REIMAGINING SARASWATI VEENA
IN MODERN CONTEXT

PROJECT III

SUBMITTED BY
ANUSHREE BANERJEE 176130012

GUIDE : Prof. P Kumaresan
IDC SCHOOL OF DESIGN
INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
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Acknowledgement

We would like to express my gratitude to my guide, Prof. P Kumaresan for his guidance and support through the project. His suggestions and instructions were what helped me to steer this project in the right direction and push myself to try and come up with new ideas and solutions. I am highly grateful to my friends, fellow classmates and parents for encouraging me when I felt lost and constructively adding to my project with their valuable feedback in every possible way.

ANUSHREE BANERJEE 176130012

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II.HISTORY OF VEENA

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The Musical Instrument of India

Indian Classical Instrument is **primarily individualistic**. Our instruments are also ,therefore ***designed to be played solo***. An Indian musician considers music as a medium to reach divinity ad therefore shuts himself in a room, engaged in swara-sadhana (tone cuture),through singing and or/playing on his instrument. The instruments in Western music are used a s well in combination with other instruments, to produce a fascinating musical effect.Most of the instrument sound weak and ineffective. They fail to provide body or volume to the piece since by conception and design, they are meant to be played only in solo and not capable of creating the desired musical impact.

Classical Musical Instruments can be classified (by Natya Shastra) in four major categories:
-Tata Vadya (String Instruments)
-Avanaddha (Percussion Instruments)
-Sushira vadya (Wind Instruments)
-Ghana (Solid Instruments)

TADA
String Instruments differ in shape, size and number of strings in an instrument. These instruments are said to be the favorite of Gods. One such example is Veena which is called the mother of all the string instruments.

AVANADDHA
Also known as those instruments which are hollow from the inside or type of a vessel covered by a thick membrane. Many people believe that this category was first originated by Shiva since he had a Damroo which he used while performing cosmic dance. These instruments can be played with a striker (like used with Nagada), with fingers and palms.

SUSHIRVADYA
Now also known as Aero phones, these instruments have various holes in which the air is blown and resonated or vibrates creating different tones or sound. A very common example of such kind is a Flute which was also the favorite of Krishna.

GHANA
Solid Instruments are also known as 'Idiophones' They are not exactly hollow from inside .They cannot produce more than one sound and hence variation is not possible with these instruments. These are mainly used to maintain the rhythm or used in background in any music.

Origin of Saraswati Veena

The veena is one of the most ancient string instruments of India. Its origin can be traced back to the ancient yazh, a stringed instrument, similar to the Grecian harp. Bharata, in his Natya Shastra, explains the theory of the 22 srutis in an octave with the help of two experimental veenas.
The veena then went through several innovations and modifications. In its current form, the instrument can be attributed to Raghunath Nayak (circa 17th century) of Tanjavur in Tamil Nadu. There have been several versions through time.

The technique of performance suggests that the veena in Bharata Muni's time was quite different than the zither or the lute that became popular after Natya Shastra was complete. The ancient veena, according to Allyn Miner and other scholars, was closer to a harp. The earliest lute and zither style veena playing musicians are evidenced in Hindu and Buddhist cave temple reliefs in the early centuries of the common era. Similarly, Indian sculptures from the mid 1st millennium CE depict musicians playing string instruments.By about the 6th century CE, the goddess Saraswati sculptures are predominantly with veena of the zither-style, similar to modern styles.

SOUND QUALITY

As a fretted, plucked lute, the veena strings can produce pitches in full three octave range.The long hollow neck design of these Indian instruments allow portamento effects and legato ornaments found in Indian ragas.

(Citationhttps://mme.iitm.ac.in/vsarma/personalweb/veena.html)

Fig1:Lady playing Veena by Raja Ravi Verma

Fig2:Goddess Saraswati playing Veena

The veena is a complete instrument and provides the basic components: sruti, laya and sahitya. Its main attraction is the mellow tonal quality which is capable of evoking a meditative atmosphere.
A veena with and without frets has different manifestations in the realm of classcal . It is Rudra veena, used in Hindustani music . Saraswati veena, used in Carnatic music. It is also called Vichitra veena,when used in Hindustani music (fretless) and also Chitra veena or gottuvadhyam ,in Carnatic music and Mohana Veena .

Types of Veena

Veena comes from the word “Beena” and traditionally would mean any instrument. But In ancient and medieval Indian literature is a generic term for plucked string musical instruments

1.Rudra Veena

2.Saraswati Veena
(the difference between Northern and carnatic was that ,carnatic has lute resonator and Carnatic has wood resonator

3.Vichitra Veena
With no fret board it sounds more or less like human singing.

4.Sitar
In persian means three strings.

5.Saradiya Veena or Sarof

6.Chitra Veena

7.Ranjan Veena

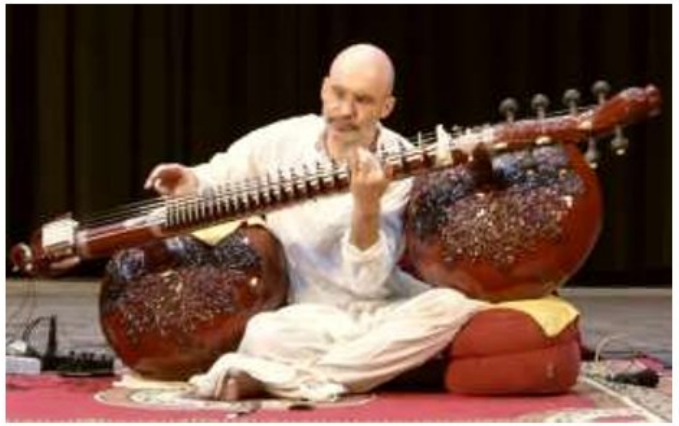


Fig3:Rudra Veena by Carsten Wicke

Fig2:Vichitra Veena

III.ANATOMY OF VEENA

1.Construction
2.Playing Techniques
3.Famous Artist and their style
4.Posture of playing Veena

Construction

Tamarapalli Eswara Rao, a hereditary veena-maker

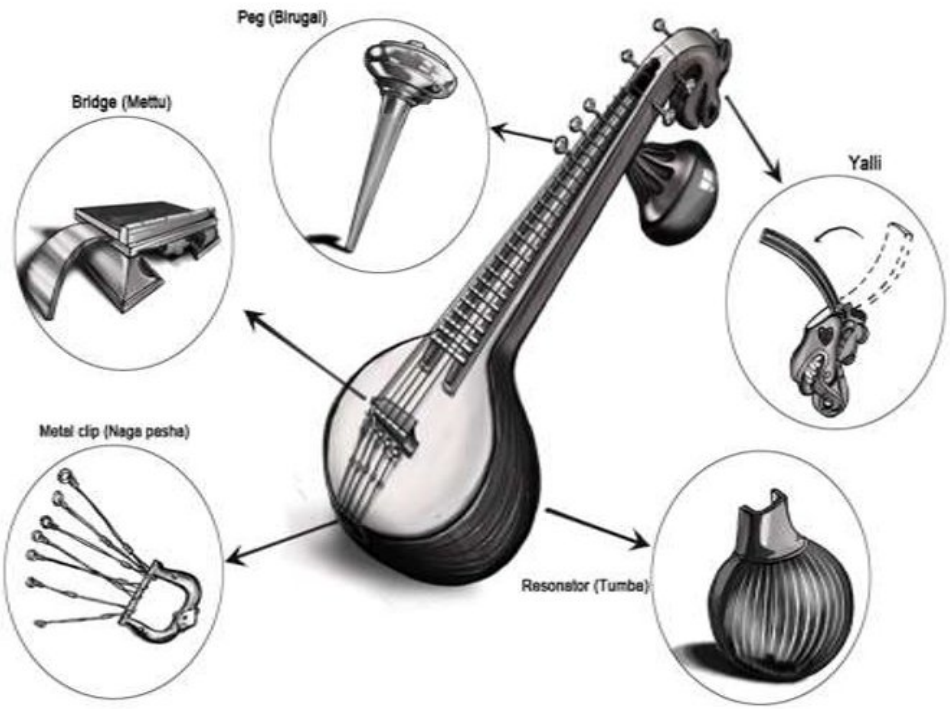
Because it's such a large instrument, there are three types of veena based on its construction.

The first is the "ekanda veena," which is carved from one piece of wood. The second is the two-piece "akhan- da veena," which is quite rare. The third is the "khanda veena," in which the four main portions (Kumbha, Dandi, Vyala, and Kayi (the gourd)) are made separately, and then joined.. If joined properly a khanda veena can sound better than the one-piece veena.

Given the years of apprenticeship involved, the level of skill, and the dedication that is required to make a fine veena, Venkatesan estimates that only ten crafts- men in India can make veenas of the finest quality, with six of them living in the Thanjavur area.

Citation: https://indiacurrents.com/the-veena-maker/

Construction



About four feet in length, its design consists of a large resonator (*kudam*) carved and hollowed out of a log (usually of jackfruit wood), a tapering hollow neck (*dandi*)

Resonators:

It has a large, round body with a thick, wide neck, the end of which is carved into the head of a dragon. A small resonator is attached to the underside of the neck.
The performer, who sits cross-legged on the stage, rests the small resonator on the left lap. The fingers of the left hand are used to press, pull and glide on the frets, while the fingers of the right hand are used to pluck and twang the strings.

Melam:

The veena has 24 bell metal frets embedded in hardened scalloped bees-wax, mixed with charcoal powder on wooden tracks

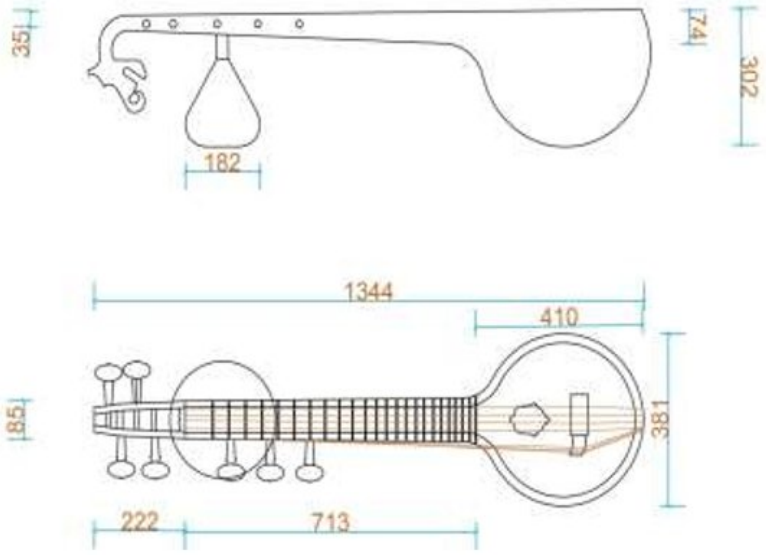
Bridge:

A small table-like wooden bridge (*kudurai*)—about 2 x 2½ x 2 inches—is topped by a convex brass plate glued in place with resin. Two rosettes, formerly of ivory, now of plastic or horn, are on the top board (*palakai*) of the resonator

Yali:

A tuning box culminating in a downward curve and an ornamental dragon's head

Construction



Strings:

Melody is produced on four metal strings that run above the frets. These are stretched over a wide bridge that sits on the body of the veena. Three other strings run alongside the neck of the instrument. These are used for maintaining time and for playing the drone. The melody strings are tuned in *c' g c G* (the tonic, the fifth, the octave and the fourth), from which *sarani* (chanterelle) is frequently used. The drone strings are tuned in *c'' g' c'*(the double octave, the tonic and the octave). The drones are typically used to create rhythmic *tanams* of Indian classical music and to express harmony with clapped tala of the piece. The main string is called *Nāyakī Tār* (नायकी तार), and in the Sarasvati veena it is on the onlooked's left side. The instrument is played with three fingers of the right (dominant) hand, struck inwards or outwards with a plectrum. The *bola* alphabets struck in the North Indian veena are *da, ga, ra* on the main strings, and many others by a combination of fingers and other string

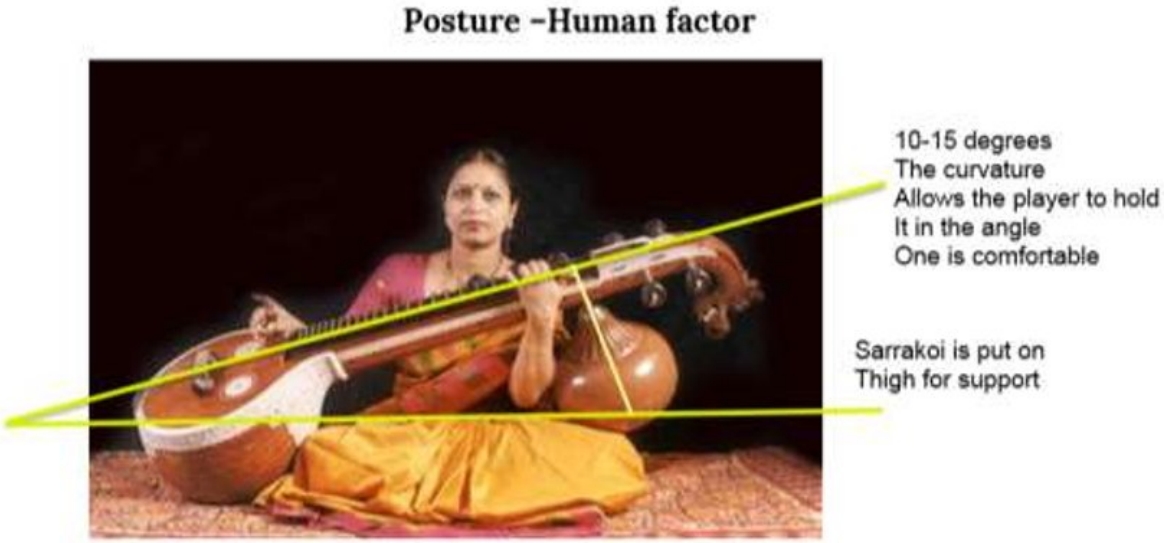
Decoration

Decoration is applied on the soundboard, the junctures and on the sides of the instrument where the soundboard and the fingerboard meets the body and neck. Decoration traditionally made out dear horn, now made out of plastic sheet.

Posture

The veena is played by sitting cross-legged with the instrument held tilted slightly away from the player. The small gourd on the left rests on the player's left thigh, the left arm passing beneath the neck with the hand curving up and around so that the fingers rest upon the frets. The palm of the right hand rests on the edge of the top plank so that the fingers (usually index and middle) can pluck the strings. The drone strings are played with the little finger. The veena's large resonator is placed on the floor, beyond the right thigh. The photo of Veenai Dhanammal more accurately illustrates how the *veena* is held than the more fanciful Ravi Varma painting.

Like the *sitar*, the left hand technique involves playing on the frets, controlled pushing on the strings to achieve higher tones and glissandi through increased tension, and finger flicks, all reflecting the characteristics of various *ragas* and their ornamentation (*gamaka*). Modern innovations include one or two circular sound holes (like that of the lute), substitution of machine heads for wooden pegs for easier tuning, and the widespread use of transducers for amplification in performance.



Different style of playing Veena

Tanjore Style

The Tanjore style looks to mimic the human voice - this means that the *Veena* player uses as little plucking and emphasis on the strings as possible and tries to 'extract' as many notes through a single impulse. The use of *Gamaka* or vibrations on a note is plenty. The entire music sounds loopy and rich with microtones. There are very little breaks in playing the composition since continuity of sound is held to be very important.

Mysore Style

The *Mysore* style does not aim to mimic the human voice - it accepts the fact that the *Veena* is an instrument and that an instrument can only approximate the human voice and not match it. It treats the instrument as an instrument and brings out the beauty of frets brilliantly. This style is fret based - it is played much more like the sitar or a guitar. The consequence of this is that there are very limited amount of *Gamakas* or shakes on the note. Notes are pure and played in quick succession to give a sliding "waterfall" effect..

Techniques of playing

1. Sliding
2. Pulling

IV. MARKET ANALYSIS

1.Target Market
2.Exisiting product-Innovations
4. Market Positioning
5. Interviews
6.Market Positioning

Target Market

-The Indian music industry grew 24.5% to touch $156 million (Rs. 1,068 crore) in 2018.

-India western musical instruments market is anticipated to cross INR 542 Crore revenues by the year 2017

-Tapping the customer buying western instrument. Capturing 10% of the market which is close to INR 54 crore.

-Luring the indian youth opting for the western string instruments to take up Veena by making it contemporary, cheaper and easier to learn and cheaper to access.

Age group : 20-25 years

Novice

To learn and play in concerts

Existing Products - Innovations

There has been several versions of Veena developed by musicians. Aright from creation of the rudimentary electric veena,followed by the electronic veena(1986) and digital veena (2002) by the engineer-flautist G Raj Narayan of Bengaluru.(1971).

More versions are made to make it portable ,easy to manufacture etc. Some examples are Suma Sudhindra's Tarangini Veena.

Nowadays fibreglass veenas are manufactured by moulding a mixture in the form of resin containing wood sap and other chemicals. The parts that are moulded and manufactured out of fibreglass are kudam, sarukai and the dragon face, the remaining parts of the veena remain the same as in the case of the wooden veena. As it is very difficult to get good quality ripe jack wood, the invention of fibreglass veena has proven to be a boon. The cost of these veenas is less, whereas the sound quality and the appearance is good. These also have the shock resistance properties and are lighter in weight than wooden veenas.

Fig1. Suma Sudhindra invention Tarangini Veena

Fig3. Radel Electronic Veena

Fig2. Shiva Veena by Denis Petrov

Case Study – Radel Electric Veena

Features of Sunadavinodini are:

– Enhanced volume, with the amplifier, speaker and electronic tambura built-in to one of the gourds
– Authentic sweet veena sound
– Adjustable independent volume control for main and taala strings
– Increased sustenance of notes; thus long passages can be played with fewer plucks
– Adjustable frets on a wooden fret board, eliminating the more delicate wax fret board
– Frets can be adjusted easily by the user
– Guitar-type keys for easy and accurate tuning
– Complete portability, as the sound box of the veena is dispensed with, and replaced by a plank of wood. Easy assembly / disassembly
– Can be used on battery in case of AC Mains power failure.

Problem Identification

User Survey and Interview – Insight
Sample size : 5 users
Age :23-25 years

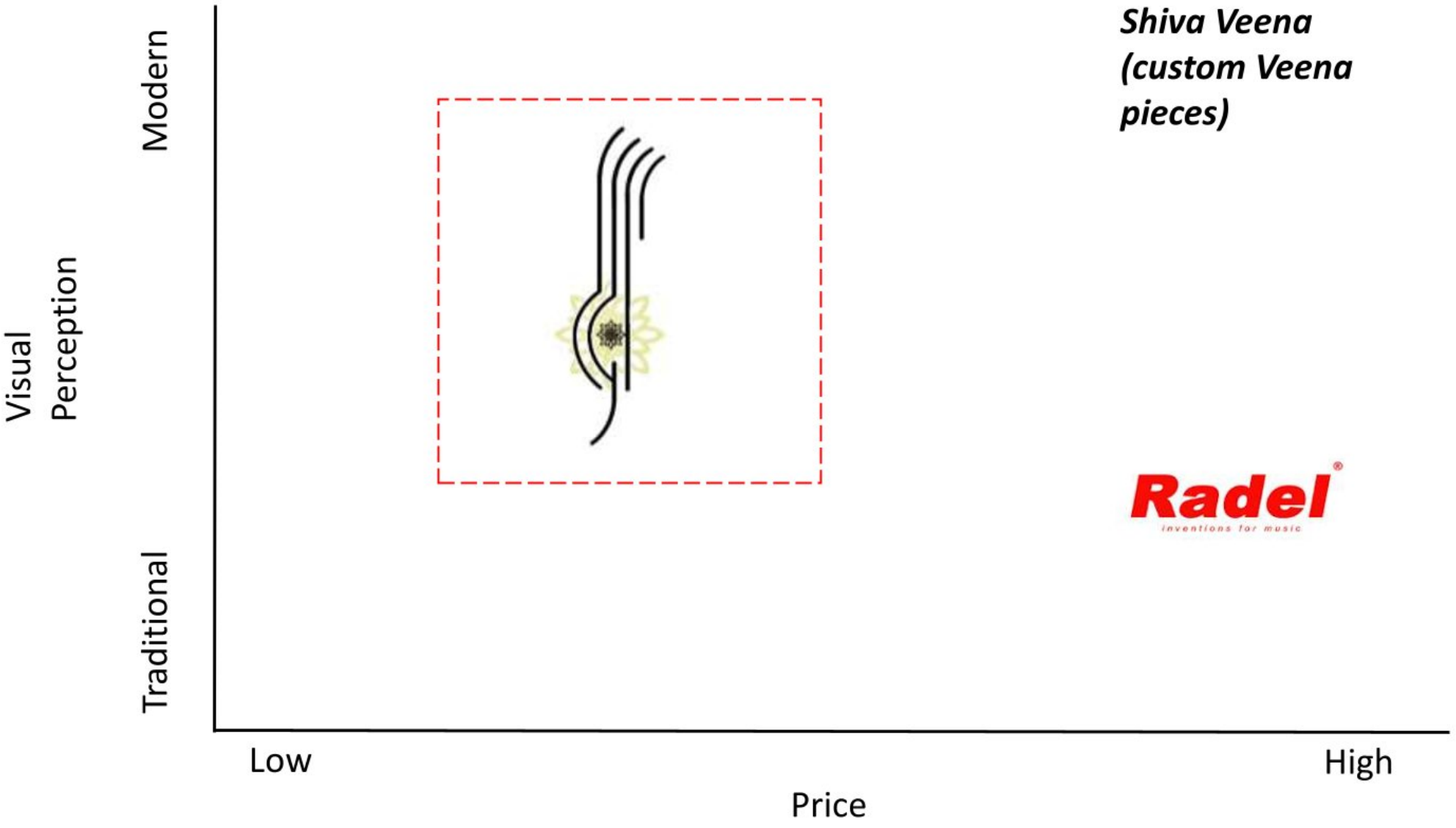
I conducted a survey of 10 Sarswati Veena players and got following insights:
1.The weight of the instrument causes problem.
2.The players face following problems while playing :
a)lack of mobility b)It's difficult to sit o the floor for an extensive period of time with legs folded.
3.Fret Board replacement is a common problem
4.User wanted lighter ,portable and more audible instrument.
5. Something with an adjustable posture can cause more ease to the player.

Challenges

The challenges faced by them in using the acoustic veena:

1. **Low sound output (volume)** compared to other louder instruments like flute or violin, causing the sound of the veena to be almost inaudible in concerts comprising other instruments along with the veena. This necessitated use of a contact mike (pioneered by Emani Sankara Sastri) or magnetic pickup (pioneered by S.Balachander). Usage of these requires carrying an additional amplispeaker to enable audibility to the performer.
2. **Fragility of the acoustic instrument**, causing frequent breakage and damage during travel.
3. **Requirement of re-fretting every year or so**, necessitating either carrying the instrument back to India or facilitating the travel and stay overseas, of the skilled artisan from India for this specific purpose.

Market Positioning



VI.DESIGN BRIEF

1.Design Objective
2.Design Brief

Design Objective

The design objective is to design an electric veena for a new learner which is portable and can be used to learn the instrument as well as for concert performance.

Design Brief

Developing an electronic veena for a new learner of the instrument with the following features :

1.Electric pickup and inbuilt speaker

2.Easier transportation and packaging , less fragile

3.Weights 3-5 kg instead of the traditional 10 kgs.

4.Easier tuning for a new begininner

5.Retaining the timbre and tonality of the original sarasvati veena as much as possible.

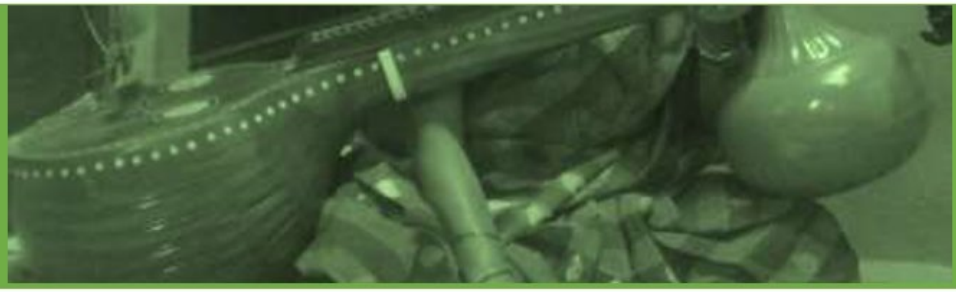
6.Gives more mobility to the player. Can be customised according to user. Allows different psoture to the player.

7.A modern aesthetic retaining timelessness.

8.Changeable and repairable fretboard.

VII.DESIGN

1.Moodboards
2.Ideation
3.Concepts
4.Final Concept
5. Branding



VISUAL SEMANTIC STUDY

COMPOSED
COLLECTIBLE
TRADITIONAL
DIVINE
EXPENSIVE

VISUALLY-HEAVY
CHAOTIC
IMBALANCED
HANDMADE
OVERWORKED
VISUALLY BUSY
UNAPPROCABLE

VISUAL REFERENCE












Project III| Redefining Veena in modern context

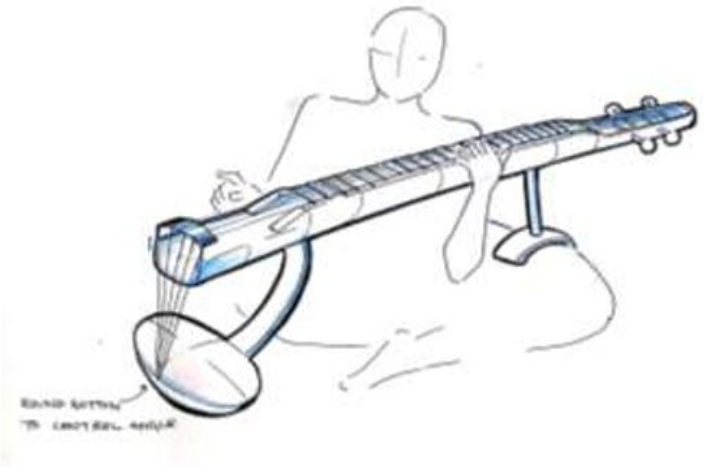
MOODBOARD

CLASSIC
TIMELESS
FLOWY

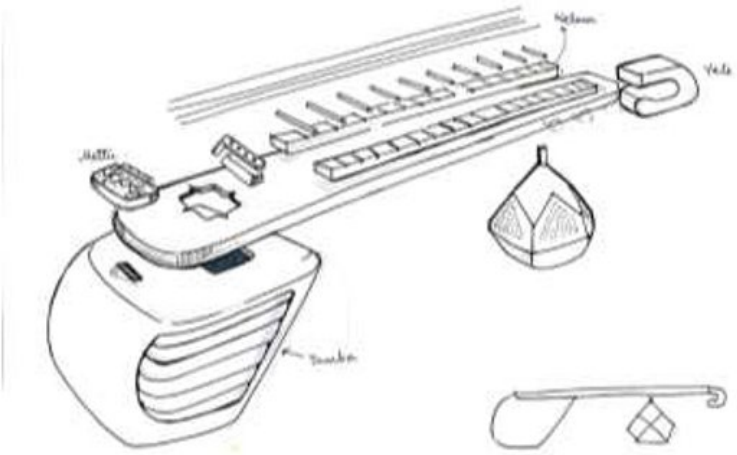
INDIAN
MINIMAL
INVITING

COMPOSED
COLLECTIBLE
TRADITIONAL
DIVINE
EXPENSIVE
LIGHTLY
ORNAMENTED

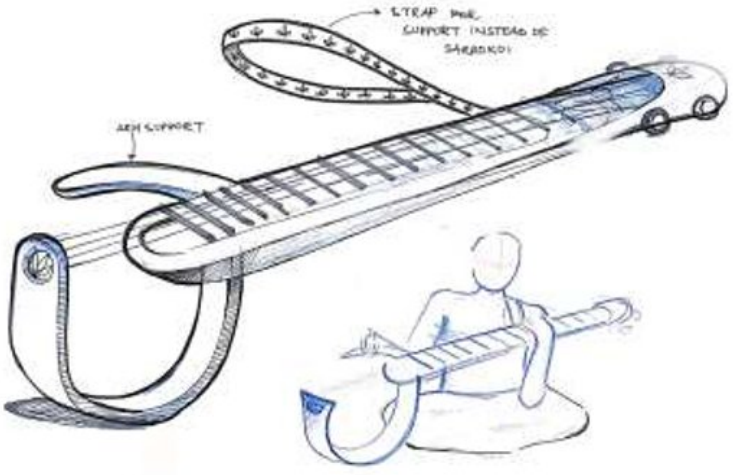
A: Form inspired by basic elements



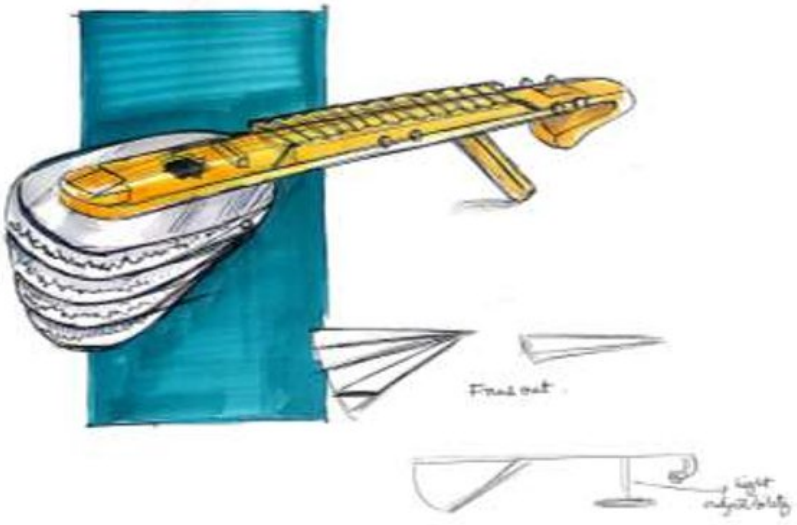
B: Multi faced speaker replacing the Sarokoi



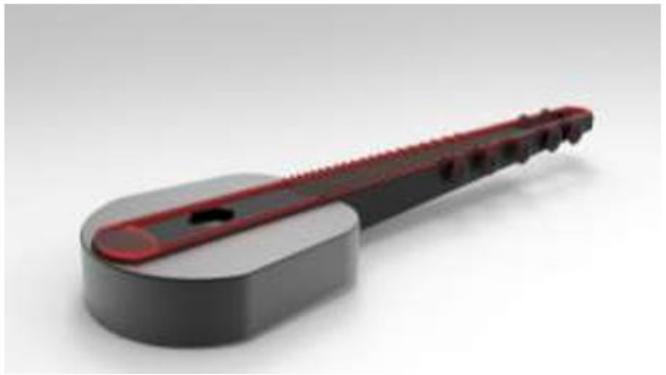
C: Replacing sarokkoi with a strap

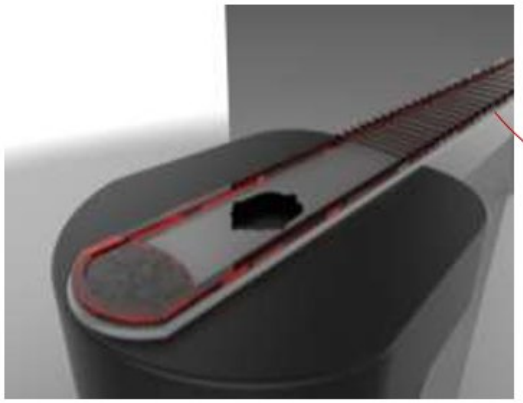


D: Fanning out the Tumba

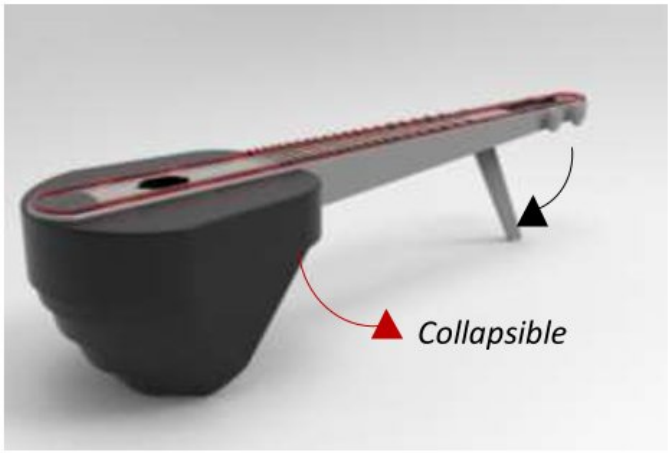


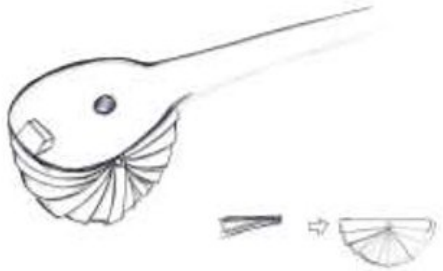
Fanning Out the resonator

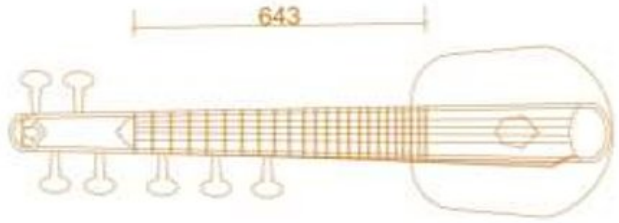




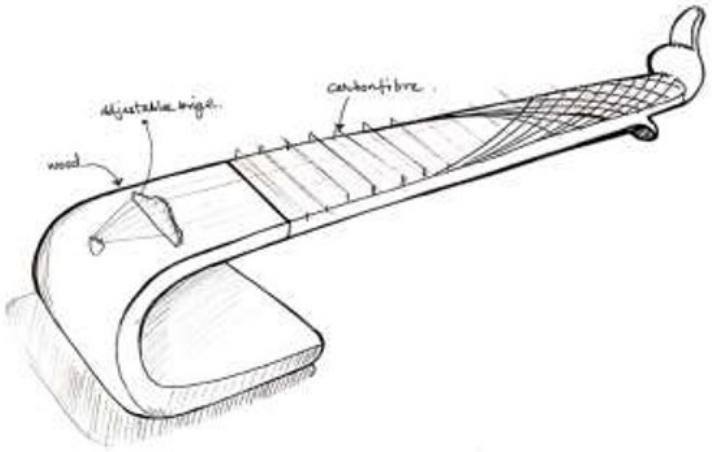
Melam Led Lit highlight

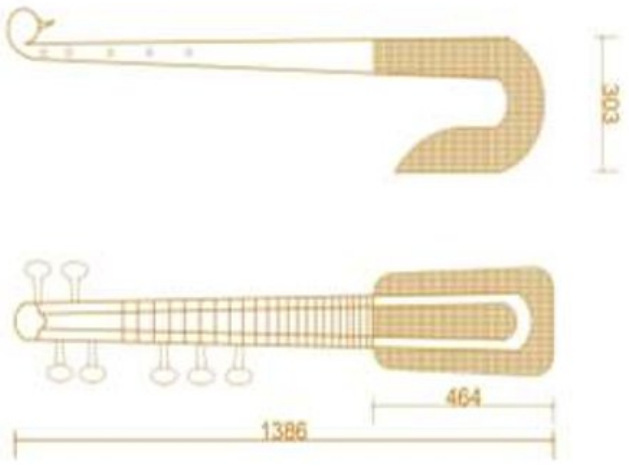




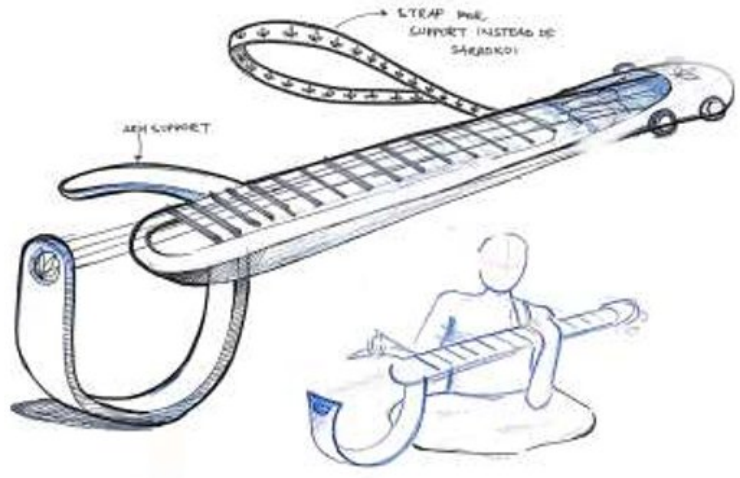


Elimination of Resonator(straps added for support)

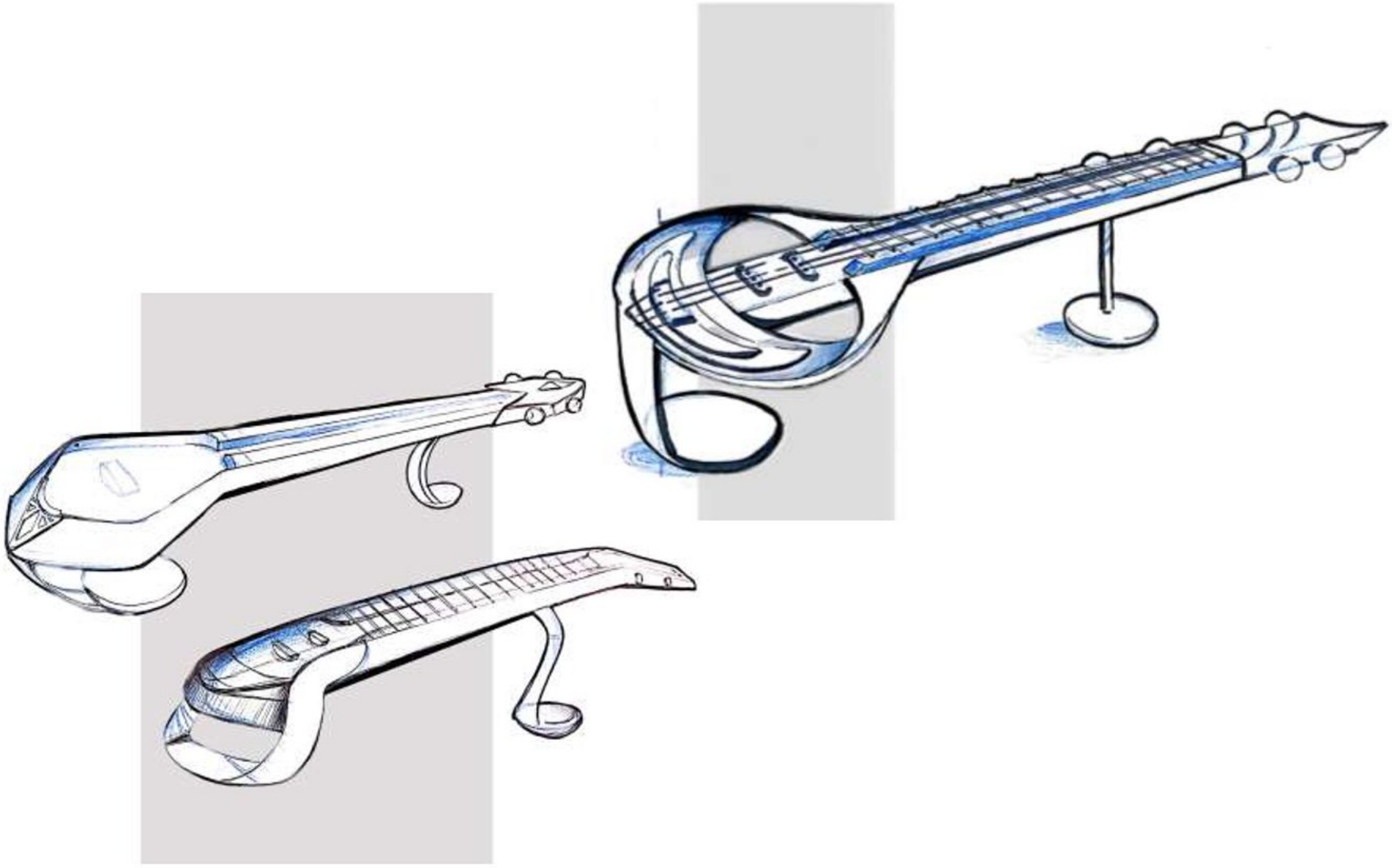




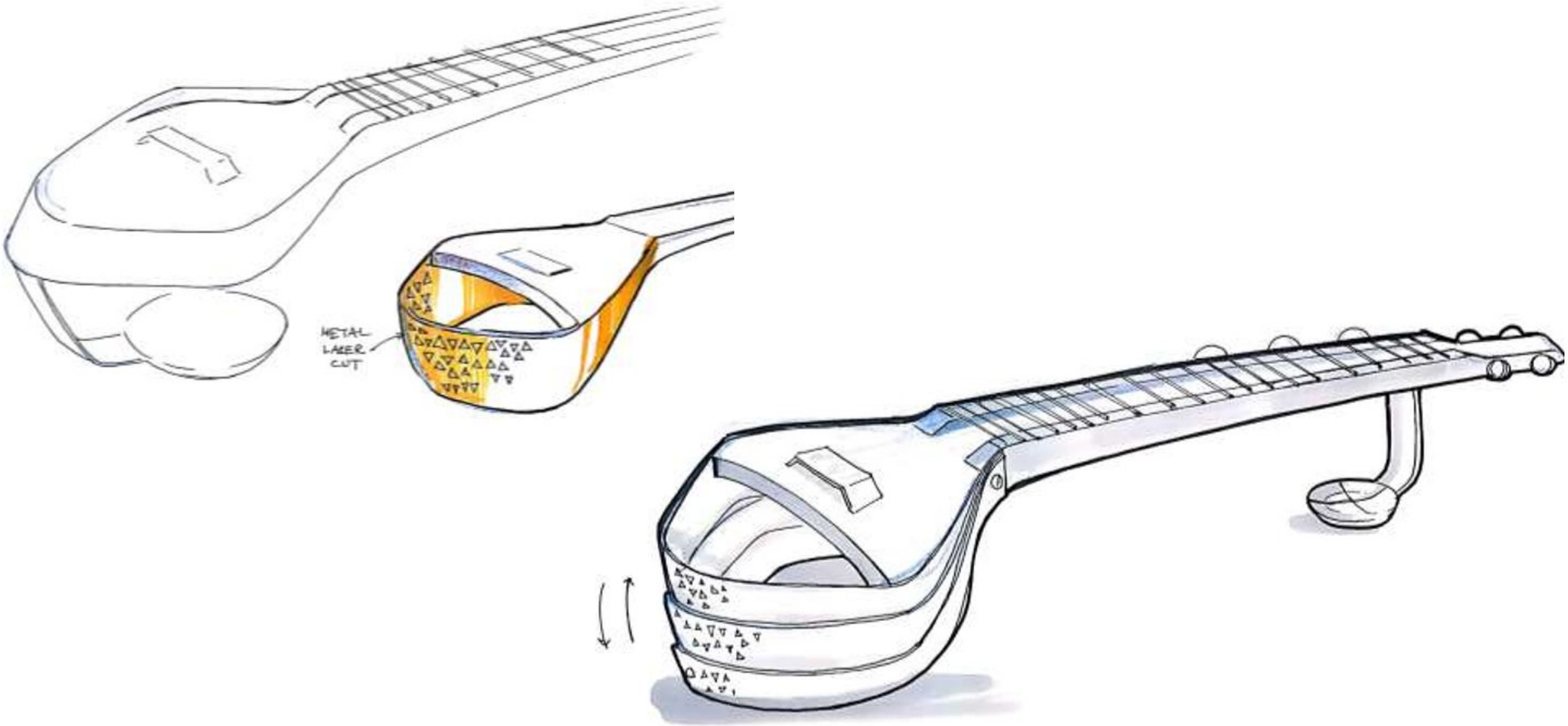
Heavier base and lightweight fretboard,



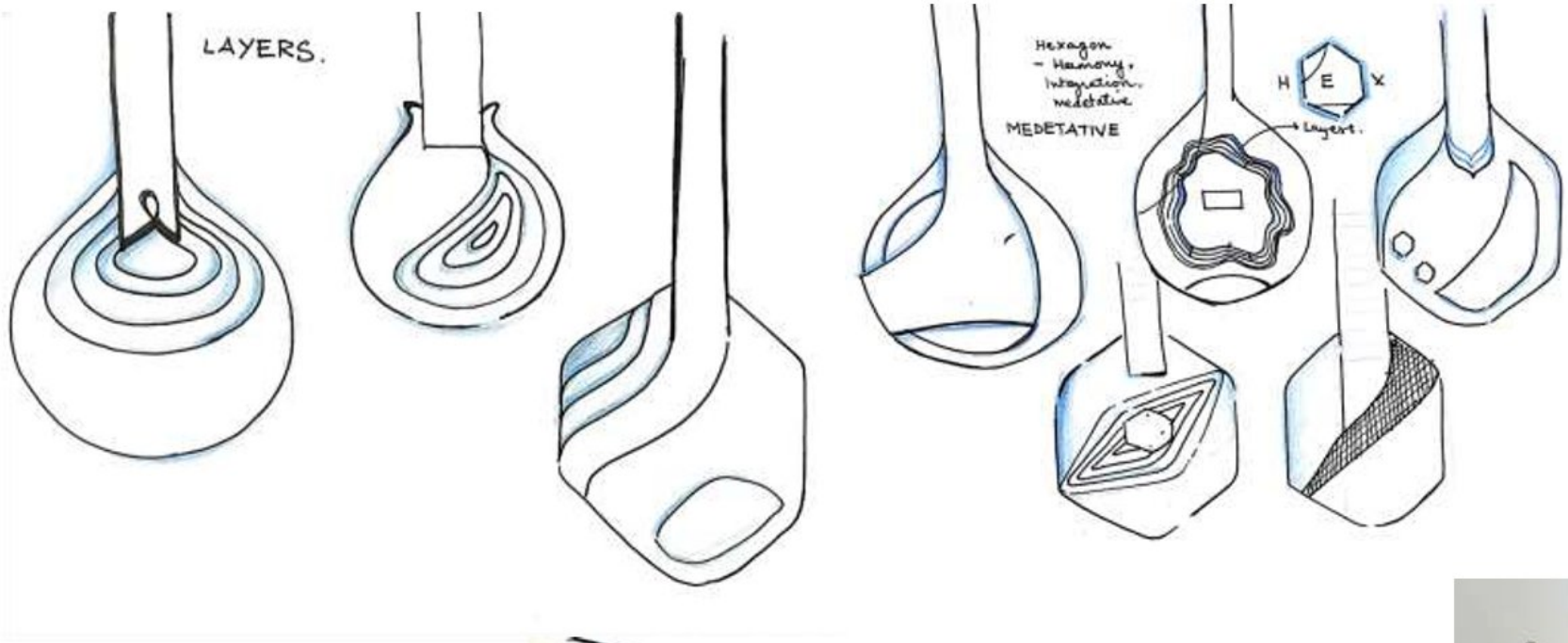
Form Exploration

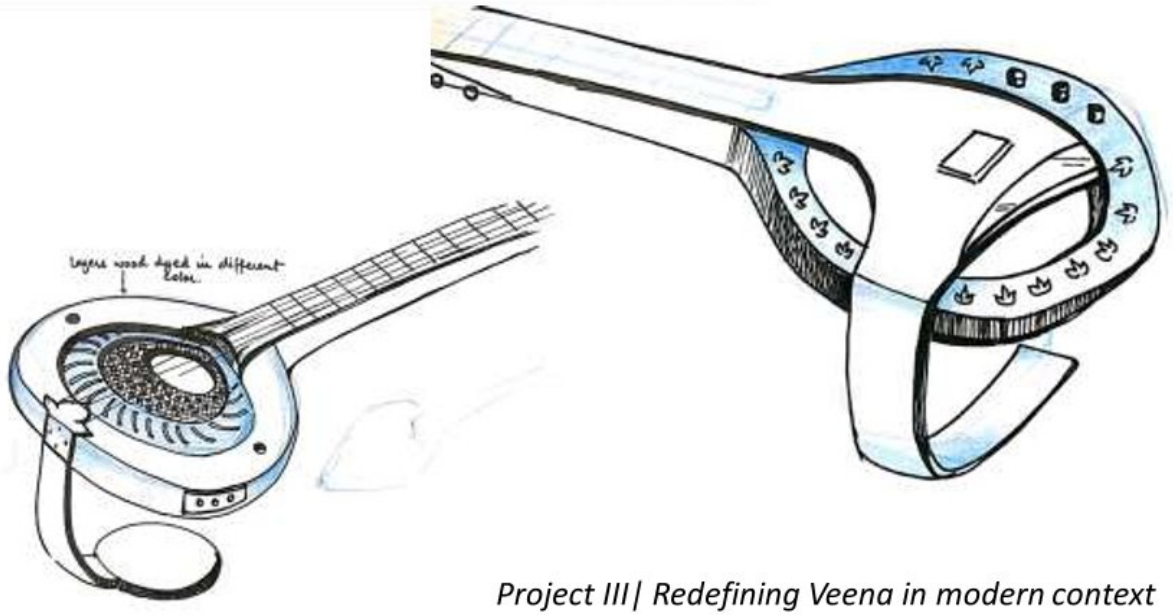


Laser Cut Details



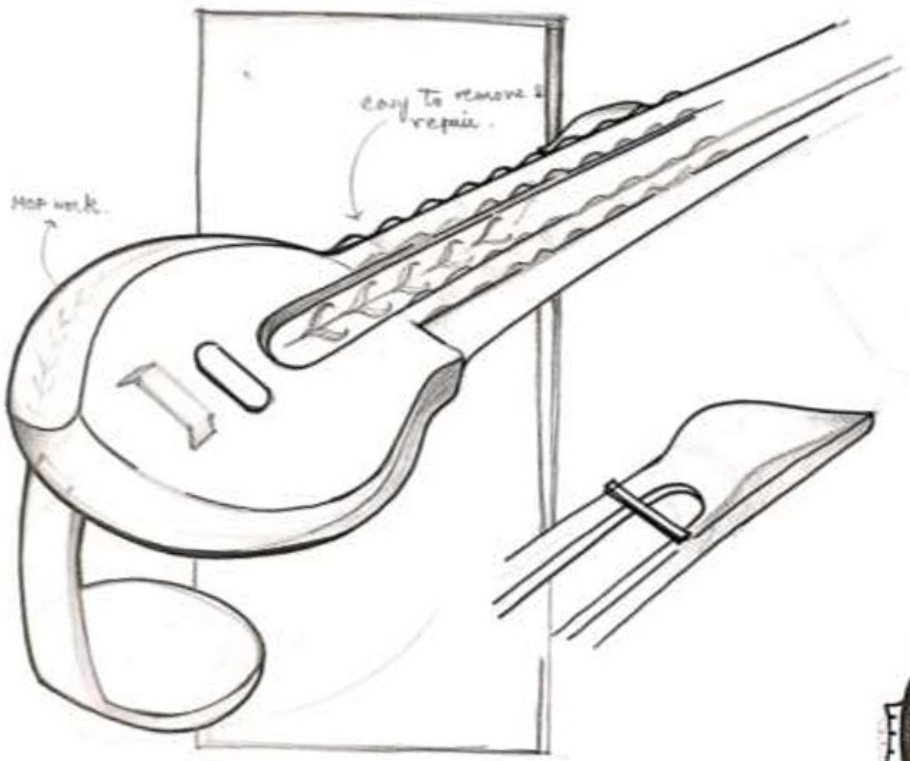
Surface Detailing - Exploration





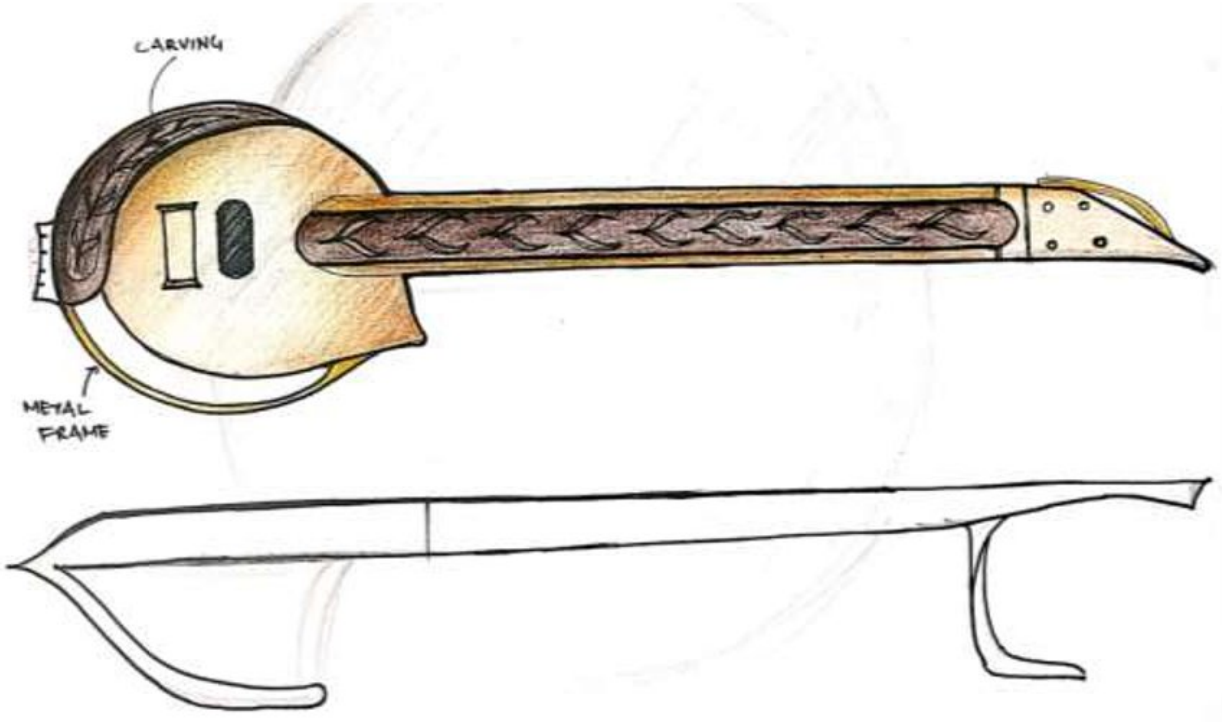
Final Concepts

CONCEPT 1



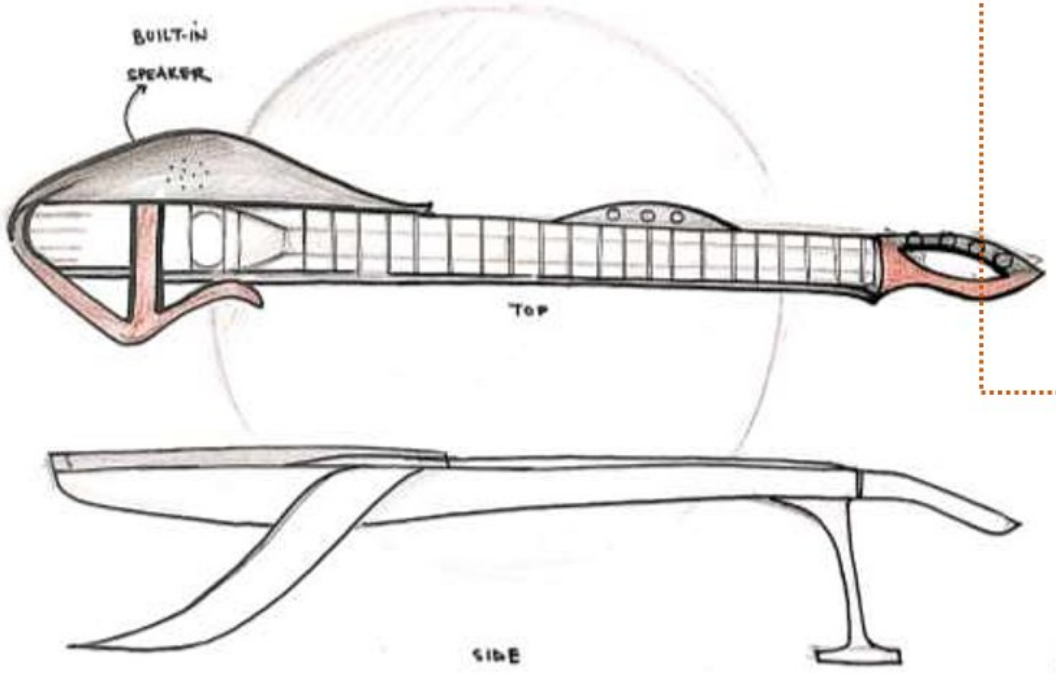
A asymmetrical base and adding elements of carving or decoration to give the Veena a visually rich look ,at the same time keeping it visually - light.

Different section can also be used to given utility of an speaker.

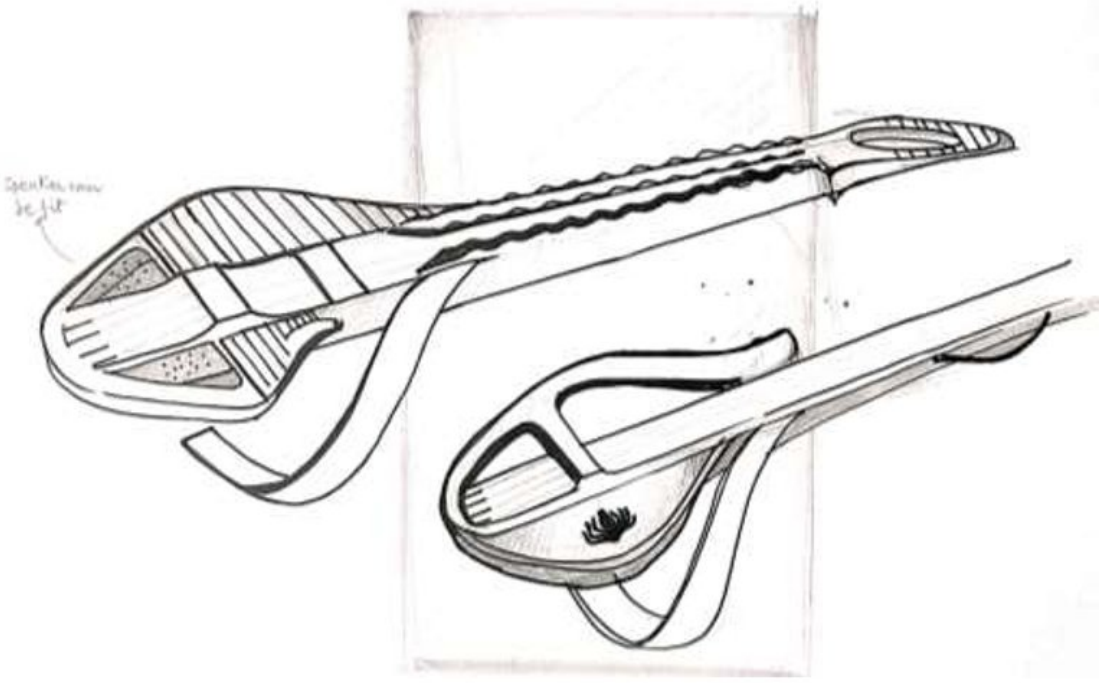


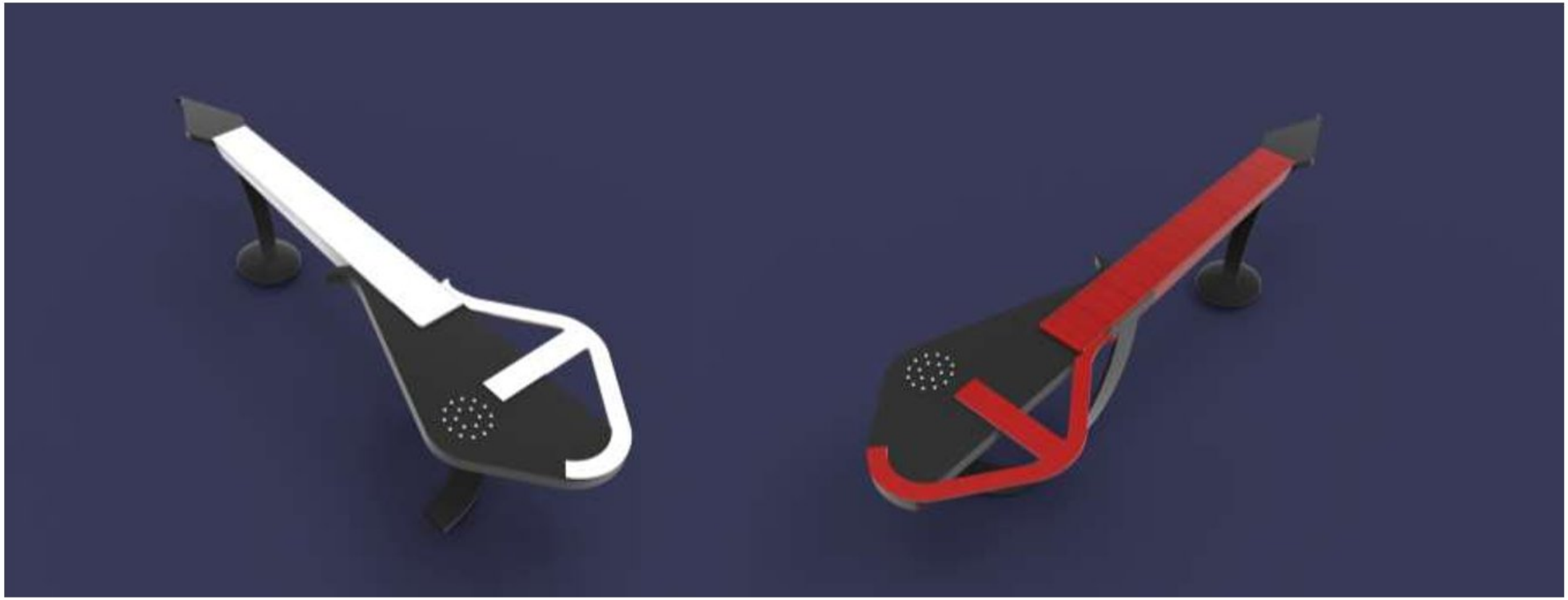

Metal supports
goes seamlessly
With the design,
and is easily
removable

CONCEPT 2

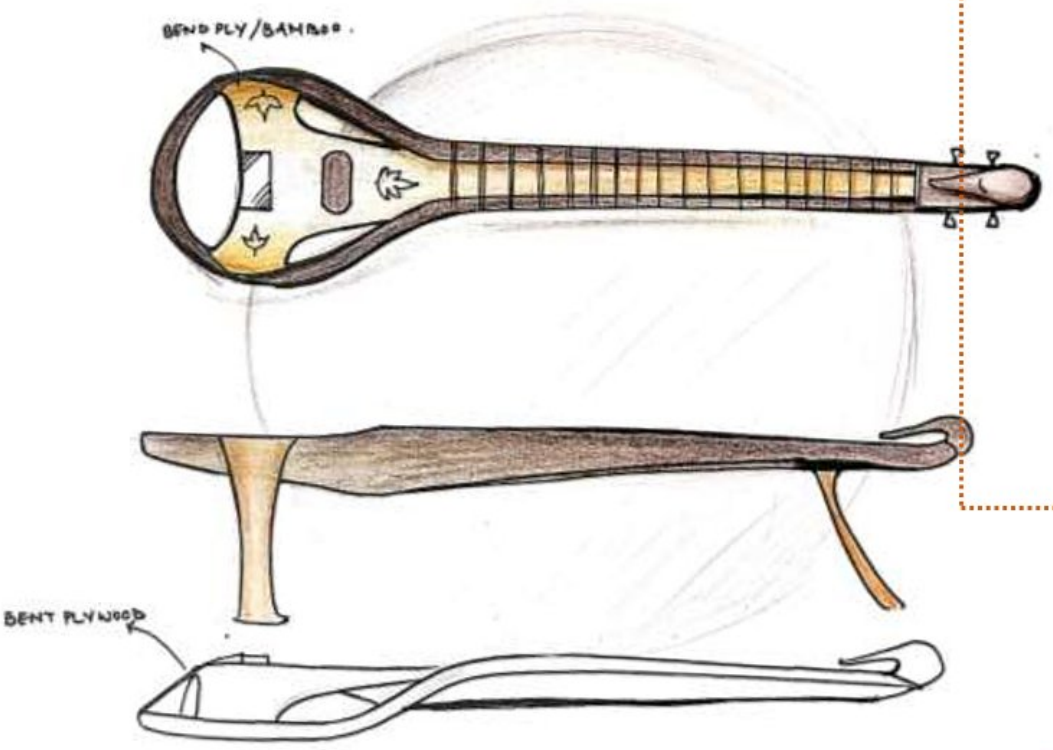


A asymmetrical base allowing the taalam strings to pass easily.
The base is made out of two different pieces allows use of smaller pieces and further disassembling.
The base flows with the form and also allows rotation of the Veena according to the player.



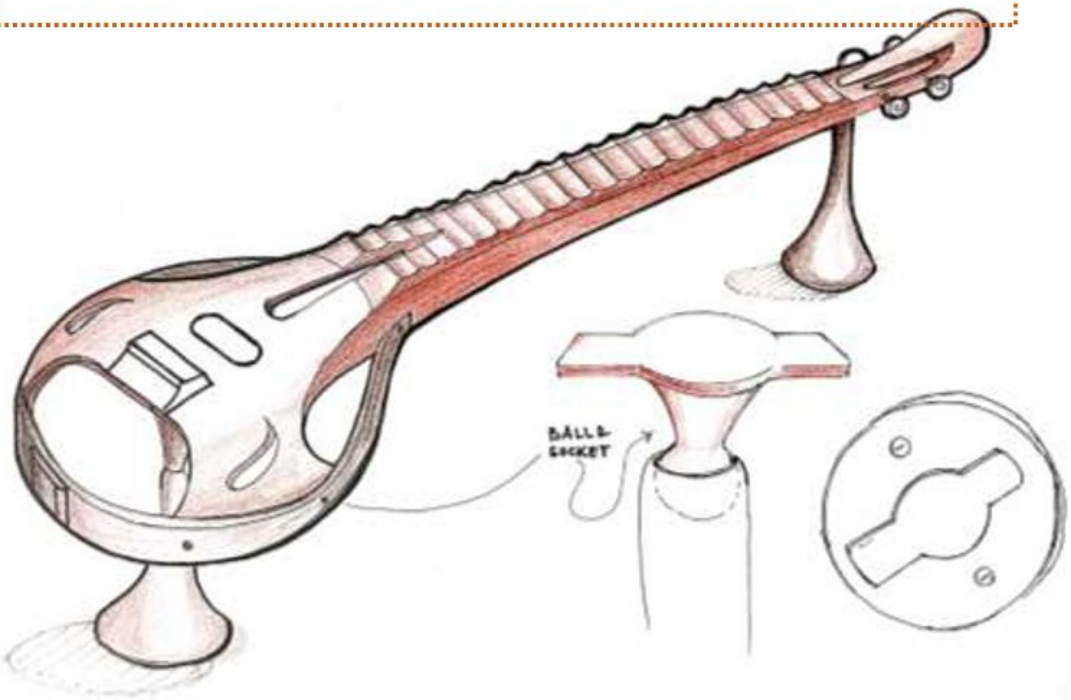


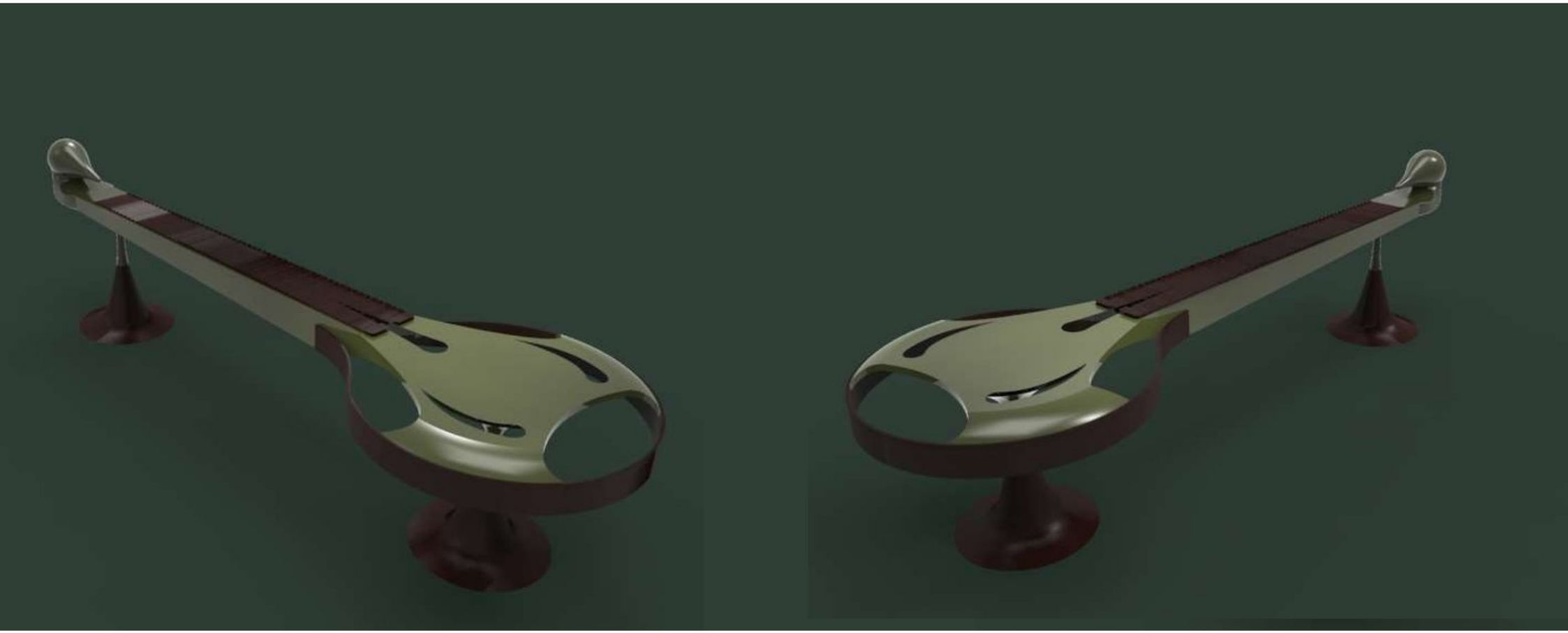
CONCEPT 3



A symmetrical base made out of bent plywood or bamboo removes a lot of weight from the instrument.

Ball and socket joinery allows the the top part to move according to the convince of the players



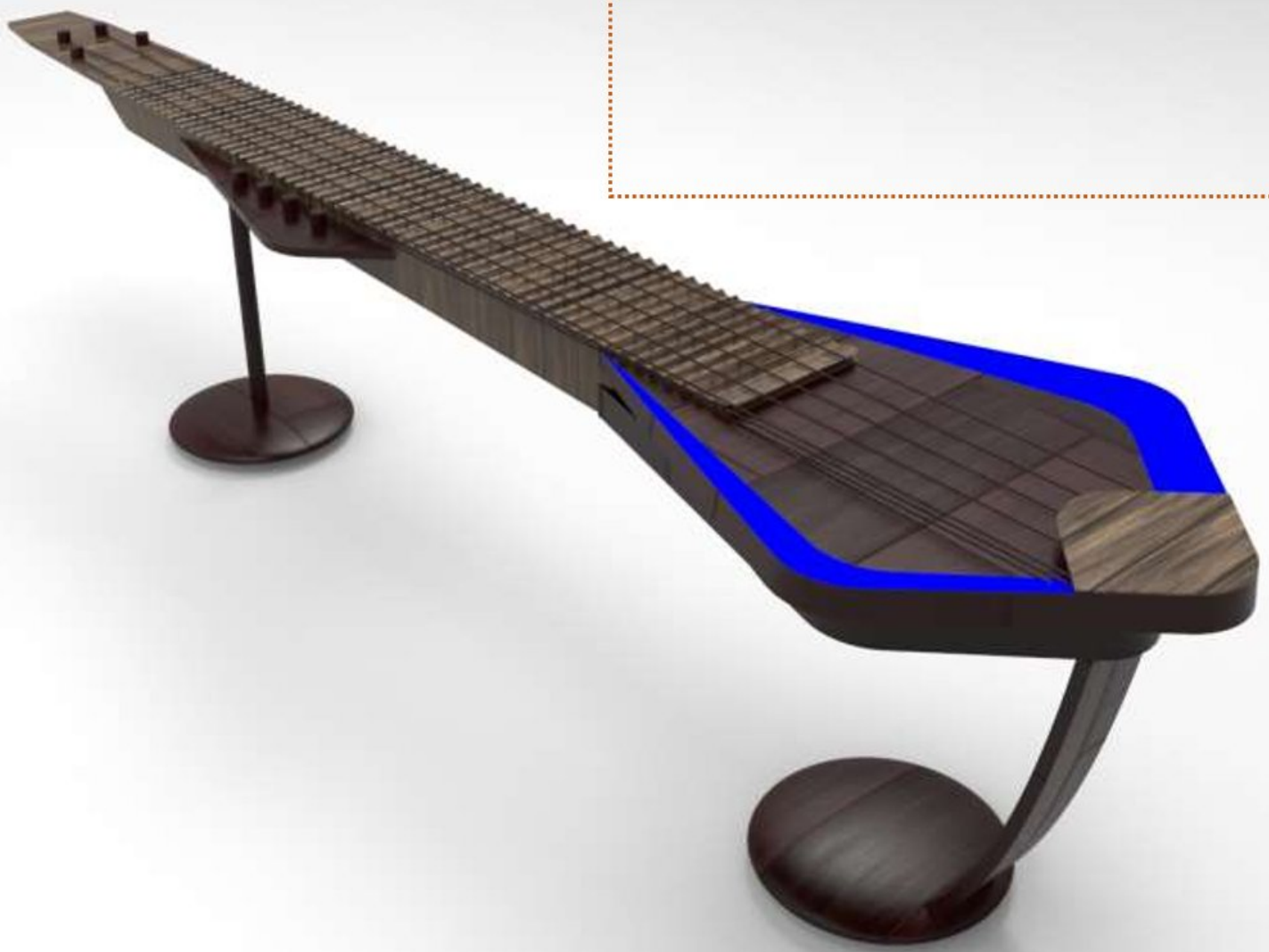


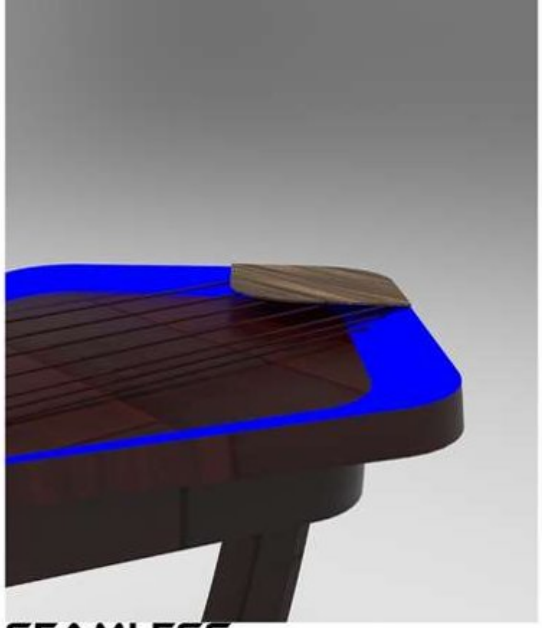
CONCEPT 4

Taking inspiration from the fanning concept I thought of earlier , a truly collapsible and portable Veena which has a stand fanning out of the the instrument.

CONCEPT 5

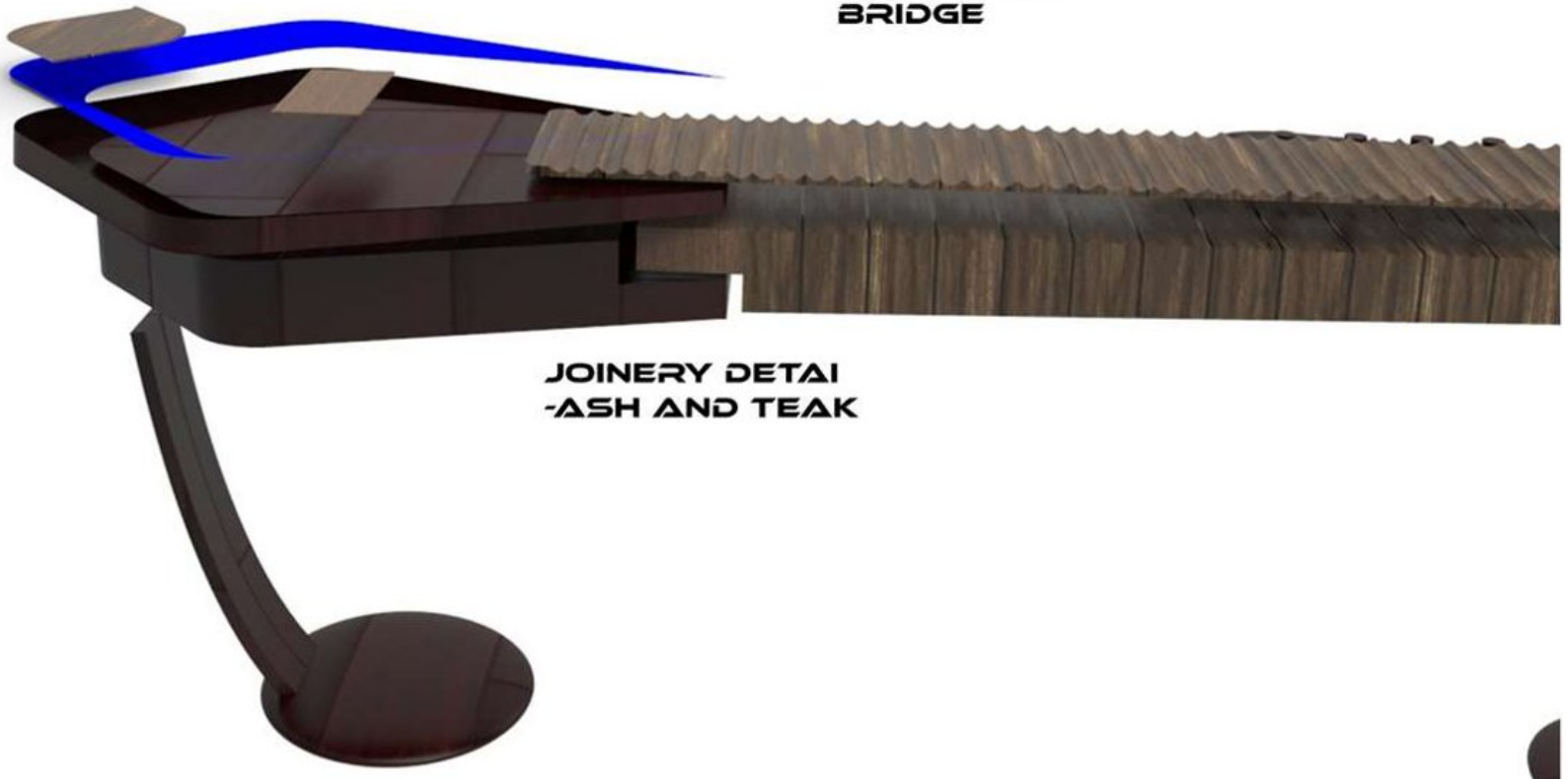
Going for a edgy look the design has more geometric look with a





SEAMLESS
BRIDGE

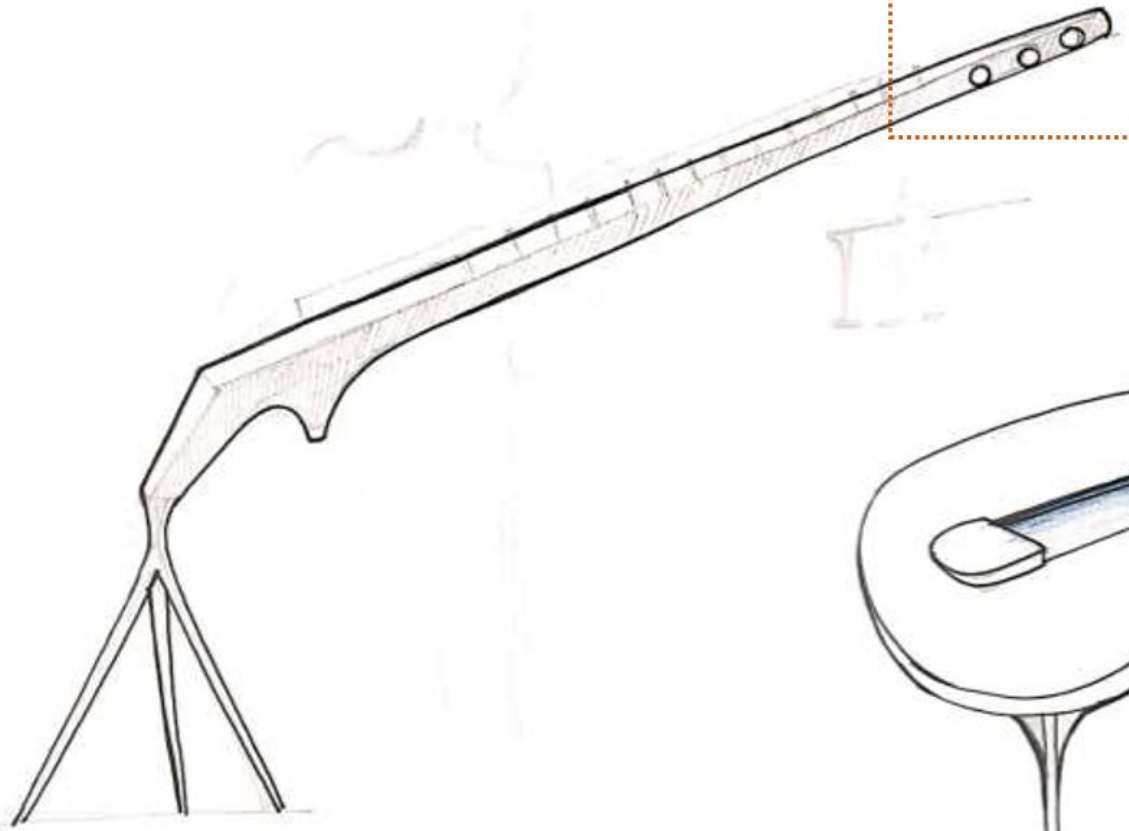
FROSTED
POLYCARBONATE-
SMART LIGHTING

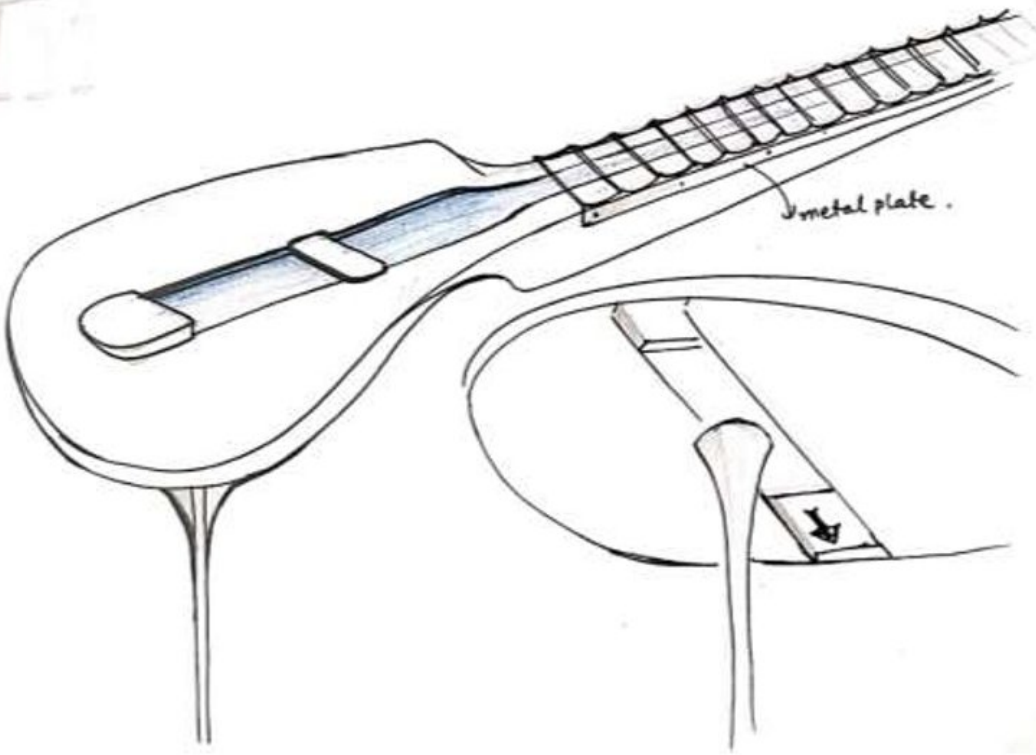


JOINERY DETAI
-ASH AND TEAK

CONCEPT 6

A light weight Veena which can be played while siting on a chair aswell. Has base which can stand as tripods.





CONCEPT EVALUATION

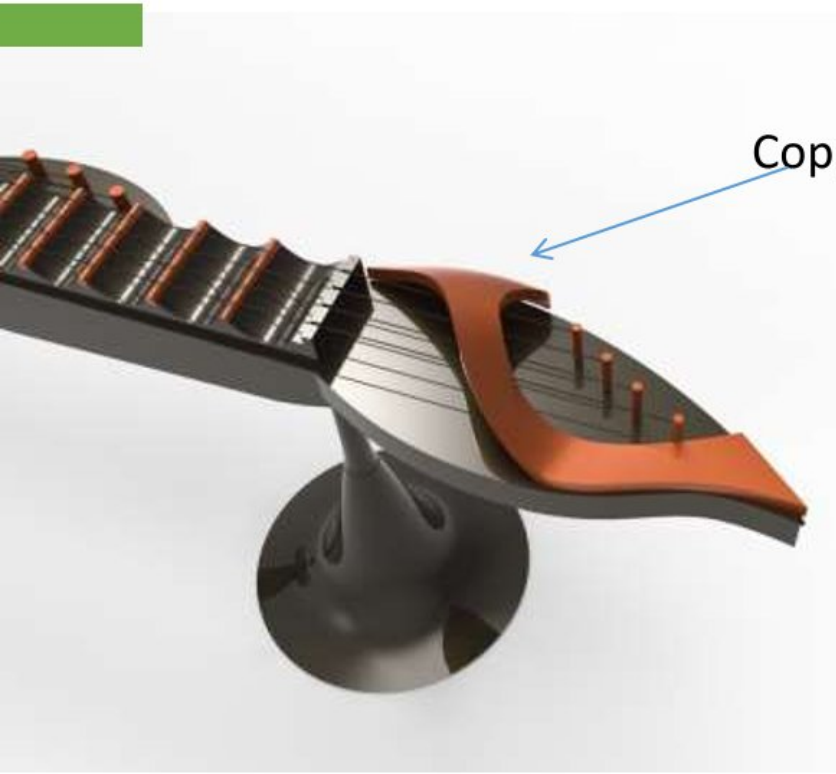
		PORTABLE	(MOBILITY) POSIBILITY OF NEW POSTURE	LIGHT WEIGHT	AESTHETIC
1		+2	+0	+1	+3
2		+1	+1	+2	+1
3		+1	+2	**+3**	+2
4		**+3**	+1	+2	+1
5		+2	+1	+1	+1
6		**+3**	**+3**	**+3**	+2

FINAL CONCEPT

Mixing few features of different concepts came up with this final design..

Side View

INBUILT SPEAKERS


Copper (2mm)

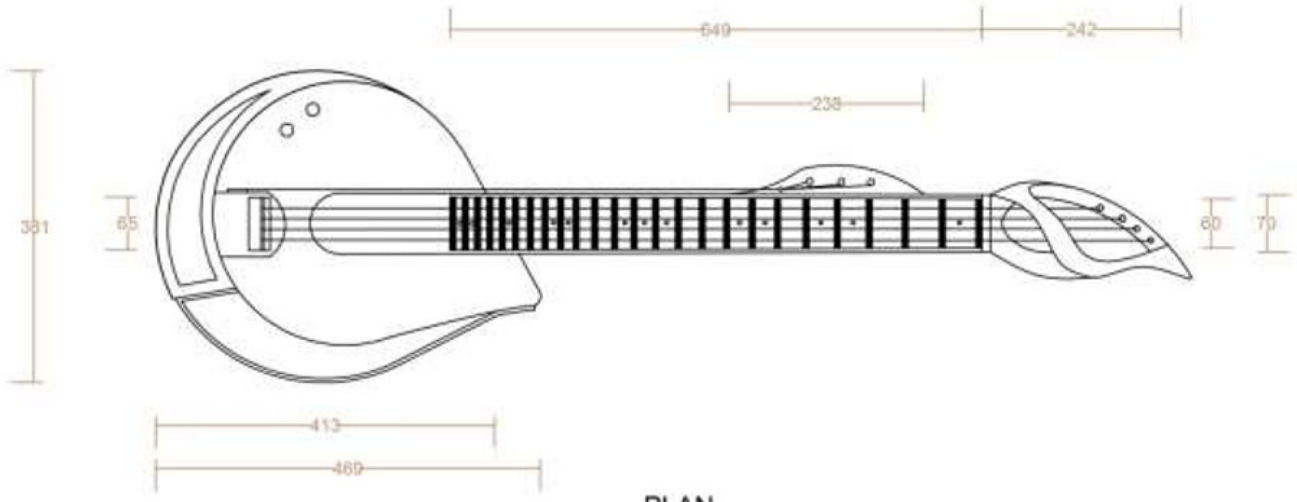
EXTENDABLE SUPPORT

Branding

‘Tada’ comes from the word for stringed instrument in Indian classical music.
The logo is stylised version of tada written in devnagari script. At the same it also reminds one of an stringed instrument.

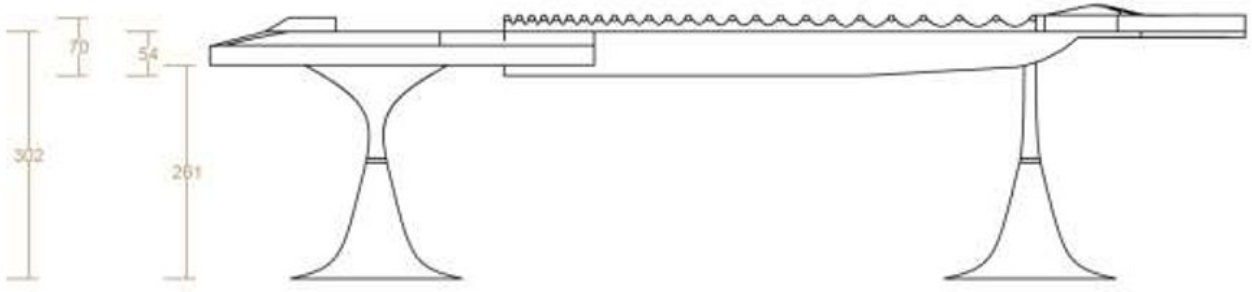
VII.CONSTRUCTION

1.Material
2.Process
3.Packaging
4.Construction details



PLAN

*All dimensions are in mm



FRONT VIEW

RIGHT VIEW

Easy setup

REFERENCE

Fig1.1 :Indian Instrumnets https://wegotguru.wordpress.com/2017/05/09/classification-of-indian-musical-instruments/
Fig1.1 : Statue of Saraswati with Veena http://www.jayanthikumaresh.com/about-the-veena/
Fig1.2 : Painting by Raja Ravi Verma https://www.amazon.in/Malabar-Holding-Unframed-Canvas-Paintings/dp/B00JS0NFVO
Fig1.2 Vichitra Veena https://homegrown.co.in/article/801590/6-indian-musical-instruments-on-the-verge-of-extinction
Fig1.3 Rudra Veena https://www.youtube.com/watch?v=GiOuUP9z7l4&t=17s
Fig1. Suma Sudhindra invention Tarangini Veena
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Fig2. Shiva Veena by Denis Petrov
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