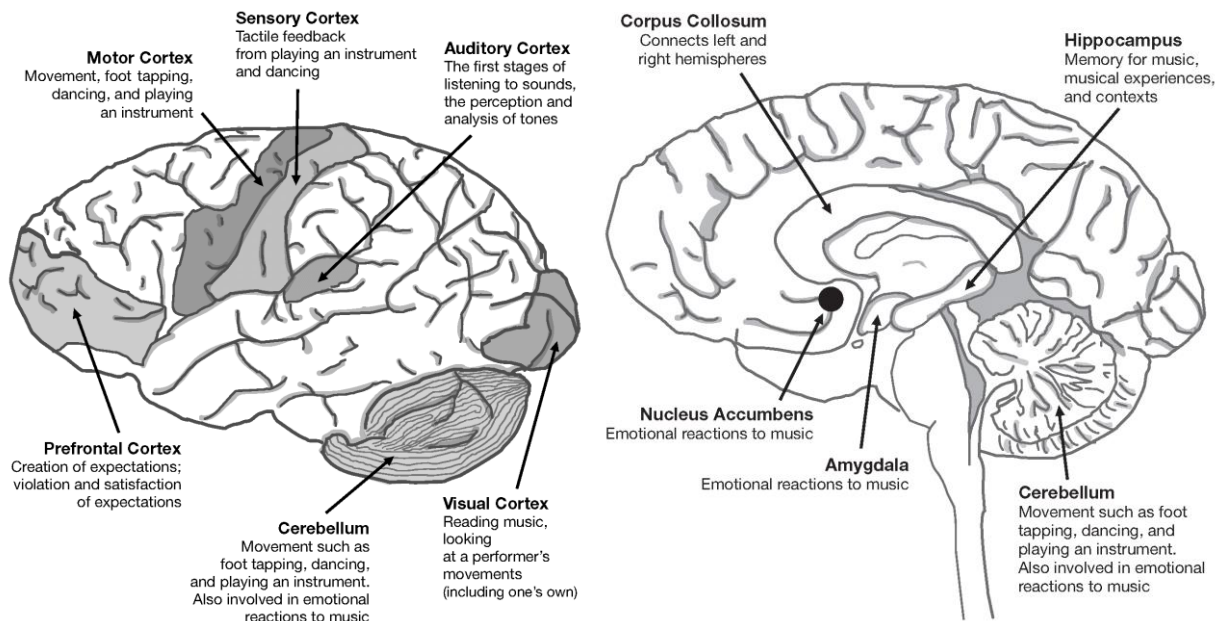


Fig3.8 Tempo and Human Body, Source: "This is your brain on music" by Daniel J. Levitin

3.5.2 How does Music affect your Mood?

Some look at music as a hobby; for some music is their passion, while some pursue music as their career. Music has a direct influence on your mood. Book stores, restaurants and shopping malls often keep some music playing in the background. The kind of music they choose to play depends on the kind of audiences they target. Music is found to enhance customer experience. Music in malls and restaurants peeps up customers' mood. People tend to spend more time in the mall or hotel that plays pleasant music. Music brightens up the atmosphere around you and cheers you up. Music can make you cry, music can make you smile; it has a direct impact on your mood. How music affects your mood also depends on what you associate that piece of music with. A tune or a particular song that is in some way related to your childhood can bring back memories. A song you associate something or someone in your life with, can remind you of that person or thing.

3.5.3 Negative Effects that Music Can Have

For music to have positive effects on the mind and brain, it should be complex enough to involve brain activity. It should be synchronous and generate sound waves that are in tune with the body's internal rhythm. It should be played at a volume the listeners' ears can accept and should have regular beats to have any good effects on the body and mind rhythm and functioning. Here are some of the negative effects of music.

Very loud music can disturb the symmetry between the right and left halves of the brain. Loud music results in a disturbed state of mind. Exposure to harsh or disruptive music at an early age can lead to learning disabilities and behavior problems in children.

According to a study by Dr. John Diamond, an Australian physician and psychiatrist, body muscles go weak when subjected to the stopped anapestic beat in hard rock music. He also says that shrill frequencies and irregular beats are harmful to the mind and body.

Disharmony in music has been shown to reduce retention levels of the brain and lead to aggression and hyperactivity.

Heavily repeating musical patterns can lead to feelings of anger and boredom.

So, the effects music can have on your mind or brain depend largely on the kind of music you choose to listen to. To experience positive psychological effects of music, one should listen to only good music. A sound which spells melody is good music. It's the sound that has the power of creating calm.

3.6 Silva Method

The Silva Method is the name given to a self-help program developed by José Silva. The Silva Method teaches students specialized guided imagery techniques intended to "rewire" their subconscious and negative programming, tap into their true potential and achieve their goals using a meditation technique and mental training program that is offered in seminars in over 129 countries around the world.

It claims to increase an individual's abilities and sense of personal well-being through relaxation and development of their higher brain functions. Proponents believe that it can improve a person's self-image, allow them to think in a clearer manner, and assist people in overcoming conditions such as nicotine addiction.

The website says that the Silva Method research was investigated by Dr. J. Wilfrid Hahn of the Mind Science Foundation in California, who went on to endorse it, and that various research institutions, universities and scientists have studied and verified their research, including: Duke University, Trinity University, University of Texas, Wayland Baptist University, C.W. Post Campus of Long Island University and New York Canisius College.

Some, including Silva himself, believe that it can be used to develop paranormal abilities such as Intuition and ESP and that it can also allow you to tap into a higher consciousness.

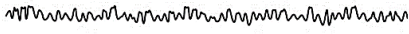



The Silva Method website describes its curriculum as '...a unique combination of Alpha[3] and Theta level exercises, creative visualizations, habit control and positive programming methods, has been endorsed by various thought leaders and scientists. This includes personal growth icons like Jack Canfield, Dr. Wayne Dyer and Shakti Gawain, bestselling author Richard Bach, award-winning neuroscientist Mark Robert Waldman and oncology research pioneer Dr. O. Carl Simonton.'

The Silva Method is one of a number of therapeutic techniques sometimes grouped under the name Meditation.

3.6.1 Technique and Brain frequencies

The technique aims to reach and sustain a state of mental functioning, called alpha state, where brainwave frequency is seven to fourteen. Daydreaming and the transition to sleeping are alpha states.

José Silva, founder of the Silva Method, claimed to have developed a program that trained people to enter certain brain states of enhanced awareness. He also claimed to have developed several systematic mental processes to use while in these states allowing a person to mentally project with a specific intent. According to Silva, once the mind is projected, a person can allegedly view distant objects or locations and connect with higher intelligence for guidance. The information received by the projected mind is then said to be perceived as thoughts, images, feelings, smells, taste and sound by the mind. The information obtained in this manner can be acted upon to solve problems.

Awake with mental activity		Beta 14-30 Hz	It deals with the different frequencies of human brain.
Awake and resting		Alpha 8-13 Hz	Beta [14-30Hz]: concentration, arousal, alertness, cognition
Sleeping		Theta 4-7 Hz	Alpha [8-13.9Hz]: Relaxation, super learning, relaxed focus, light trance,
Deep sleep		Delta <3.5 Hz	increased serotonin production

Theta [4-7.9Hz]: Dreaming sleep [REM sleep], increased production of catecholamines (vital for learning and memory), increased creativity

Delta [0.1-3.9Hz]: Dreamless sleep, human growth hormone release, loss of body awareness

3.6.2 Capabilities

The Silva Method teaches people to listen to and control parts of the mind-body that many Westerners have not yet learned to access. In this way, it is similar to a few advanced yogas. Silva also uses touch patterns to anchor mind states, in a manner similar to NLP, Anthony Robbins's teachings, and Japanese ninjitsu. Skills Silva teaches include:

- Skills that have not been scientifically verified
- Deep relaxation, including both body and mind
- Meditating immediately, with eyes closed or open
- Cure for insomnia--voluntary going-to-sleep in one minute
- Pain control--Silva practitioners are able to not mind intermediate pain, and can get cavities filled or receive colonoscopies without any anaesthetics

- Blood flow control, leading to primitive temperature control--"send heat" to hands or places in the body. At advanced levels, this can also be used to lessen blood flow to moderate cuts.
- Self-diagnosis of mental and emotional challenges
- Memory replay of past events (useful for finding dropped keys, etc.)
- Intuitive understanding of subconscious sides of self (useful for overcoming blockages)
- Intuitive understanding of subconscious sides of others
- Brainstorming and idea formation
- Energy level control
- Self-diagnosis of physical challenges
- Increasing healing rates in self, through visualization and laying-on of hands
- Increasing healing rates in others
- Increasing healing rates in others remotely
- Remote viewing
- Empathic Telepathy

Chapter 04

Case Study

4.1 Introduction

4.2 Cases:

4.2.1 Salk Institute

4.2.2 Champalimaud Centre for the Unknown

4.2.3 Brain Technology Centre

4.2.4 Djavadmowafaghian Centre for Brain Health

4.2.5 Synaesthetic Museum

4.2.6 National Case Study

4.1 Introduction

As there are no exactly similar projects like this, therefore in this chapter different aspects of the project would be briefly analyzed with a number of various local and international projects.

4.2 Cases:

4.2.1 Salk Institute

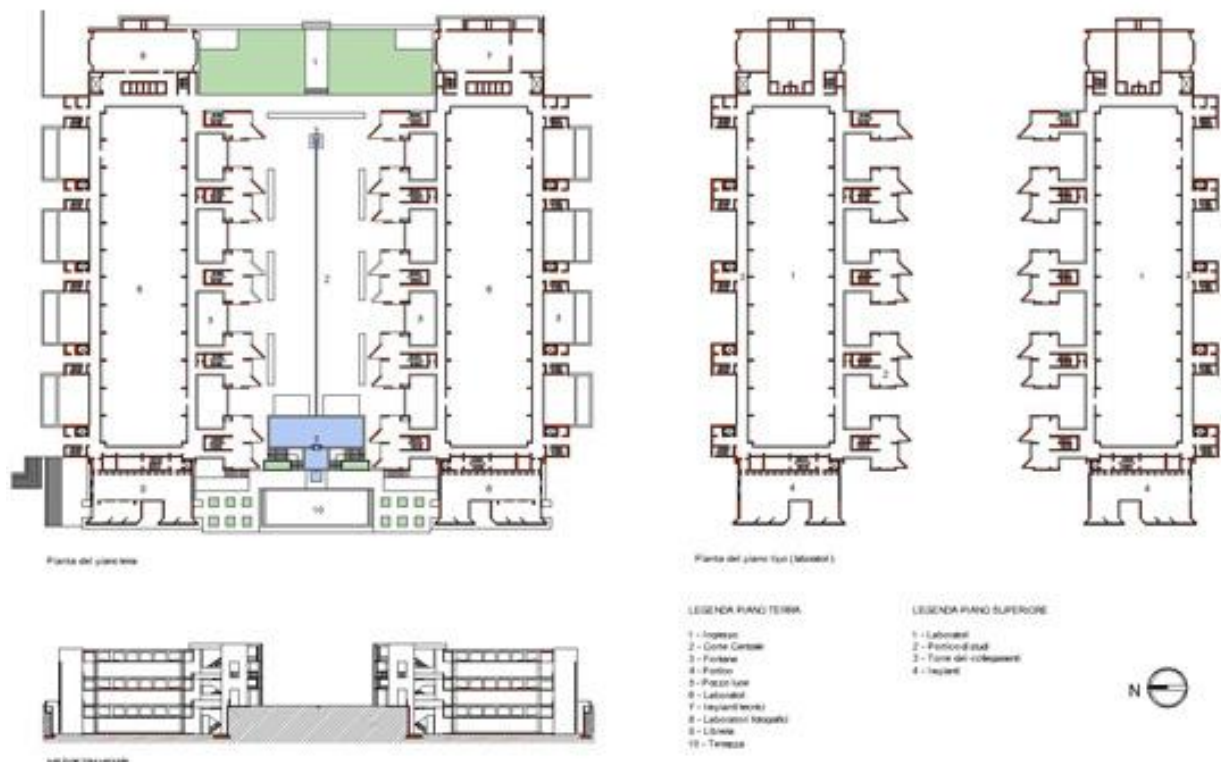


Progressing from the International Style, Louis Kahn believed buildings should be monumental and spiritually inspiring. In his design for the Salk Institute, he was successful in creating the formal perfection and emotional expressions that he so vigorously tried to achieve. Kahn was commissioned to design the Salk Institute in 1959 by Dr. Jonas Salk, inventor of the polio vaccine. Salk's vision included a facility with an inspiring environment for scientific research, and Kahn's design decisions created a functional institutional building that also became an architectural masterpiece.

Before designing, Kahn referenced and studied monasteries in order to build his concept of an "intellectual retreat." With a prime location in La Jolla, California and bordering the Pacific Ocean, Kahn took advantage of the site's tranquil surroundings and abundant natural light. His scheme became a symmetrical plan, two structures mirroring each other separated by an open plaza. The buildings each have six stories, with the first three floors containing laboratories and the last three with utilities. These spaces are connected to protruding towers that contain spaces for individual studies linked with bridges. The towers at the east end of the buildings contain

heating, ventilating, and other support systems while at the west end the towers are six floors of offices that all face the Pacific Ocean, providing a warm tranquil setting for concentration. The separation of the laboratories and the individual study spaces was intended by Kahn, establishing the different activities.

Due to zoning codes, the first two stories had to be underground, sinking the laboratories in the courtyard. In order for these spaces to receive ample sunlight, Kahn designed a series of lightwells on both sides of each building that were 40 feet long and 25 feet wide. The laboratories above ground are also well-lit spaces with large glass panes for their exterior walls. Within the building, separating the “served” and “servant” spaces, as Kahn referred to them.



The materials that make up the Salk Institute consist of concrete, teak, lead, glass, and steel. The concrete was poured using a technique studied in Roman architecture. Once the concrete



was set, he allowed no further finishing touches in order to attain a warm glow in the concrete. Mechanical spaces are hidden

The open plaza is made of travertine marble, and a single narrow strip of water runs down

the center, linking the buildings to the vast Pacific Ocean. A person's view is then directed towards nature, reminding people of their scale compared to that of the ocean. The strip of water also enhances the symmetry intended in the plan and creates a sense of monumentality in the otherwise bare open plaza that is meant to be in the words of Luis Barragan "a facade to the sky." Complete with this dignified water element, the Salk Institute is simply put in Kahn's words, "the thoughtful making of space" revealed through such simplicity and elegance.

Findings:

Besides working with a medical phenomenon, Kahn has wonderfully achieved what the institution was dealing with through architecture. Other than environmental considerations, functional fulfilment and material use, the institution has been given a monumentality along to hostility that makes people realize of their possibilities and shortcomings. It deals with human scale my combination of build forms and open spaces in between.

4.2.2 Champalimaud Centre for the Unknown

Project Team: **Charles Correa, Sachin Agshikar, Manas Vanwari, Dhaval Malesha**

Architect of Record: **Glintt**

Laboratory and Clinical Design: **RMJM**

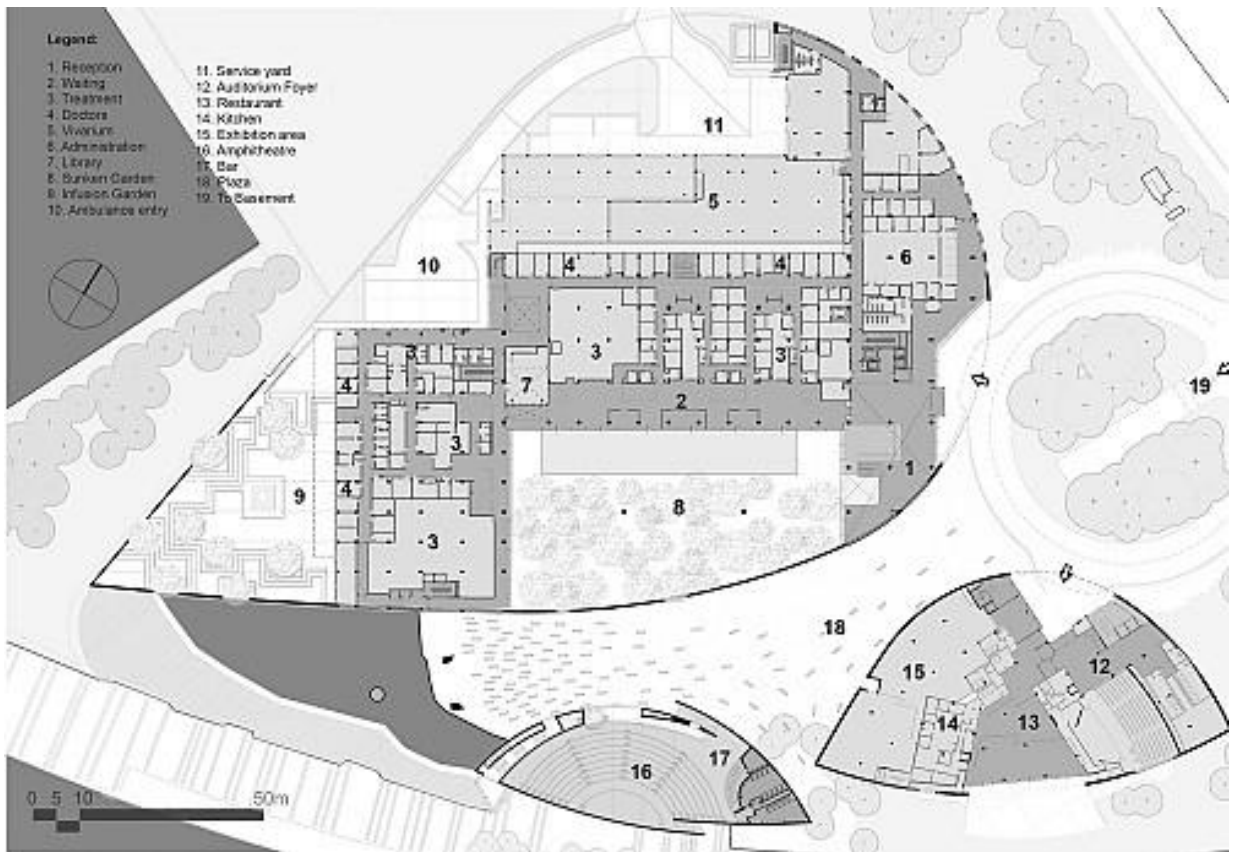
Structure: **LNM**

Landscape: **PROAP**



Charles Correa Associates designed this research and diagnostic center located in Lisbon. It is a state-of-the-art facility guided by some of the best scientist in the world. Correa says, “What makes me most proud about this project is that it is NOT a Museum of Modern Art. On the contrary, it uses the highest levels of contemporary science and medicine to help people grappling with real problems; cancer, brain damage and going blind. And to house these cutting-edge activities, we tried to create a piece of architecture. Architecture as Sculpture. Architecture as Beauty. Beauty as therapy.”

The site, where the river meets the Atlantic Ocean, is steeped in history. It is the site where Henry the Navigator, Vasco de Gama and other great Portuguese left on their journeys into the unknown—a perfect metaphor for the discoveries of contemporary science today, Correa points out.



The 3 units that constitute the project (the largest for the doctors and scientist, the second for the theatre, the exhibition hall, the Foundation offices, etc, and the third is an open-air amphitheater for the city) have been arranged to create a 125m long pathway leading diagonally across the site, towards the open seas.

This pathway is ramped up (at a gentle slope of 1:20) – so as you ascend, you see only sky ahead of you. At the end of the ramp are two stone monoliths, straight from the quarry. When you reach the highest point, you begin to see a large body of water, which seemingly connects (i.e., without any visual break) to the ocean beyond. In the center of this water body, just below the surface of the water, is an oval shaped object—made of stainless steel and slightly convex, so that it reflects the blue sky and passing clouds above.

Finding: the use to architectural elements as a healing therapy has been very well incorporated. In order to create a space that heals people the use of elements the can create a serene environment is very well utilized.



4.2.3 Brain Technology Centre

vienna AUSTRIA

University of Applied Arts Vienna, studio LYNN

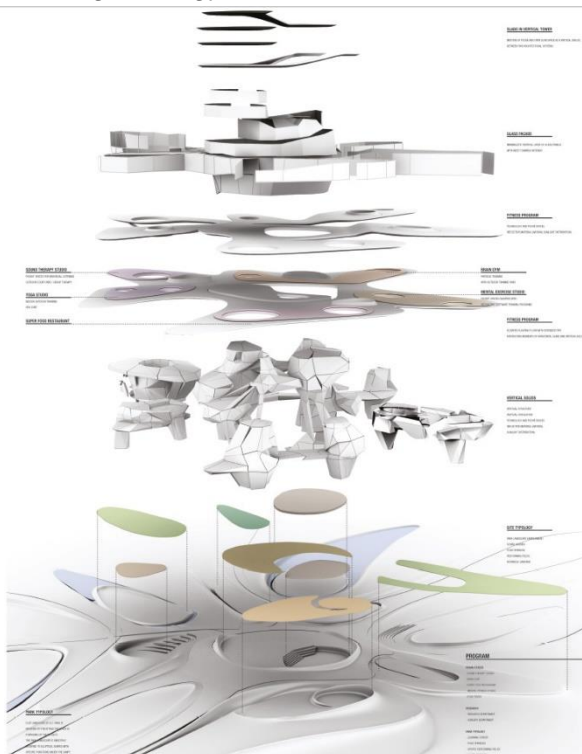
critic: Greg LYNN



The project, “Brain Technology Centre,” is an experimental research center dealing with neuroscience. The project aims to create an interactive learning environment that offers a way to

improve or regenerate brain activity. The project with its own focus should build on existing research centers around, which have been involved in neurosurgery and neuroscience. The project program presents a new interactive training environment as a way of regenerating and improving of brain activity. The project also creates a landmark in the park. The building activates topology of the park by the modification of the ground, which follows geometry of the building. Elevated pavilions present one of the key spaces from the interior as a continuing piano nobile floor pointing to the treetops. The ground floor of this project presents an interactive park environment under a canopy that offers different outdoor activities for park visitors—a sound therapy garden, yoga terraces, or sports performing fields. It is a blending of the building in to the park on the one site and it is an iconic landmark on the other.

Massing strategy deals with two architectural languages: horizontal slabs and vertical solids.



Both components have a major impact to the topology design of the park. Terrain activates spots where solids touch the ground and creates unique indoor-outdoor spaces.

Findings:

The project deals with the similar aims and objective of the proposed project. Though it's just a proposal based work, the ideology of the project is to create platform that will help people to generate brain activities. By utilizing different architectural characters like canopy, indoor outdoor relations and interactive park environment in relation to the build form the designer has tried bring about the spaces.

4.2.4 DjavafMowafaghian Centre for Brain Health

Architect: Stantec

General Contractor: Heatherbrae Builders

Interiors: Stantec

Developer: UBC Properties Trust

Landscape: Durante Kreuk

Civil: Core Consultants Group

Structural: Fast+Epp



Stantec's design for the DjavafMowafaghian Centre for Brain Health at UBC, in Vancouver, British Columbia in Canada is envisioned as a translational research facility defined by present and future medical practices that collaborate under research and patient care. To achieve this, designers considered the intersections within the spatial dynamics of the facility to coordinate interactions between researchers and clinicians. The facility is 134,500 square feet and includes exam / consultation rooms, lab benches, a full conference centre, a brain tissue and DNA bank of samples collected from consenting patients, and patient and animal MRI capabilities. The design of the medical facility was inspired by brain synapses; the vast number of connections that the brain makes through firing electrical impulses allows information to travel and

coordinate between all the parts of the brain. The efficiency of these systems is determined by the quality, frequency and intensity of these connections. Thus, the facility must operate under the same parameters, creating positive connections between patients, clinicians and researchers.

Stantec's approach was defined by the following principles:

Patient-care centered: The patient is the top priority within the facility and has control over the type of care he or she receives.

Integration: The research of the facility is interdisciplinary and integrated in neurological, psychiatric and related rehabilitation clinical services to meet the needs of the patient population.

Flexibility: Create and share flexible resources and adaptable spaces to enhance research partnerships, effectiveness, patient access and treatment leading to new therapies and improved health outcomes.

Collaboration: Create a building where the environment and the design fosters and enhances interdisciplinary associations, intellectual teamwork, knowledge transfer and the generation of best practices. **Sustainability:** Build a state-of-the-art LEED® Gold Certified building that is environmentally safe, sustainable and designed to provide best practices in energy conservation management while contributing to the health of patients, staff, and the public realm at UBC.



4.2.5 Synaesthetic Museum

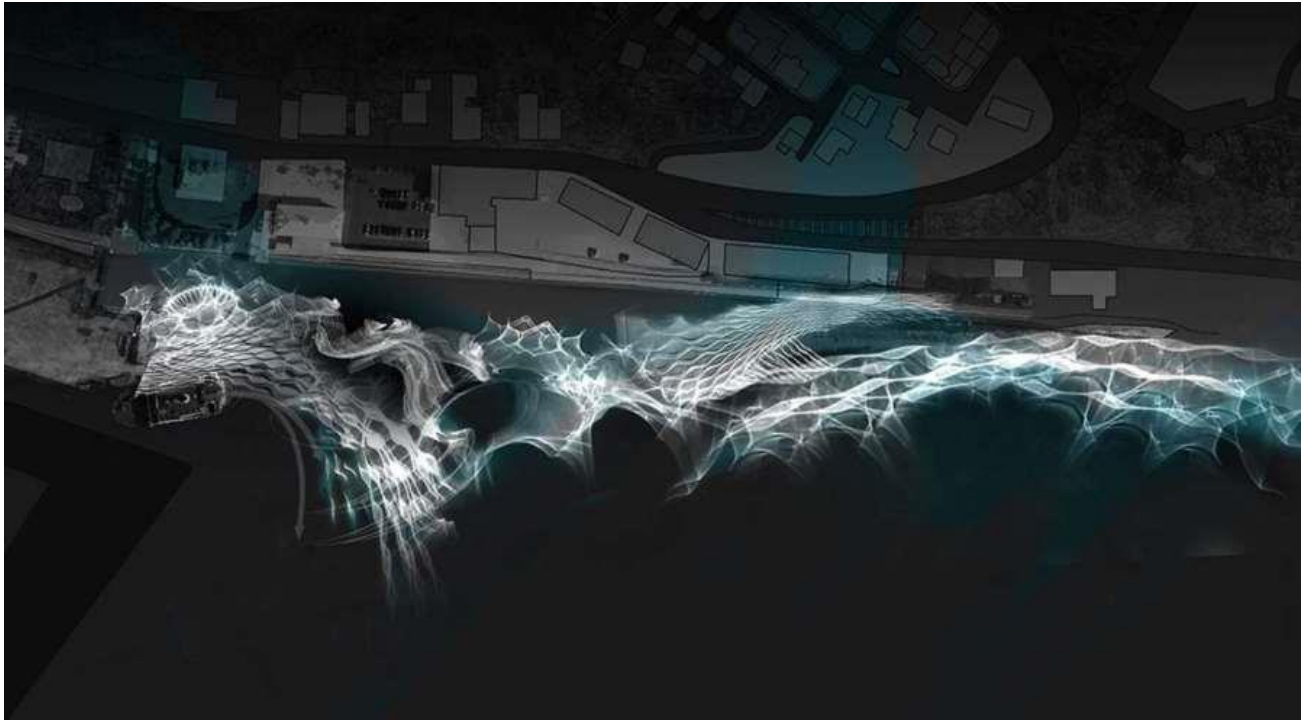
Location: Quebec City, Canada

Design: Francois Mangion

Collaboration: Shuchi Agarwal

Research: Bartlett School of Architecture, UCL, B-Pro Graduate Architectural Design

Year: 2013



Designed in collaboration with Shuchi Agarwal the Synaesthetic Museum project seeks to find a harmony between the visual and aural perceptions in architecture.

Using light as the architectural generative tool in creating form, this project exemplifies the relationship between the actual form itself and the aural qualities it can create. Studying the play of light caustics and sound, the museum heightens ones awareness of the essential role the human senses play in the built environment.

This project speculates on sound generation through wind on a riverside. Located on the opposite side of the historical French-Canadian city of Quebec in Canada, across river St. Lawrence. A harmonic layer of string arrangement, designed through the synthesis of harmonic proportions, forms an Aeolian harp that uses wind energy to generate pleasant sound.

This project is an initial step towards interpreting the intelligent proportions of the harmonic instruments to design an architecture performance through sound into expressions of formal proportion in architecture. The spatial and functional implications of the Synaesthetic Museum become key requirements for it to function both as a museum and an Aeolian building.

Structured round several prototypes and investigations in harmonic proportions, the design explores various tectonic analysis related to both the architectural language, through caustics, and the inclusion of fully functional harmonic strings.

The goal of this project is to be able to translate and re-interpret a combination of sound and light through form; to better understand how to create atmosphere and compose a one unique performative experience.

Applying how light can evolve into inhabitable spaces, the museum attempts to redefine how people occupy the built environment also through sound and not only through the typical visual aspects, hence experiencing a homogeneous correlation between the volumetric qualities of both light and sound.

Operating as a sensorial extension of the city, the Synaesthetic Museum engages the users in an optical and harmonic experience. Like an Aeolian harp, the building is played by the wind, acoustically transforming the full character of the juxtaposed sound of the breaking frozen river in winter. A visual and aural understanding of two senses, and speculation on an imagined fully experiential space.



4.2.6 National Case Study

In Bangladesh the psychological and mental facilities for the normal people are not encouraged under a fixed roof. There are organizations scattered in various places, few of them are mentioned below.

1. Dhaka University, Counseling unit.
2. BRAC University Student counseling unit.
3. SAJIDA's Psychosocial Counseling Support Service
4. Bangladesh Psychology Society
5. Kria
6. Apon
7. Mukti Clinic
8. Silva Ultra Mind System- MQ Mission
9. Quantum foundation

Chapter 05

Program Development

5.1 Rationale of the program

5.2 Psychological Center

5.3 Meditation Center

5.4 Museum of Brain

5.5 Recreational / Common Area

5.6 Grand Total

5.1 Rationale of the program

The basic understanding of the programmatic requirements of the project could be gathered from the literature overview. There it is strongly established that for such a project to be successful it needs to facilitate different categories of mental healing that are available so that people can choose from any one of them. For that reason the program has been categorized into three different types, the meditation zone, the psychological zone and the museum to explore. So that one who is not interested on one side of the process can always come back to the other side which according to him is beneficial for him. Besides these three types there will be also facilities like religious zones, library, audio/visuals and other entertaining facilities for the ones who would just like to have a visit of the place for a better understanding of the aspects of the Human Brain.

5.2 Psychological Center

Space	Space required per person (Sq-Ft)	No. of users	Space required per room (Sq-Ft)	No. of rooms	Area required (Sq-Ft)
ADMINISTRATION					
Director's Office			300	2	600
Manager's Office			200	2	400
Staff	48	6			240
Waiting room					300
Conference Room	20	15/8		2	460
Washroom			160		320
Storage					300
Total					2,620
RESEARCH CENTRE					
Research labs	50	20		2	2,000
Computer labs	40	30		1	1,200
Experimental Rooms			100	5	500
Storage					1,000
Total					4,700
THERAPY CENTRE					
Psychologists Room	100	50			5,000
Individual Therapy			200	5	1,000
Family Therapy			300	5	1,500
Group Therapy			500	5	2,500
Couple Therapy			200	5	1,000
Seminar Rooms	10	50/80		2	1,300
Call Centers	64	20			1,280
Washrooms			250	2	500
Total					14,080
SUBTOTAL					21,400
Circulation (30%)					6,420
TOTAL					27,820

5.3 Meditation Center

Space	Space required per person (Sq-Ft)	No. of users	Space required per room (Sq-Ft)	No. of rooms	Area required (Sq-Ft)
ADMINISTRATION					
Director's Office			200	1	200
Manager's Office			150	2	300
Staff	48	6			240
Waiting room					300
Conference Room	20	10		1	200
Washroom			160		320
Storage					500
Total					2,060
MEDITATION FACILITIES					
Auditorium	20	100/50		2	3,000
Seminar Rooms	20	80/40		1	2,400
Religious Facilities	20	200		1	4,000
Library				1	1,000
Total					10,400
SUBTOTAL					12,460
Circulation (30%)					3,738
TOTAL					16,198

5.4 Museum of Brain

Space	Space required per person (Sq-Ft)	No. of users	Space required per room (Sq-Ft)	No. of rooms	Area required (Sq-Ft)
ADMINISTRATION					
Director's Office			300	2	600
Manager's Office			200	2	400
Staff	48	8			380
Waiting room					500
Conference Room	20	10/6			320
Washroom			160	2	320
Storage					500
Total					3,020
MUSEUM					
Lobby	8	250			2,000
Permanent Gallery					10,000
Temporary Gallery					20,000
Storage					1,000
Preparation Area	200	20			4,000
Souvenir Shop					800
Washroom			250	2	500
Total					38,300
LIBRARY					
Lobby					200

Check Area, Lockers					200
Reading Area	10	150		1	1,500
Shelf Stack	30000	.1/ book	100		3,000
Librarian's room				2	200
Audio/Visuals					1,000
Copy Section			250		200
Washrooms				2	500
Total					6,800
SUBTOTAL					48,120
Circulation (30%)					14,436
TOTAL					62,556

5.5 Recreational / Common Area

Space	Space required per person (Sq-Ft)	No. of users	Space required per room (Sq-Ft)	No. of rooms	Area required (Sq-Ft)
Multipurpose Hall	10	200		1	2,000
Backstage Facilities	25	20			500
Washrooms			160	2	320
Lounge					1,000
Restaurant	18	150			2,700
Cafeteria	15	100		1	1,500
Kitchen					2,100
Washrooms			250	2	500
Others					
Outdoor Spaces					10,000
Kiosks			50	10	500
Amphitheater					5,000
SUBTOTAL					26,120
Circulation (30%)					7,836
TOTAL					33,956

5.6 Grand Total

Space	Area required (Sq-Ft)
Psychological Center	21,820
Meditation center	16,198
Museum of Human Brain	62,556
Recreational / Common Area	33,956
TOTAL	1,34,530

Chapter 06

Design Development

6.1 Introduction

6.2 Concept Development

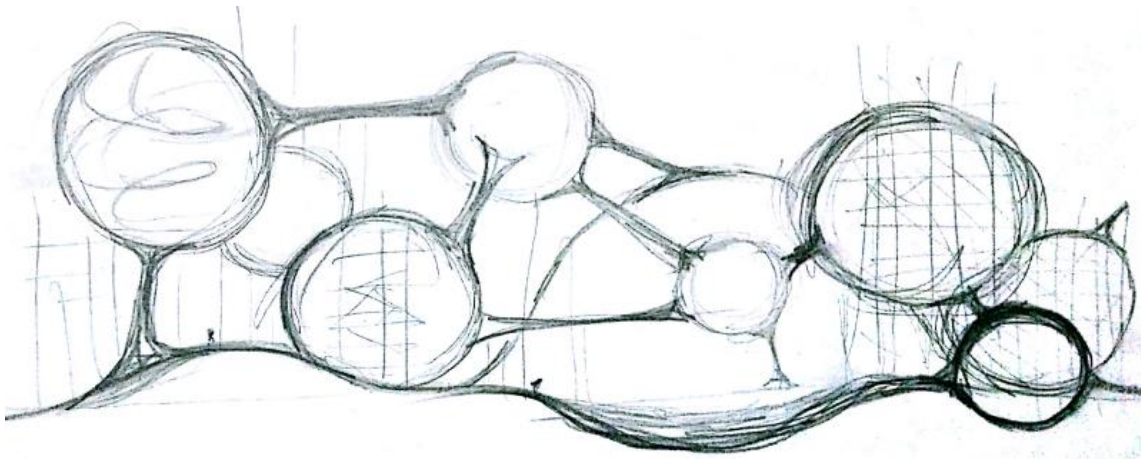
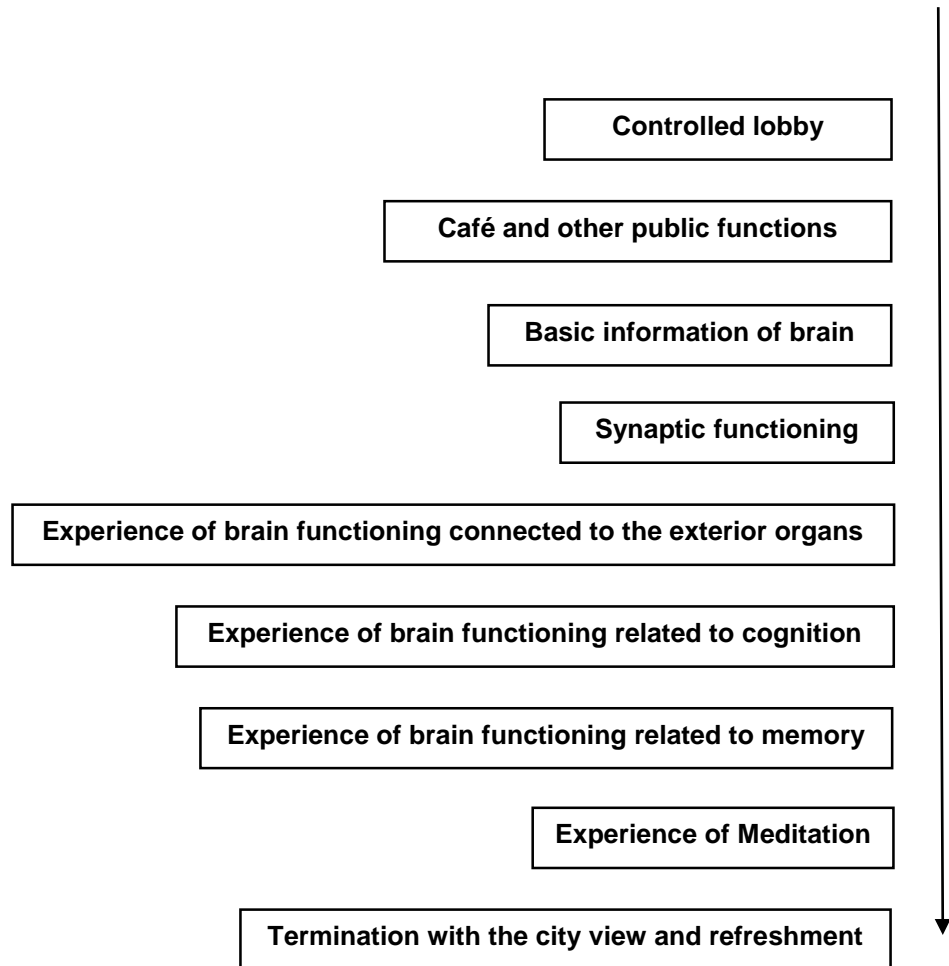
6.3 Form Development & Programmatic Layout

6.4 Final Design Drawings

6.5 Final Design Model

6.1 Introduction

The initial work was to identify how brain works, and how to incorporate all the sectors that deals with brain functioning. Then came the site and zoning of these sectors within the site. The zoning was made following the brain frequencies so that the journey can help a person to go from alpha level to beta and feel the relaxation stage.

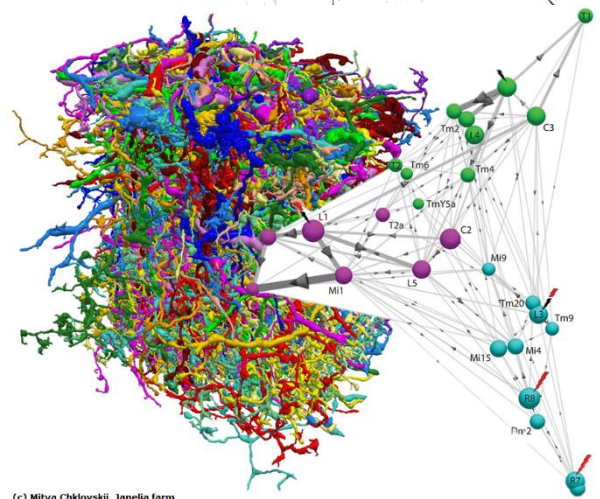
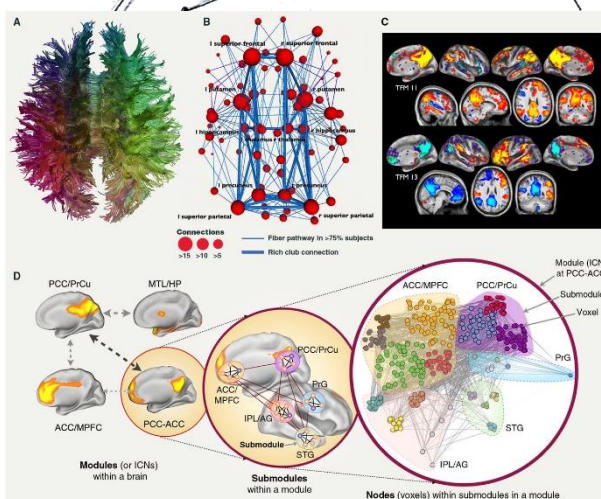
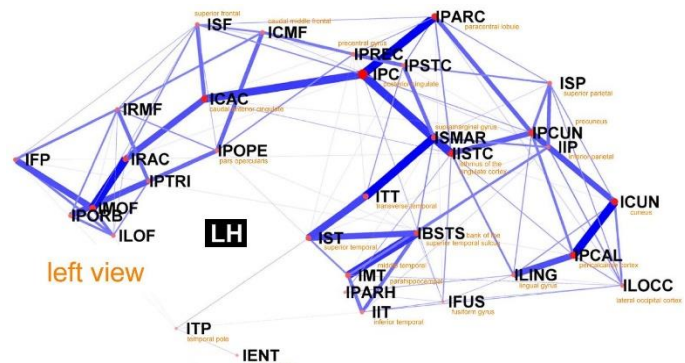


6.2 Concept Development

CONNECTOMICS

A connectome is a comprehensive map of neural connections in the brain, and may be thought of as its "wiring diagram". More broadly, a connectome would include the mapping of all neural connections within an organism's nervous system. **Connectomics** is the production and study of connectomes: comprehensive maps of connections within an organism's nervous system, typically its brain or eye.

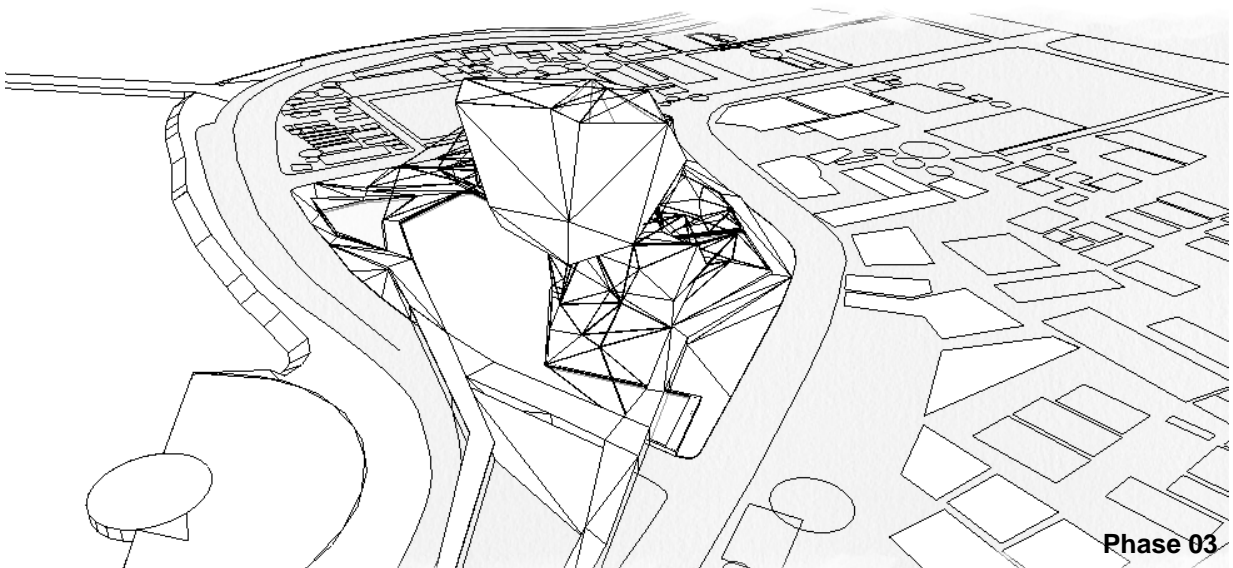
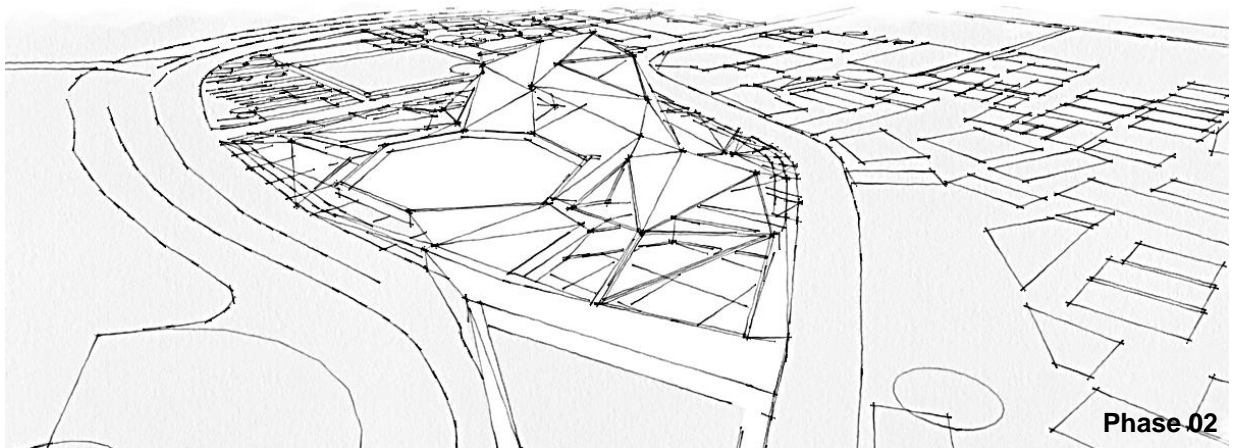
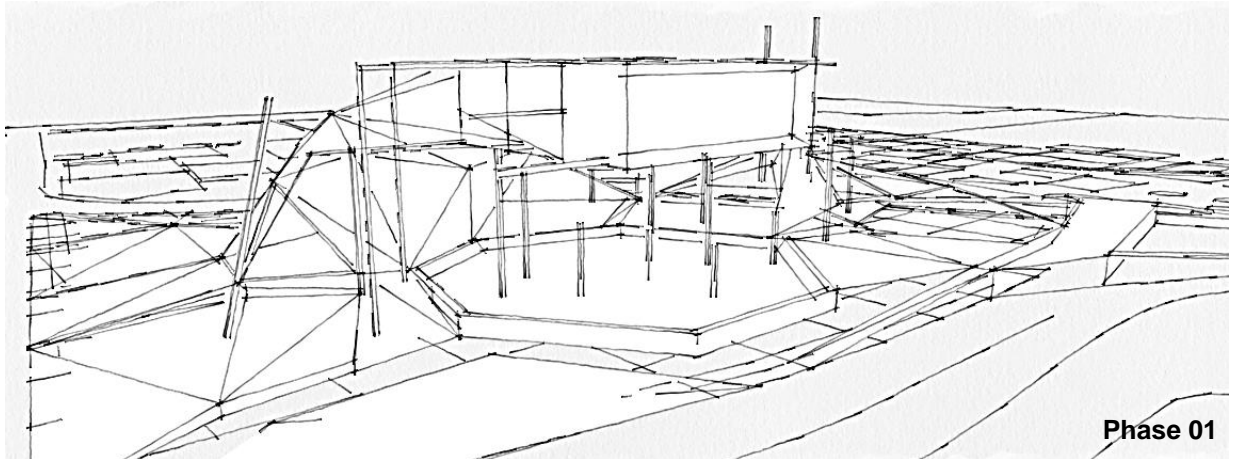
The idea was to create a shell following this concept of connections of wires that resemble both the functional flow and connections of different parts of the brain. The spaces within the shell will also be integrated with this overall frame structure and the permeability of the spaces will be simple and create a juxtaposition of the complexity and smoothness of the brain functioning



(c) Mitya Chklovskii, Janelia farm

6.3 Form Development & Programmatic Layout

The form was generated from the concept connentomic, the wiring diagrams that helps researchers to identify the how brain actually functions. The idea was to create a space/ form that itself gives a feeling of the complexity of the brain and its functioning but yet again the spaces within will be so visually clear resembling the spot on functioning of the brain.



In order to figure out zoning of functions the first step was to identify what should be the elements of the experiential journey. The journey follows like this:

Basic information of brain

How synapse work

Auditory and visionary experience

Movement focusing

Cognition, perception and learning

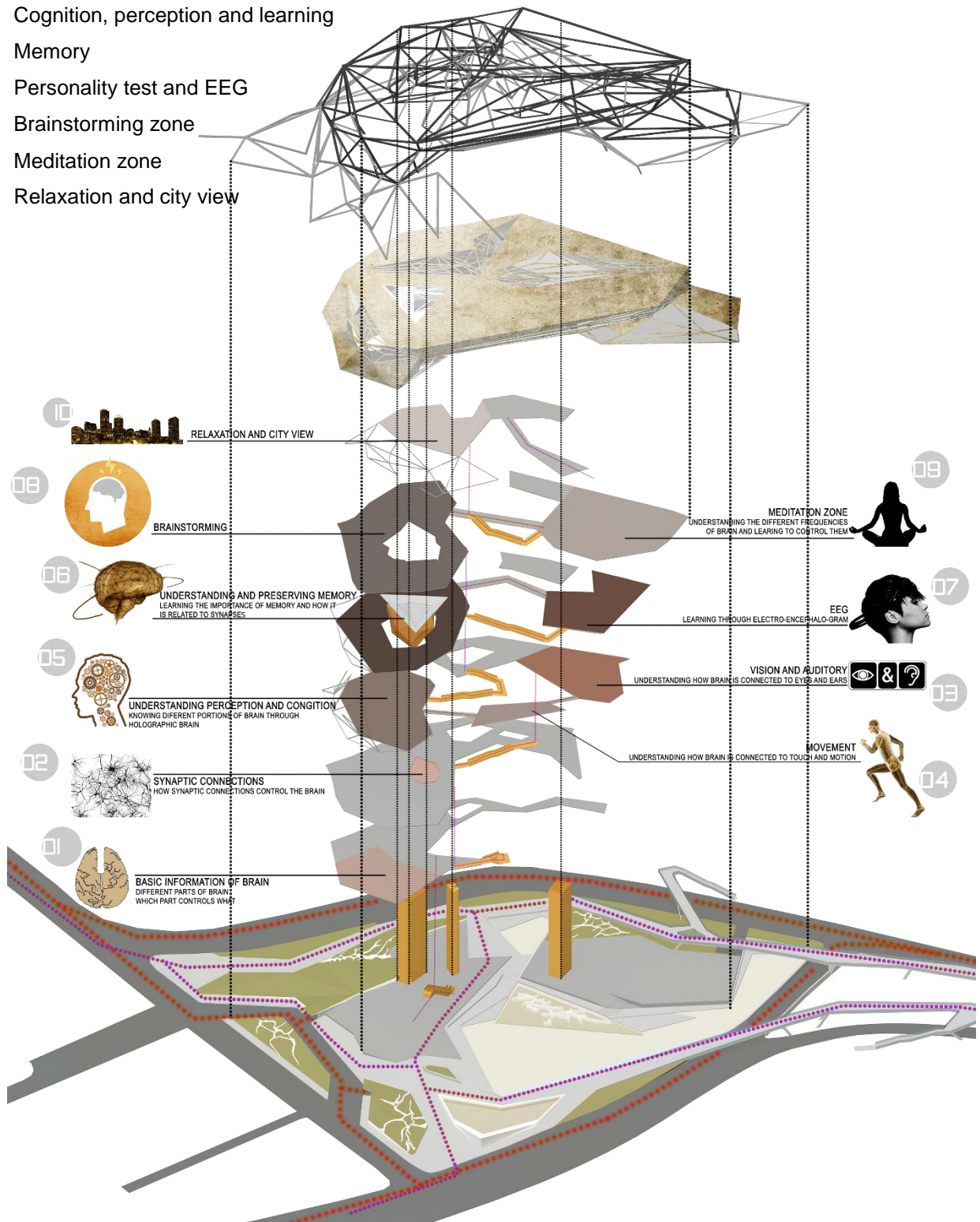
Memory

Personality test and EEG

Brainstorming zone

Meditation zone

Relaxation and city view

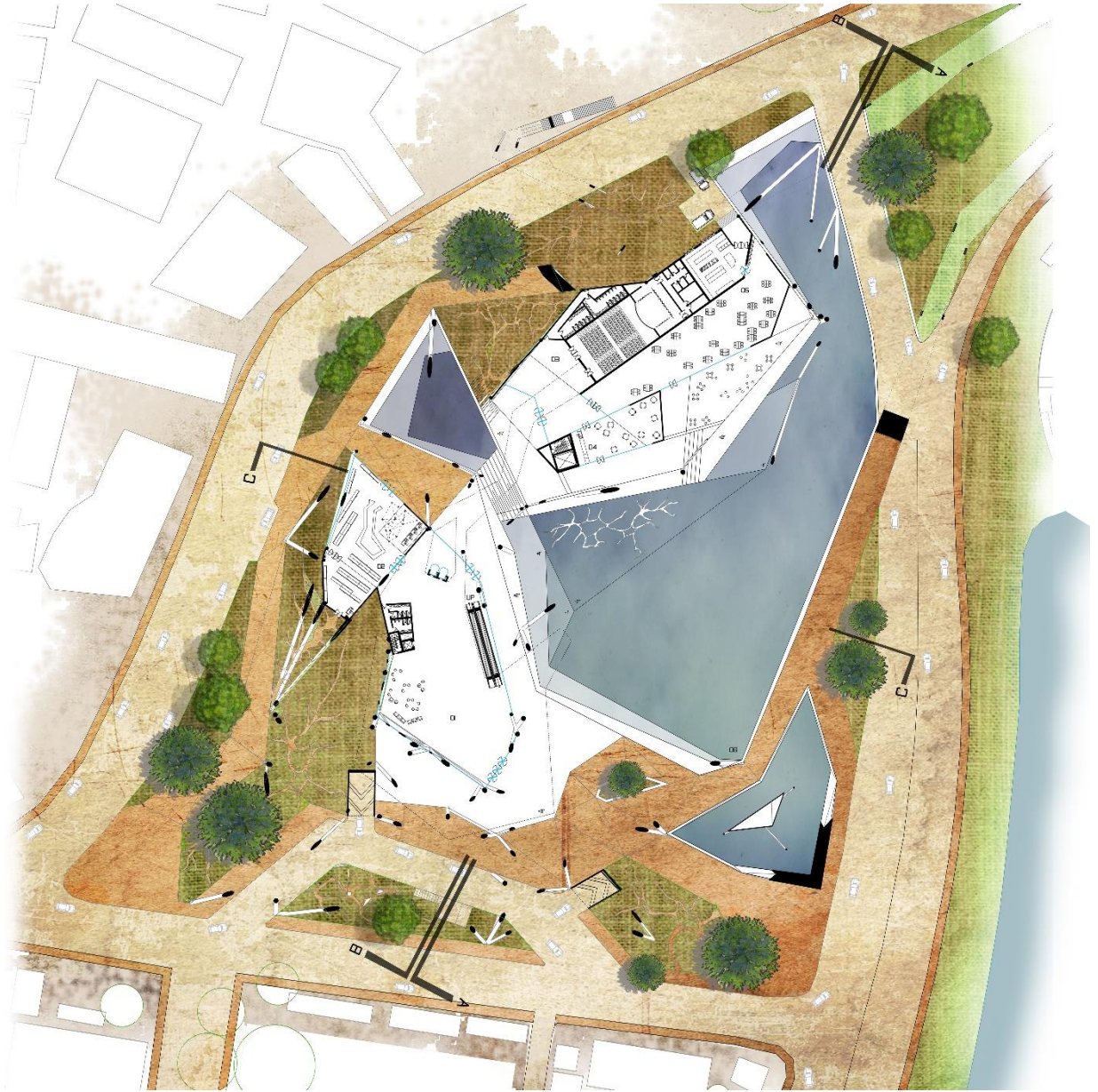


Isometric perspective view, analyzing the functions and layers

6.4 Final Design Drawings



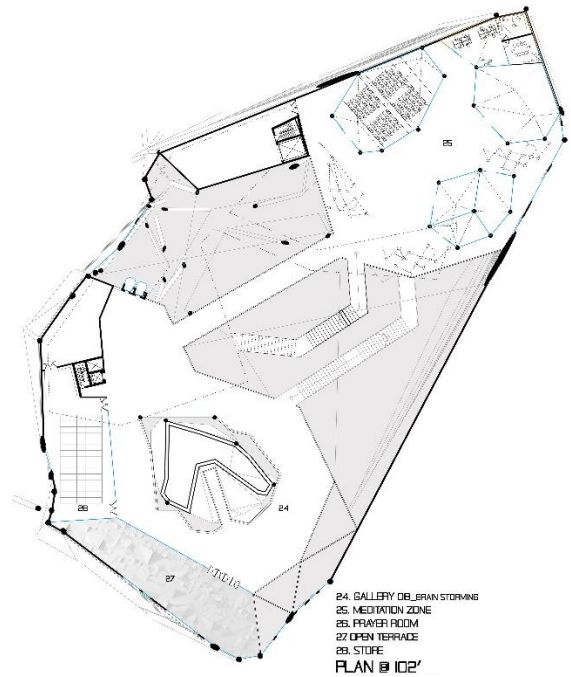
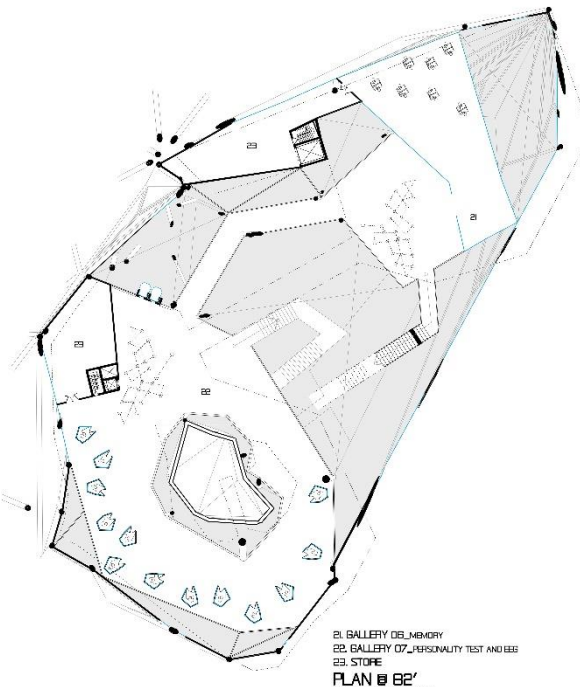
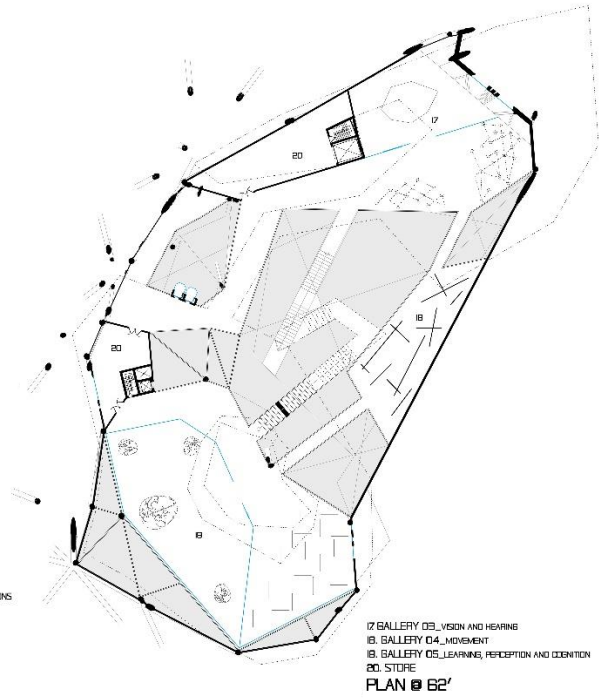
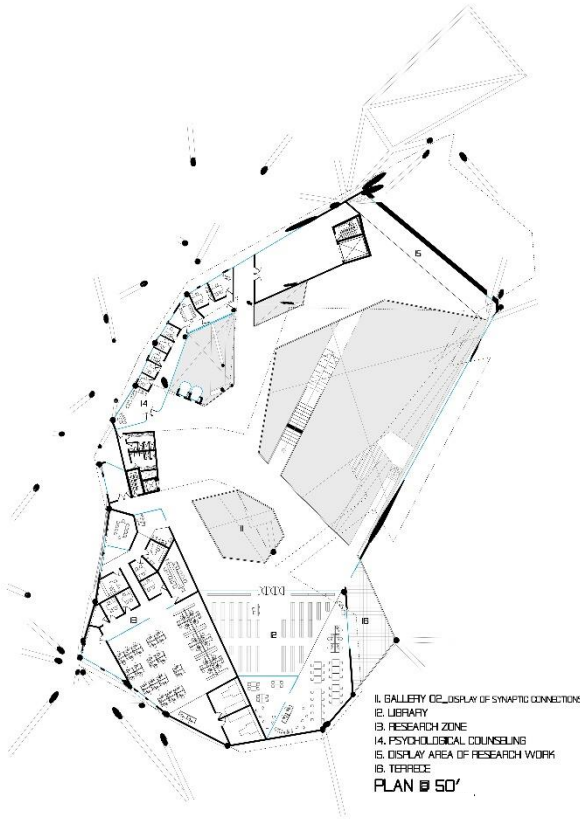
Site Plan

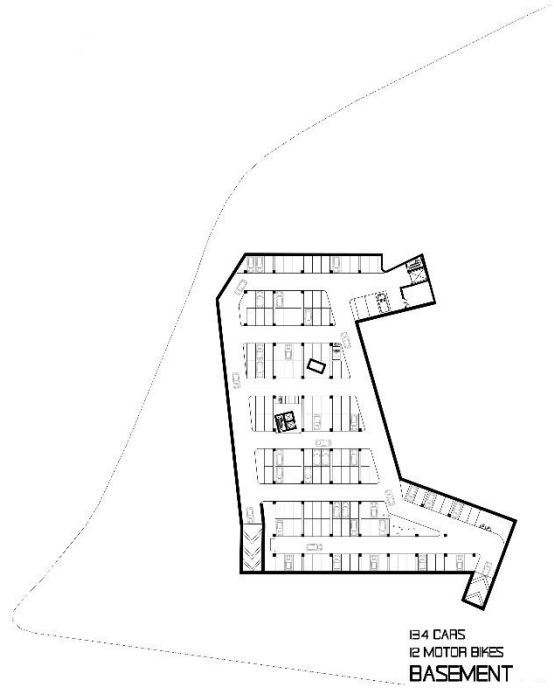
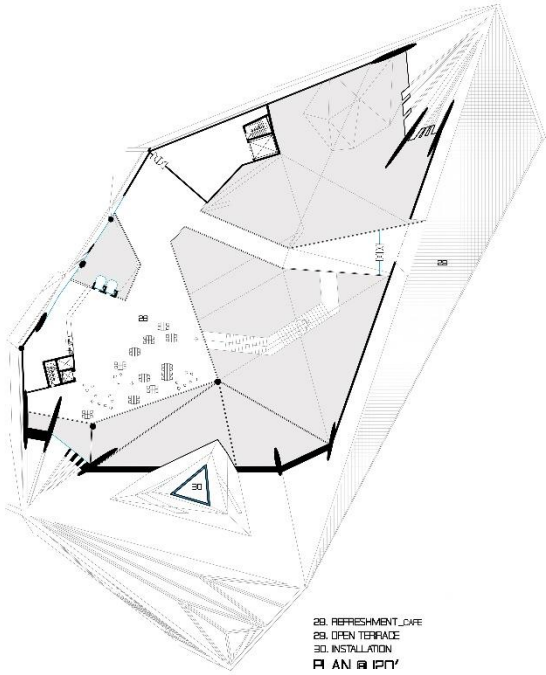


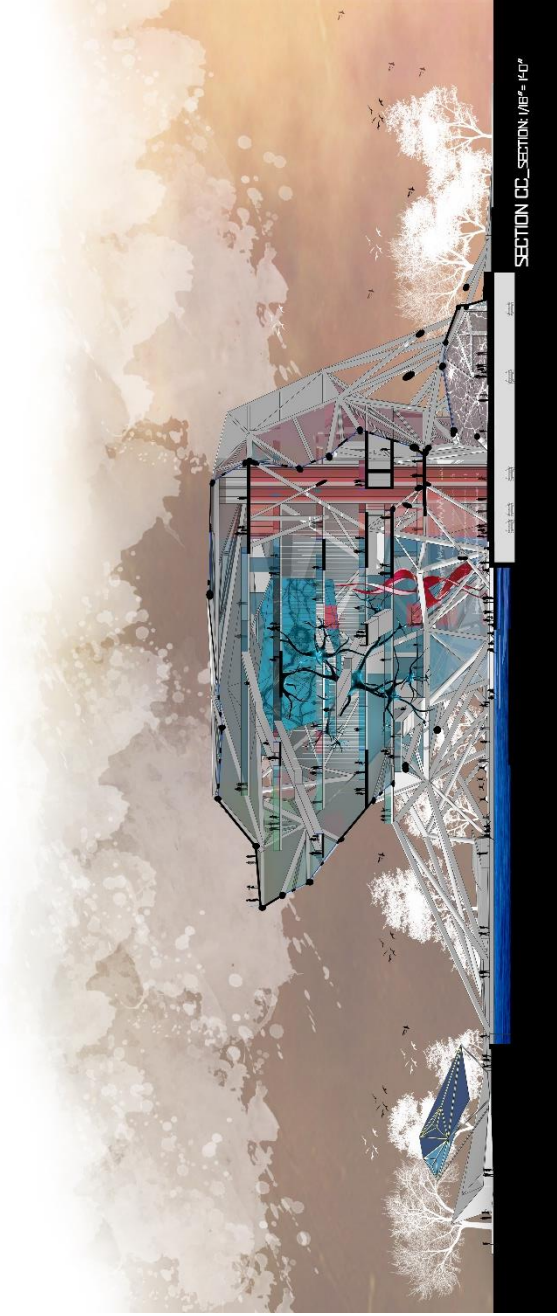
Plan @ 10'



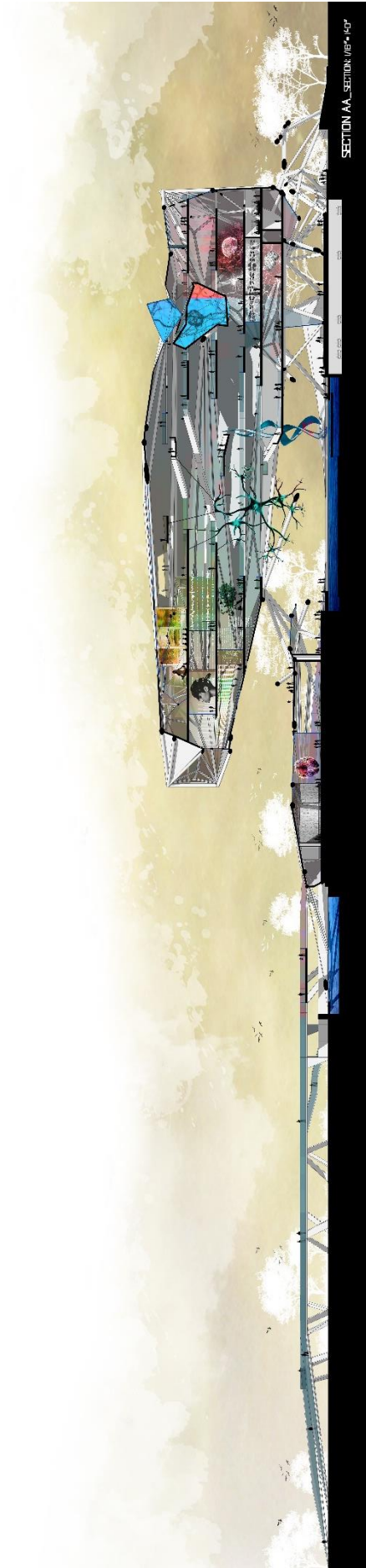
07 GALLERY DISPLAY OF BASIC INFORMATIONS ABOUT BRAIN
08 AUDIO VISUAL LECTURE ROOM
09 ADMIN
10 OPEN LEISURE AREA FOR MUSEUM WORKERS
PLAN @ 35'







Sections

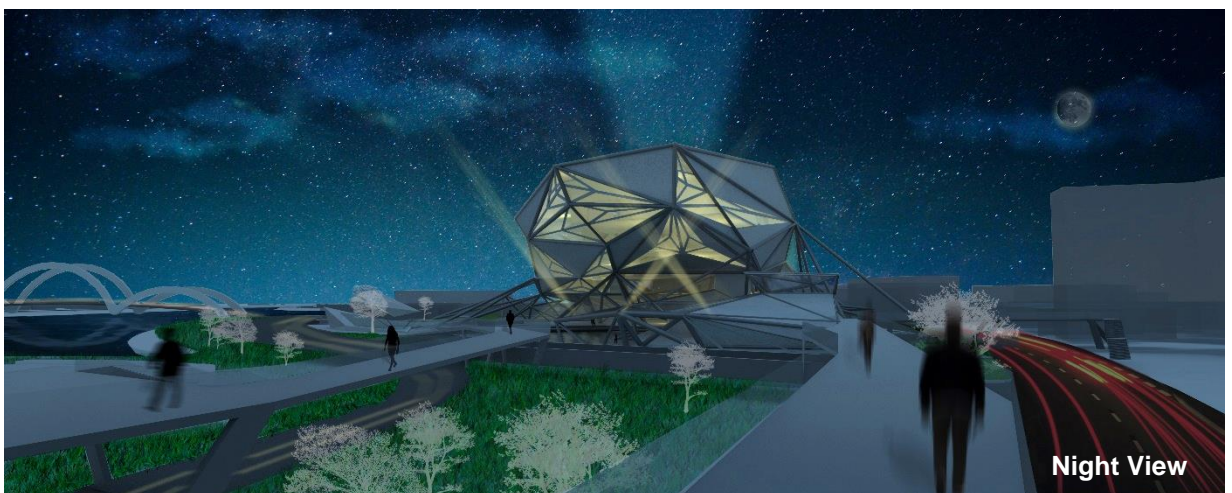
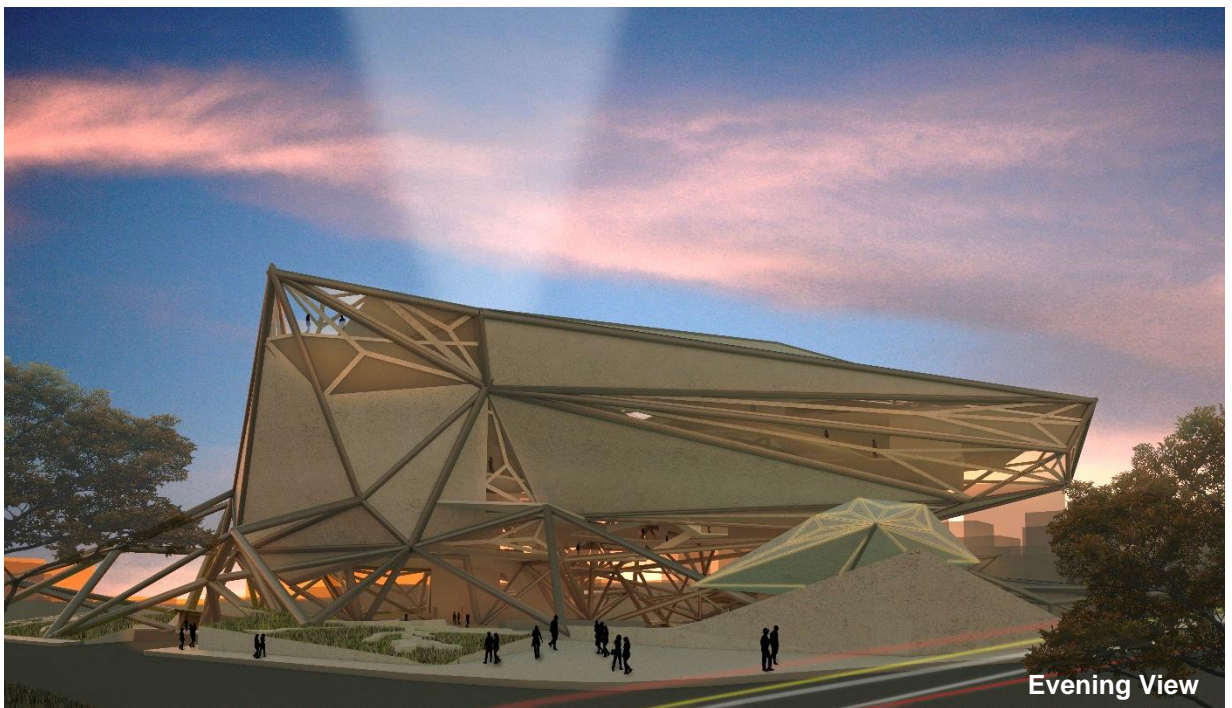
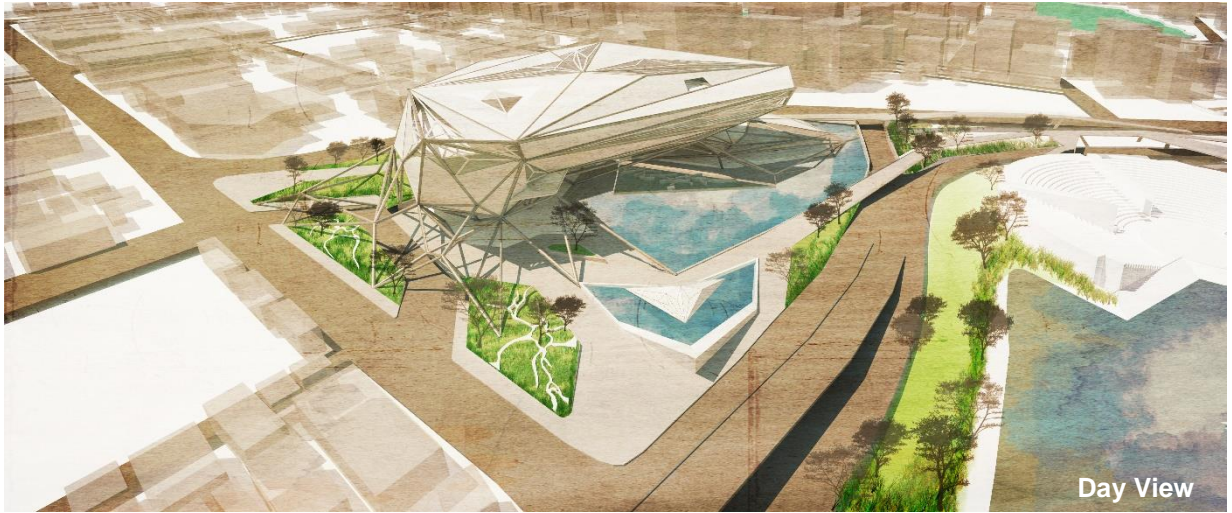


Section



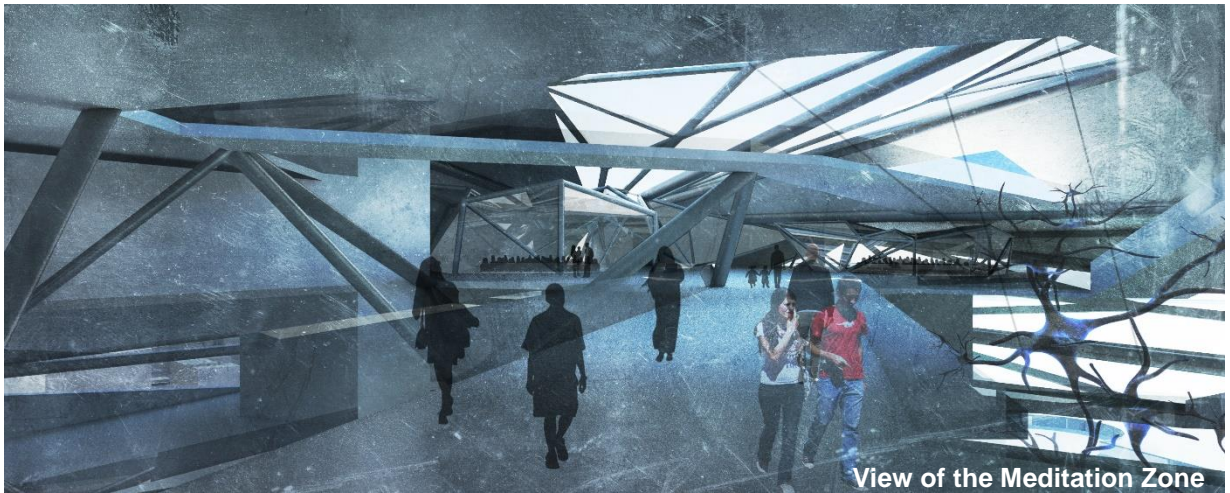
South Elevation

Render Images





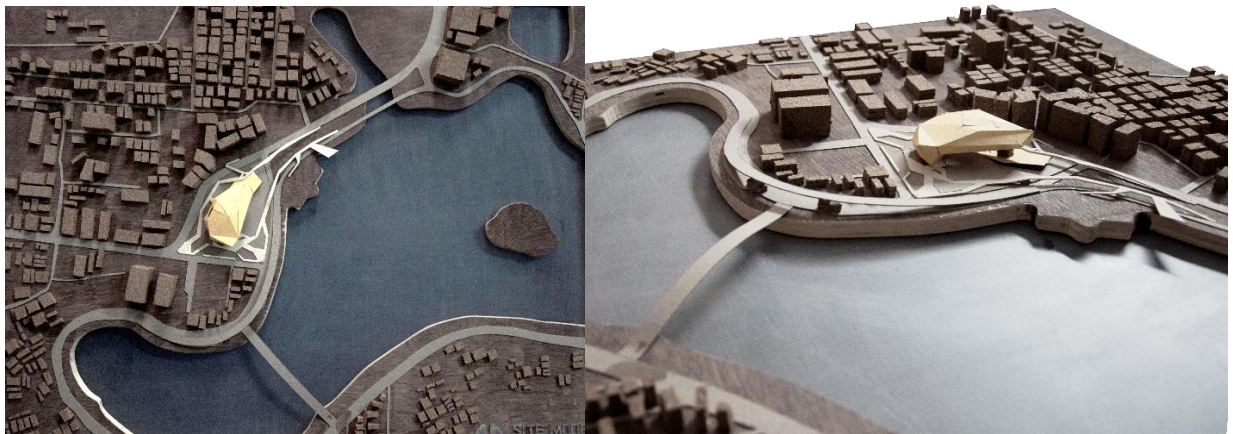
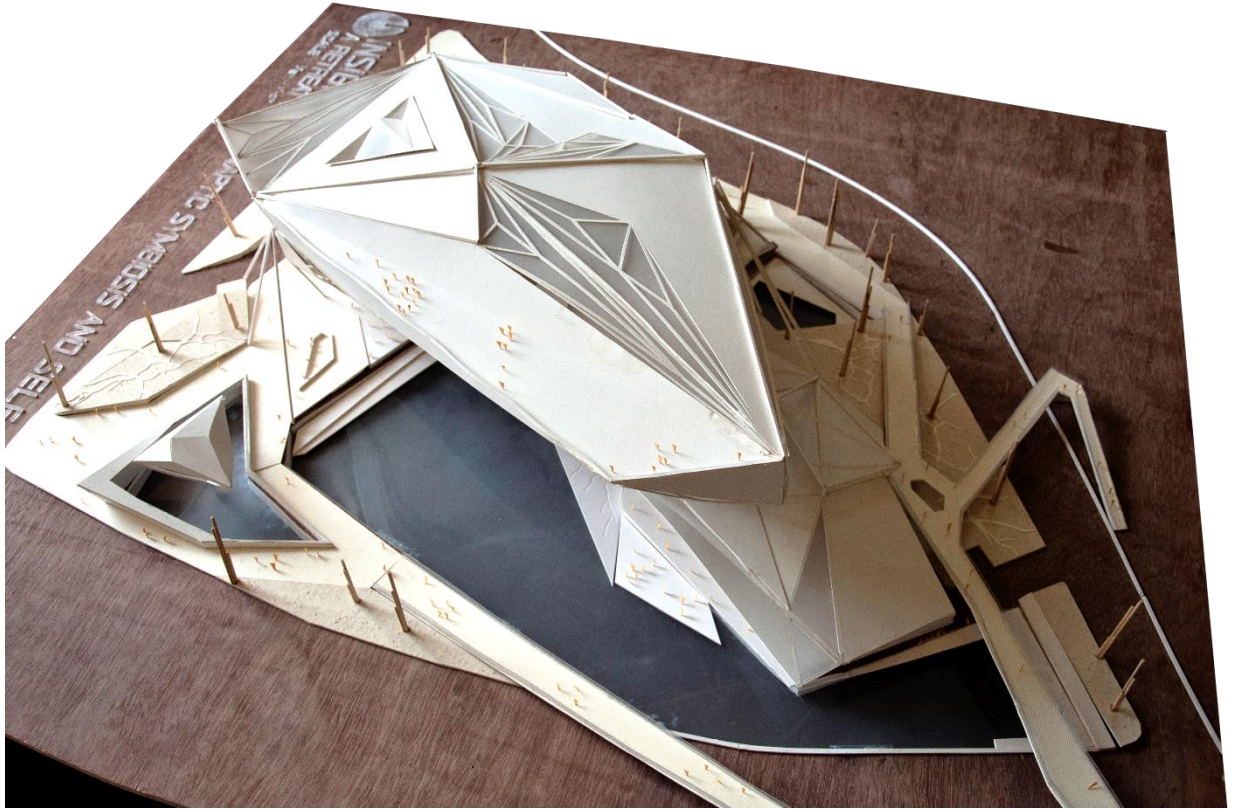
View of the Interior Installation

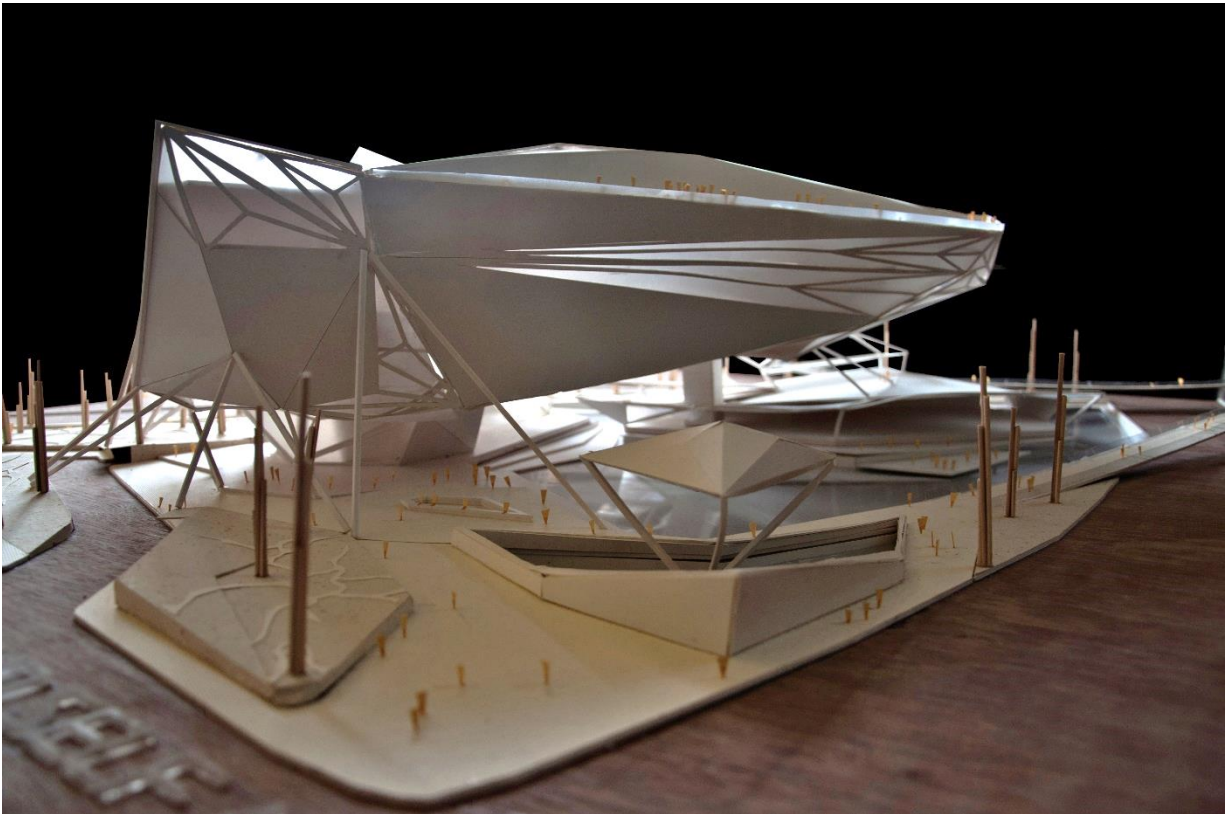
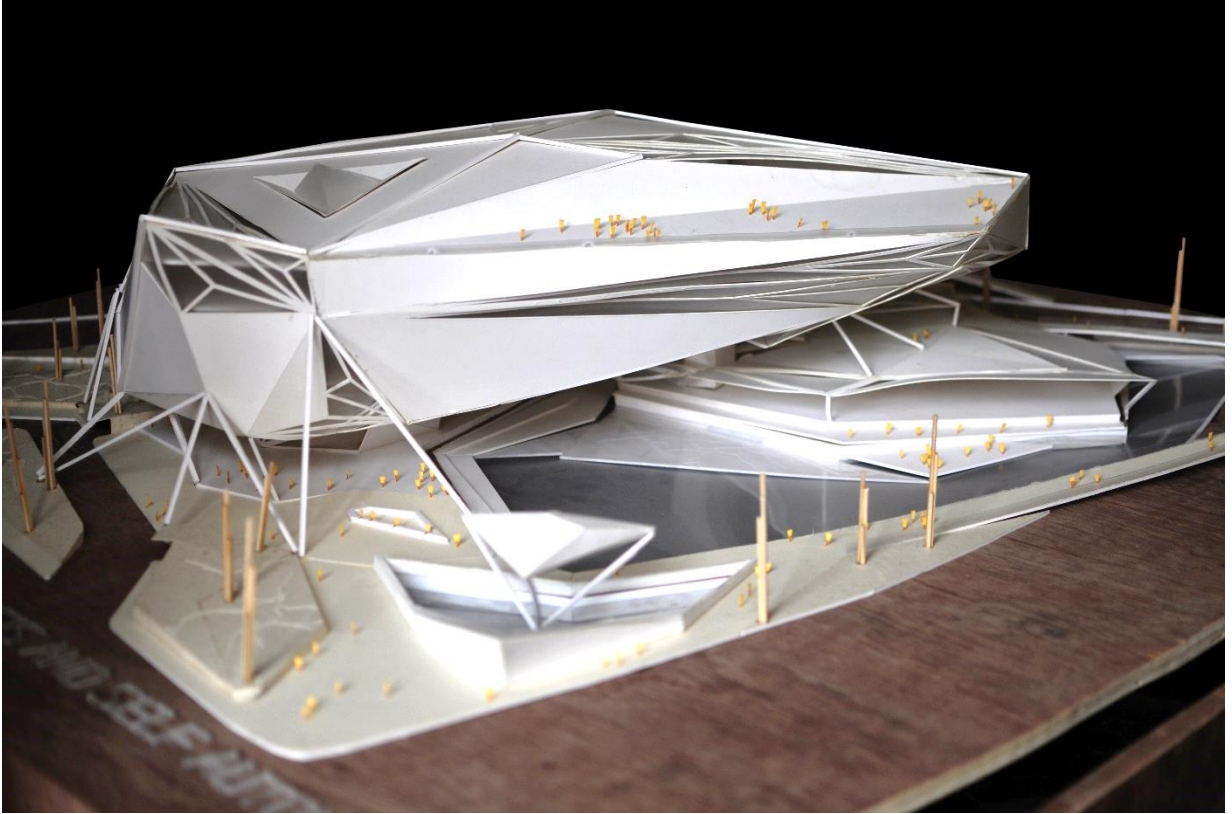


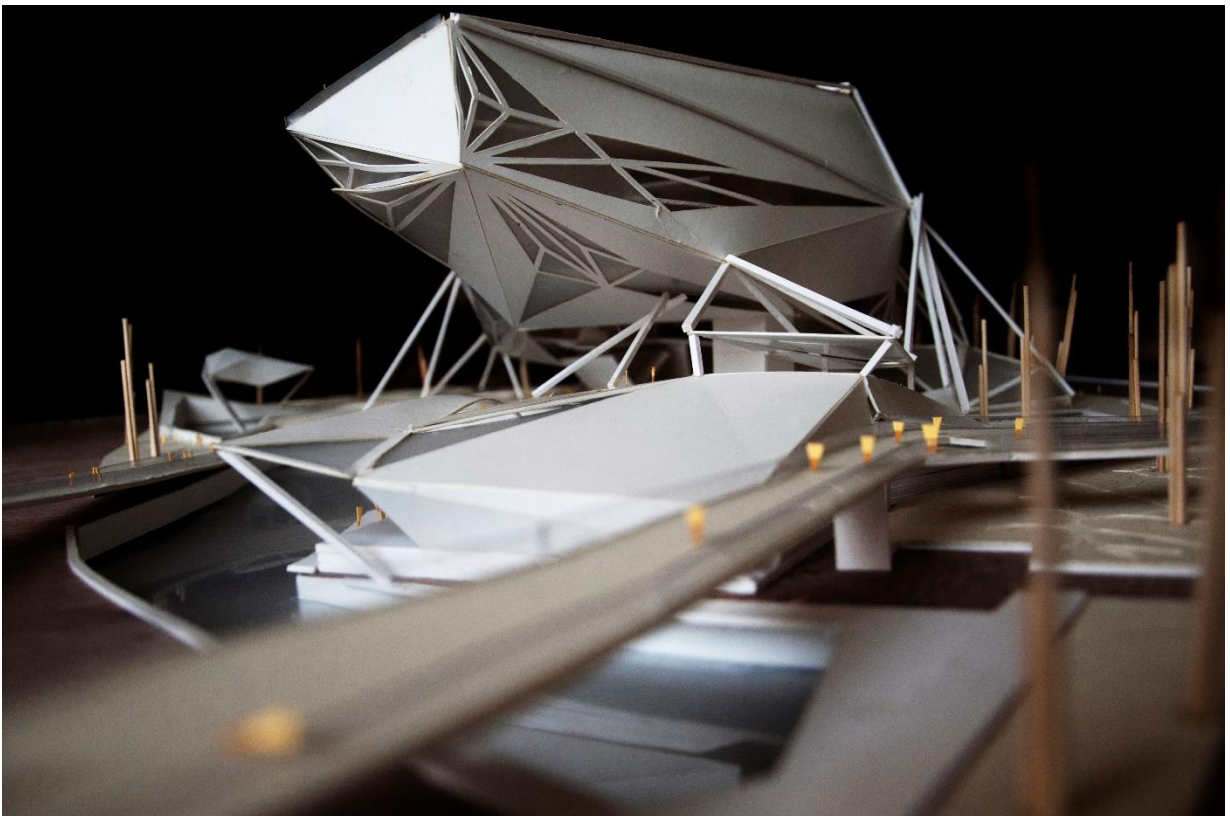
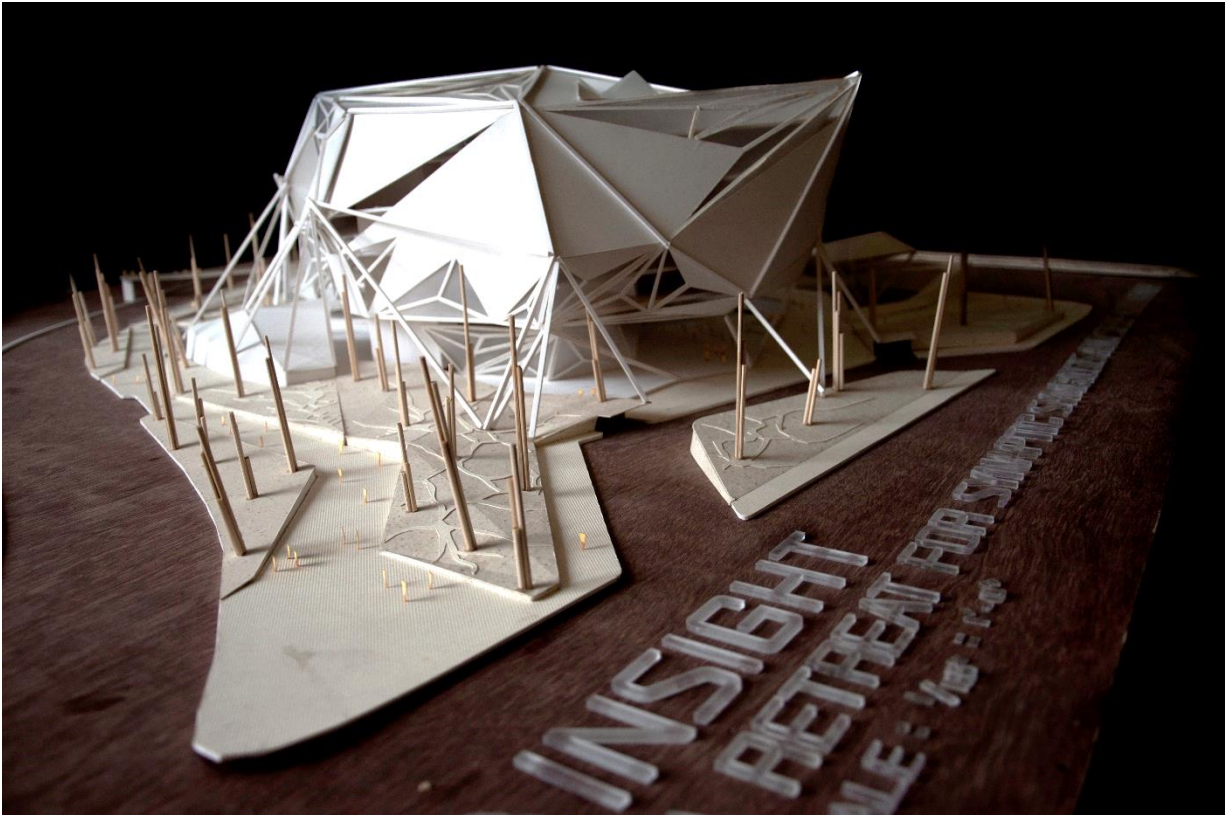
View of the Meditation Zone

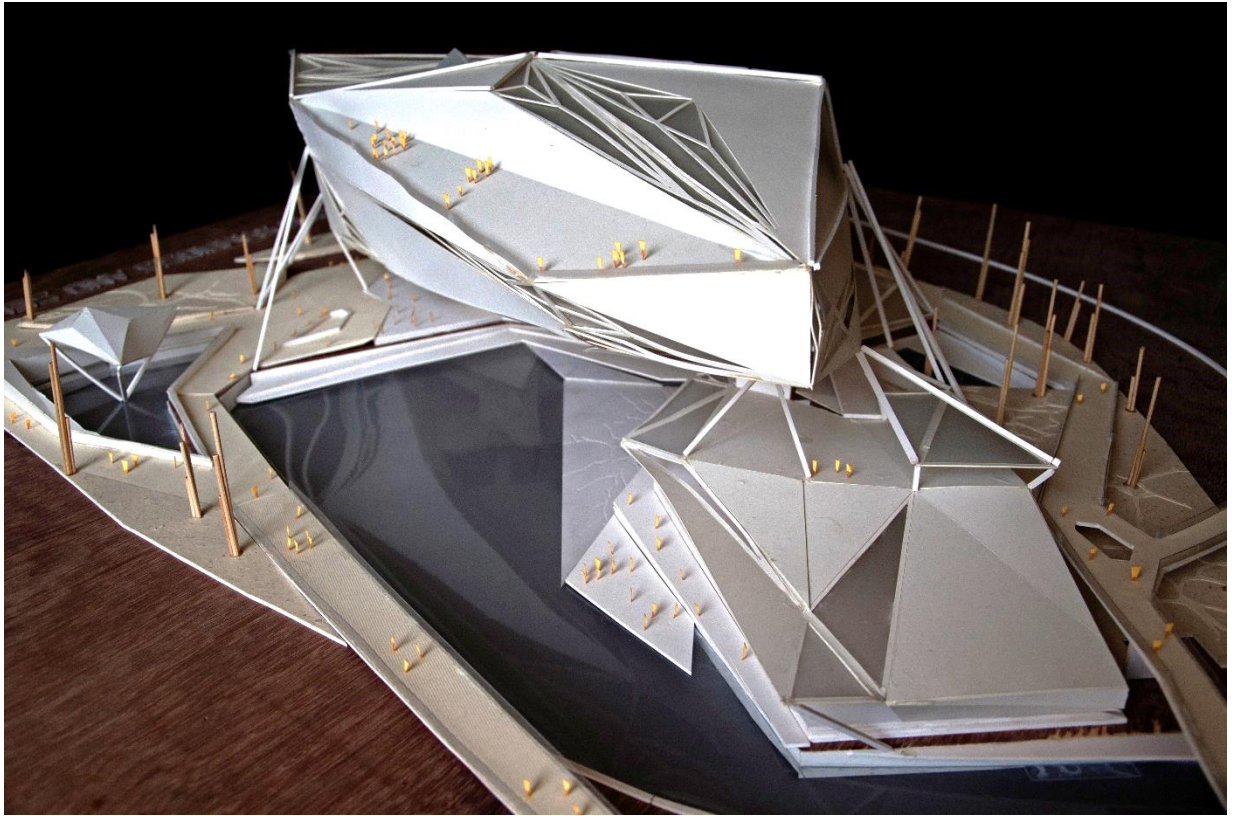
6.5 Final Design Model











CONCLUSION

A new typology has been created in this project, it provide variety of facilities starting from a museum to a research center, as well as recreational zones and counseling facilities. The design was made in the dream of making people realize the importance of staying positive and how one can control themselves and not indulge into means that actually harm the organs of the human body. Initially the design might seem like a mere place which deals with human brain and its functioning, but the main aim and intention was to stoke people to think, and think deep, of themselves and the surrounding. The intention was to make people philosophically aware of themselves and their surroundings. The world today is wonder about how to generate resources out of the natural resources provided by the upper most spiritual power, but we often forget that the best of all creation is human, and human mind, if used correctly can create wonders. Thus the project, to realize that greatness of human excellence.

REFERENCES

- 01 O'Shea. Micheal, The Brain, A very short introduction, 2005
- 02 Levitin. Daniel, This is your brain on Music, 2006
- 03 Mallgrave. Henry Francis, The Architect's Brain Neuroscience Creativity and Architecture, 2010
- 04 Byrne. Rhonda, The Secret, 2010
- 05 Rankin. Lisa, Mind Over Medicine-Scientific Proof That You Can Heal Yourself, 2013
- 06 Butler. Staurt, Functional Neuroanatomy
- 07 Snell. Richard, Clinical Neuroanatomy, 2010
- 08 www.wikipedia.com
- 09 www.archdaily.com
- 10 www.ncbi.nlm.nih.gov/pmc/articles/PMC3115284/
- 11 www.brainpickings.org
- 12 www.the-open-mind.com
- 13 www.themindunleashed.org
- 14 www.iflscience.com
- 15 www.ted.com