

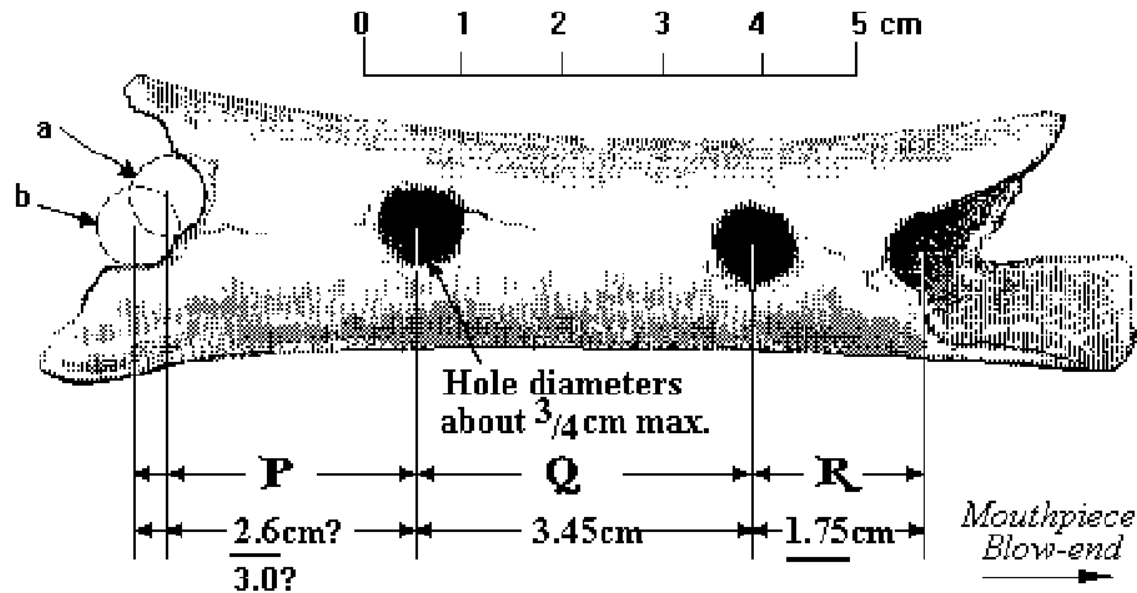


Now either all this is the greatest coincidence on earth -- that is, people who knew nothing of acoustics coming up with scales reflecting *all* these acoustic properties *purely by chance* -- or else, in fact, the ear was already able to discern the sounds as distinct between harmonious or dissonant because the ear could hear these acoustic properties without consciously knowing they existed.

Origins of Music - Robert Fink 2003

Musical Products in Bamboo





An ancient bone flute segment, estimated at about 43,000 up to 82,000 years old, was found recently at a Neanderthal campsite by Dr. Ivan Turk, a paleontologist at the Slovenian Academy of Sciences in Ljubljana. It's the first flute ever to be associated with Neanderthals and its confirmed age makes it the **oldest known musical instrument.**

Musical Products in Bamboo



Understanding Musical Instruments



Musical Products in Bamboo



instruments

Man has tried again and again to make objects to support his songs. He created many shapes and played along with his song.

instruments can be classified into

chordophones (strings)

aerophones (wind)

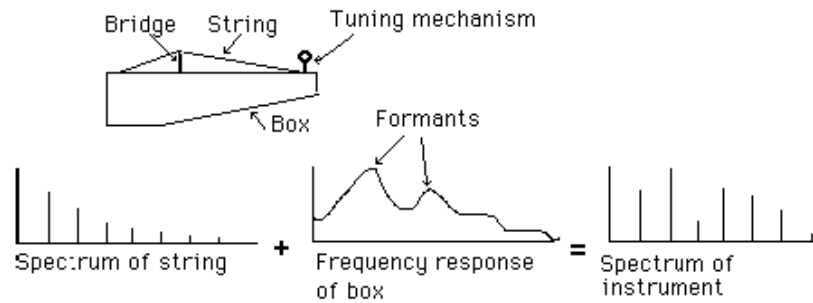
membranophones (percussion)

idiophones (self sounding)

based on the principles of sound generation

Musical Products in Bamboo





instruments

the stretched string acts like a driver applies energy to the oddly shaped box called the resonator to produce sound



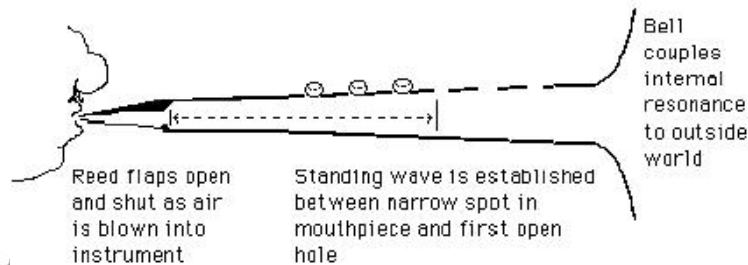
Chordophones
(string)





instruments

the reeds or lips acts like a driver applies energy to the pipe containing the air which vibrates to produce sound.



Aerophones (wind)

Musical Products in Bamboo





instruments

an air chamber can be a
resonator stretched with
a membrane which
vibrates struck by a driver



membranophones
(percussion)



Musical Products in Bamboo





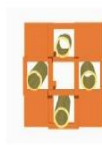
instruments



idiophones
(self sounding)
shakers



Musical Products in Bamboo





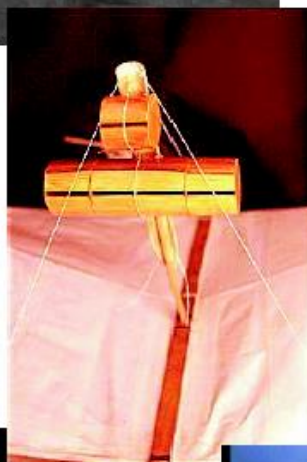
cisao



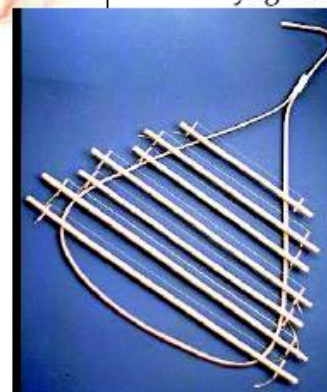
pigeon flute



instruments



yagochi

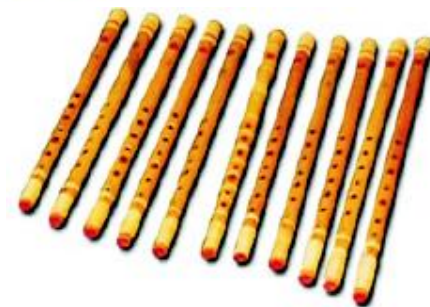


idiophones
(self sounding)
kite wind instruments

Musical Products in Bamboo



instruments



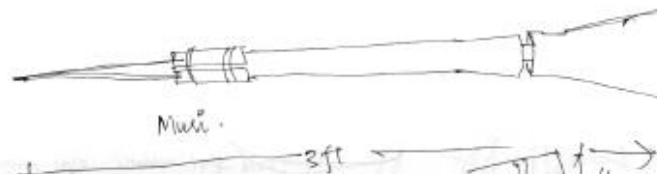
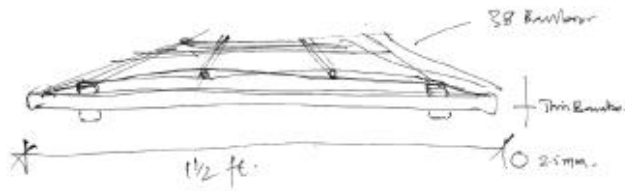
bamboo instruments



Musical Products in Bamboo



Khorram Dabang



Kalshas

Bading Shuppa

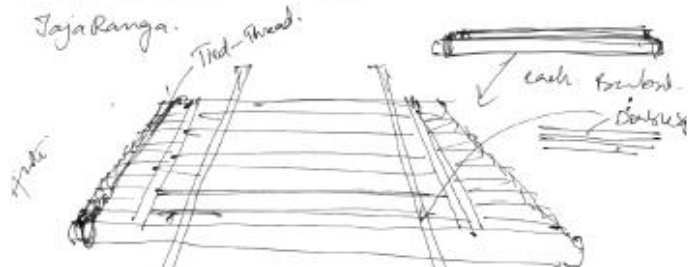


4-5 strings

Bodo - Kacharis
Jatha

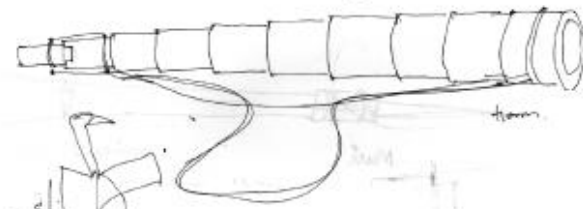


Taja Ranga



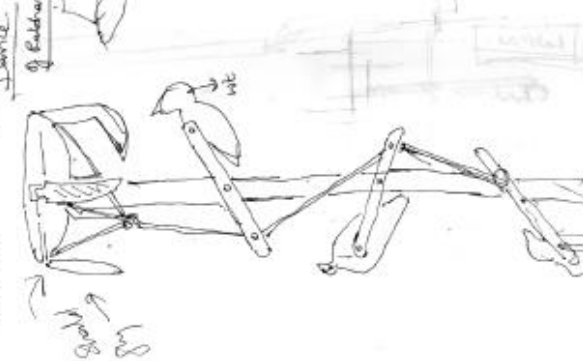
Raldhar
Chaina

Various of
X segments



Forkanti
Dance

Mekhenka



instruments



bamboo instruments

Musical Products in Bamboo





product range

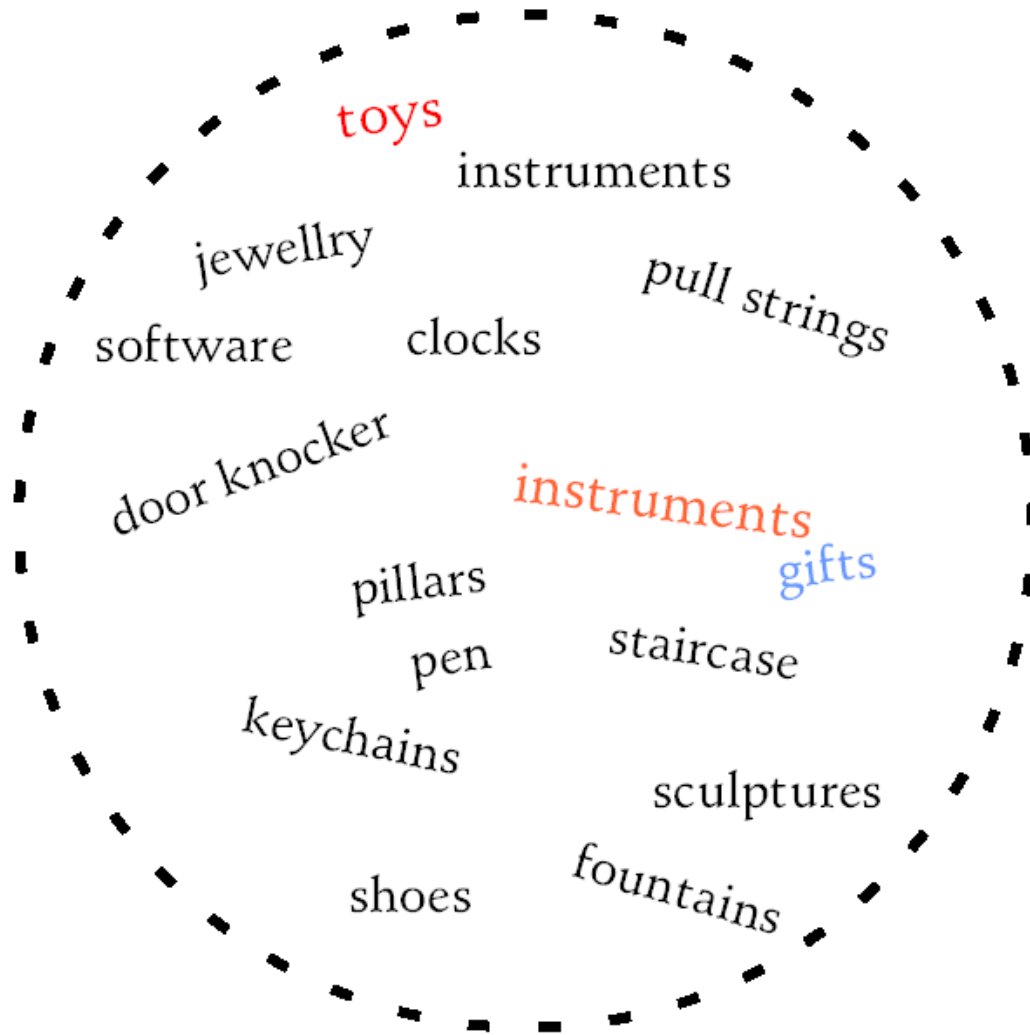
a list of all consciously
man made musical
products

to identify a product zone
to analyze the variety of products
to recognize the user, need & the
client
to understand the peoples
aspirations towards the musical
products

Musical Products in Bamboo



product range



classification



Musical Products in Bamboo

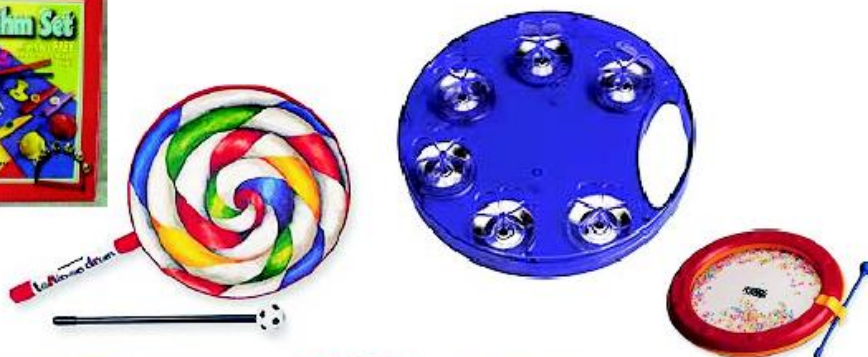




product range

toys
hand operated
wind
string
percussion
selfsounding





product range

toys
hand operated
wind
string
percussion
selfsounding

product range

toys
mechanically
electrically
operated





product range

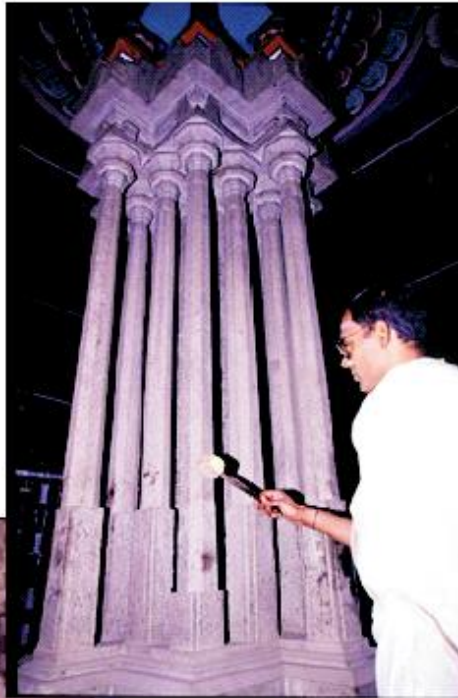
toys
games
educational aids
others



product range



architectural
fountains
staircases



product range

architectural
pillars

product range

pen

jewellery

food menu

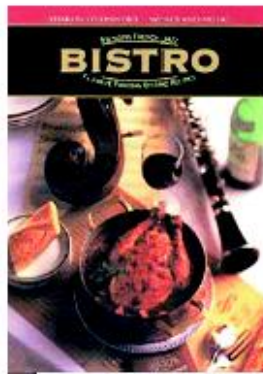
doorknocker

clock

pen

keychain

shoes



- a group of instruments for a class room to build an identity
- make your own instrument
- wind devices in vehicles & accessories
attachment to a helmet, car mirror
- door bells
- build your own wind musical instrument
- bamboo sculptures for a public space
- whistling pen
- making of mechalenka
- combining sounds
- interactive musical box



product brief

Toys have been explored largely,
while the classical instruments have refined to their
music creating fascinating forms and advanced music.
Musical tones can be produced by varying the physical
form and testing the tone.
music can be programmed in sequences for a flow of tones.
It can be controlled. Music can be playful. Music can be
educative and fun when it is interactive.
challenge
to achieve the desired sounds by the exploration of bamboo
to create the fascinating form
to achieve the interaction
to realize the details

product form

toy

instrument

educational aid

Musical Products in Bamboo



Ideation

Testing sounds- realizing the shape- understanding interaction with sound as focus

Theory of learning- exploring shapes- realizing the musical product

Musical Products in Bamboo



Bamboo sounds

Flute
1-hole



Flute
medium



Flute
small



gagana



shaker



Shaker
toy



string1



String 2



reed



Toy
friction



Toy
friction
variation
plastic



Musical Products in Bamboo



Ideation

Concept A

While testing for sounds in bamboo a strike slightly off the perpendicular to the section produces a comparatively loud sound vibrating the cylinder.

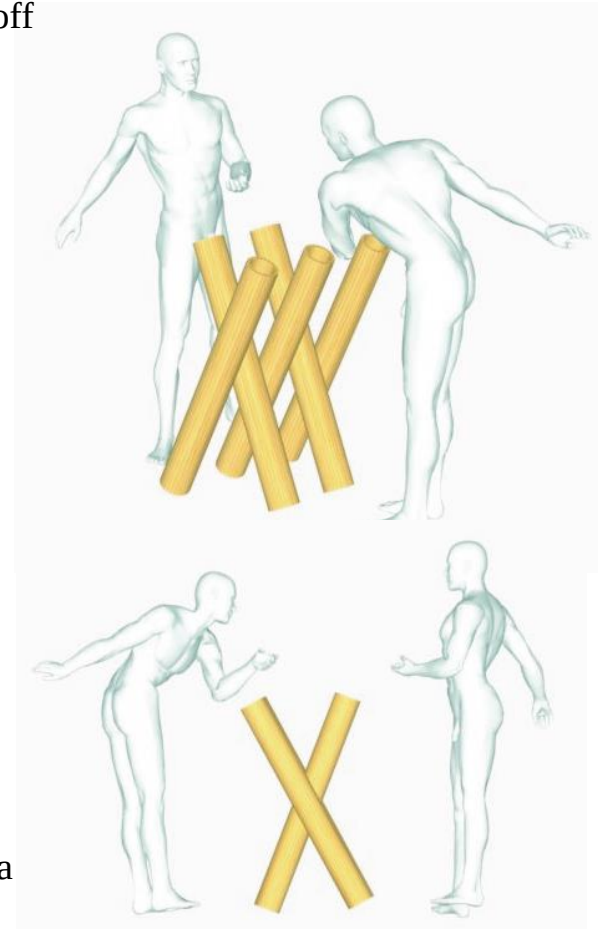
Advantage:

Loud sound of the cylinder

Variation of pitches

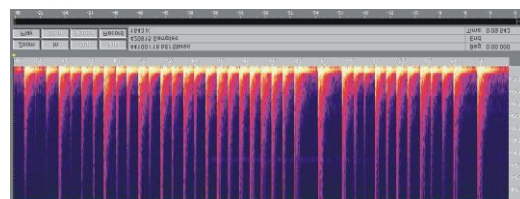
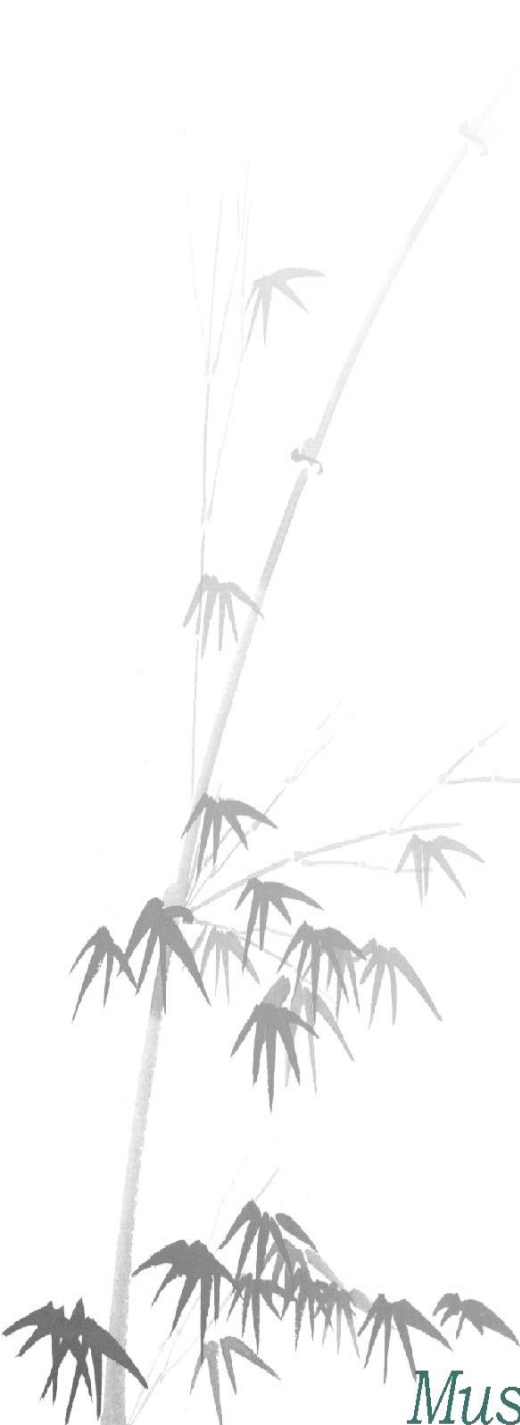
Plug increases the sound level

An interactive musical device aspired to formulate a musical game.

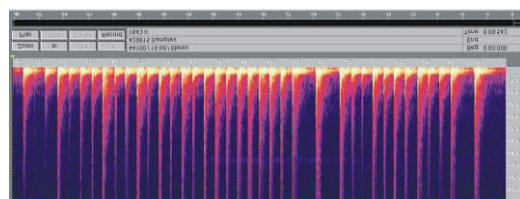


Musical Products in Bamboo

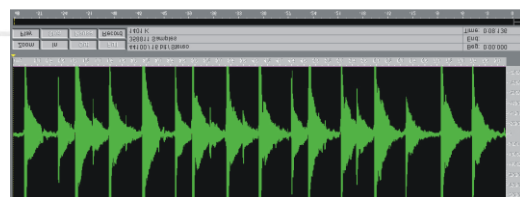




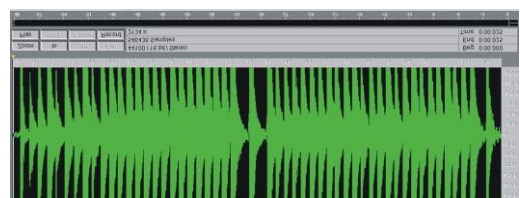
33-hand



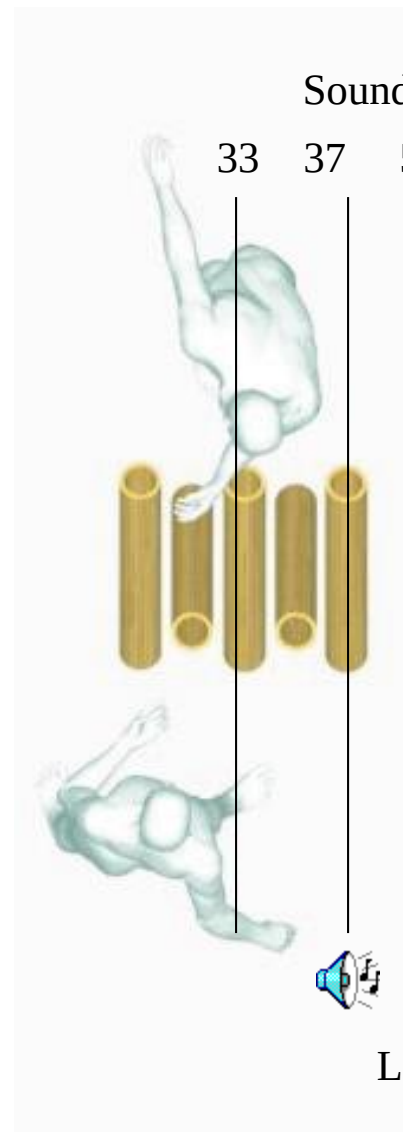
33-plug



53-hand



53-plug

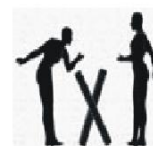


Sound testing

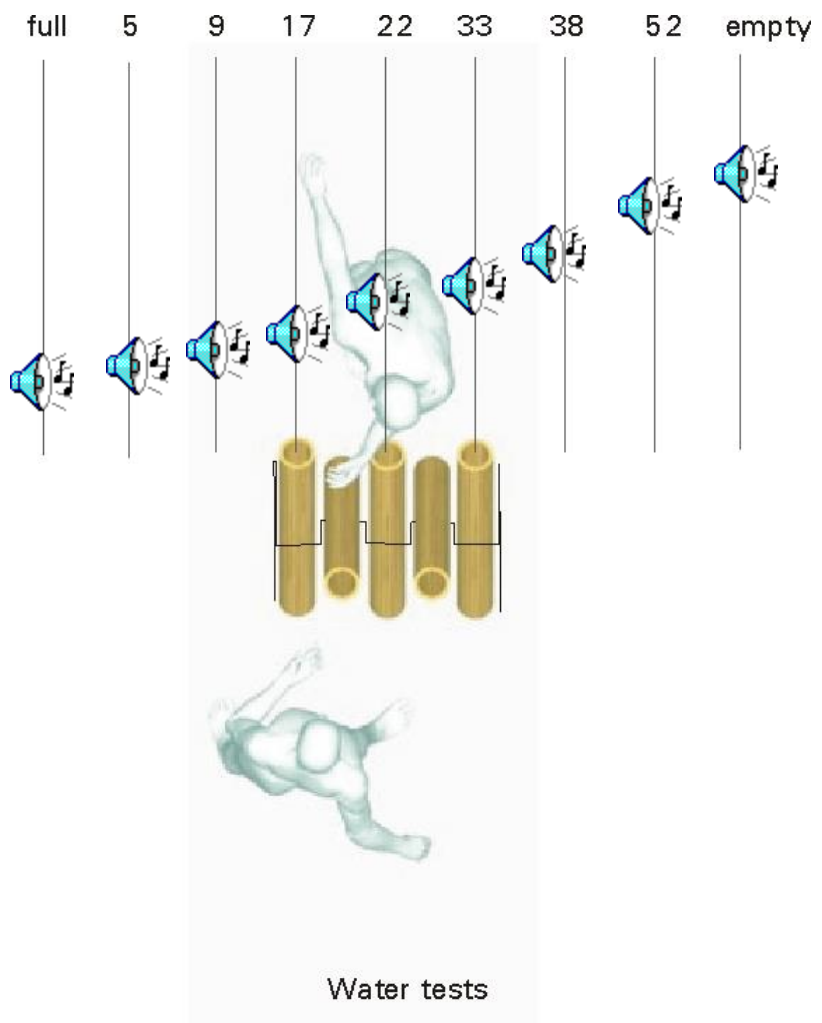
33 37 53

Length tests

Musical Products in Bamboo



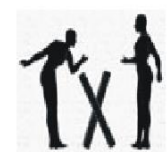
Ideation



Ideation

Water tests

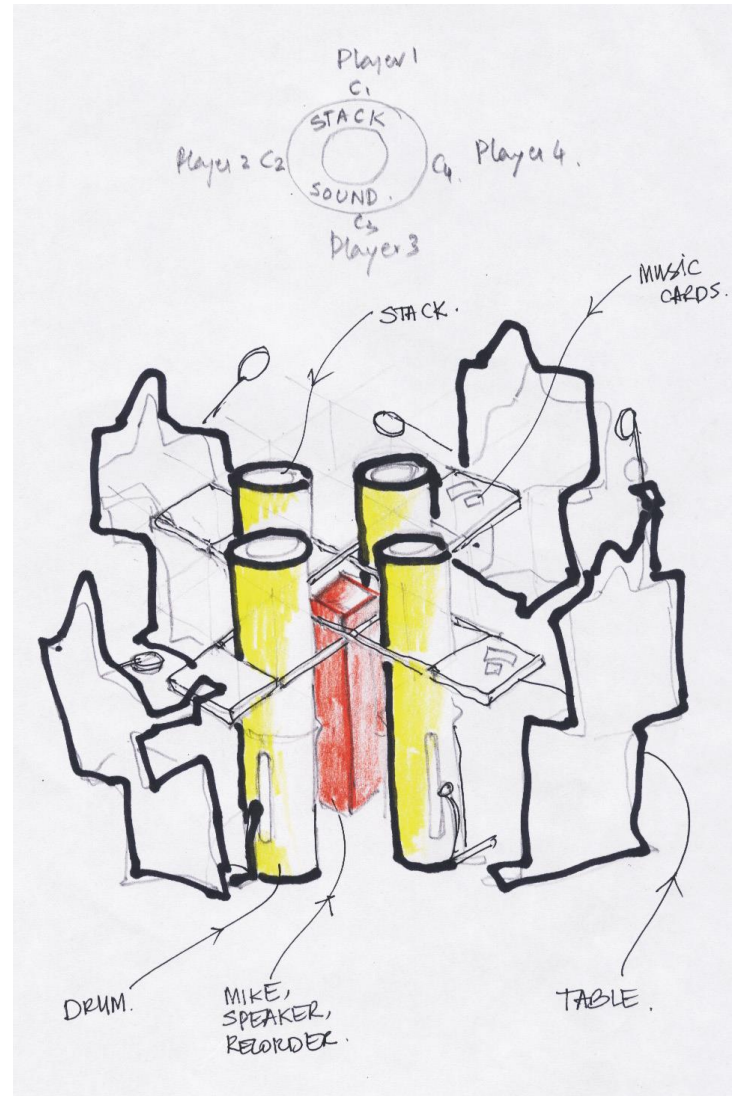
Musical Products in Bamboo





Ideation

Concept B

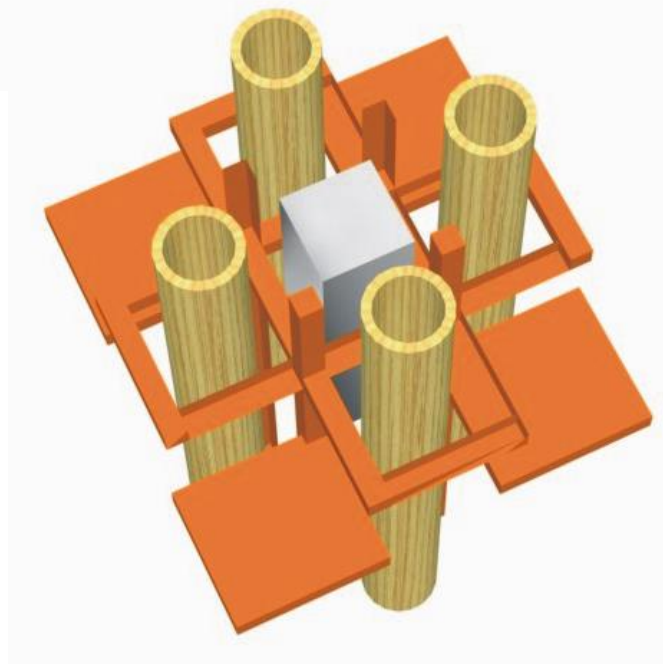
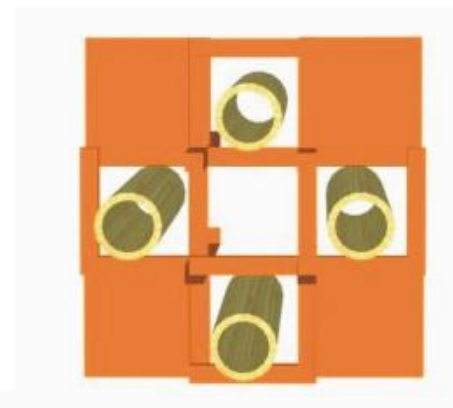
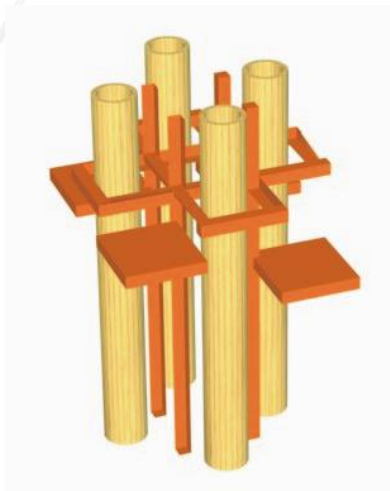
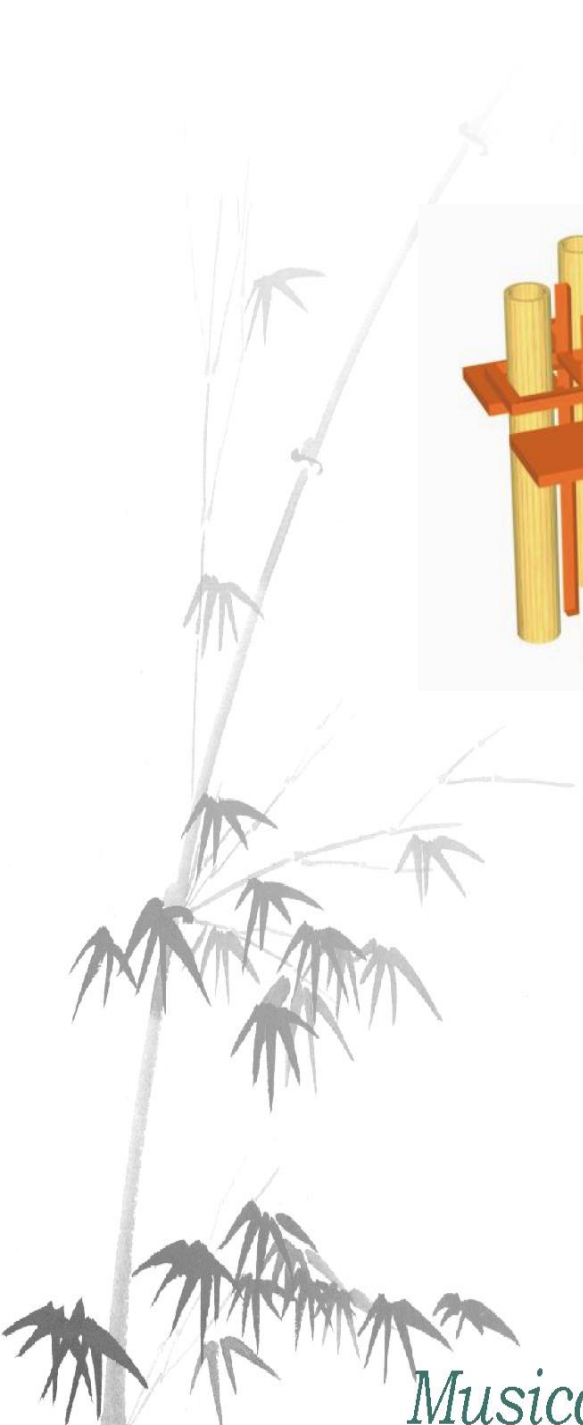


Bam-game

Musical Products in Bamboo



Ideation



Bam game

Musical Products in Bamboo



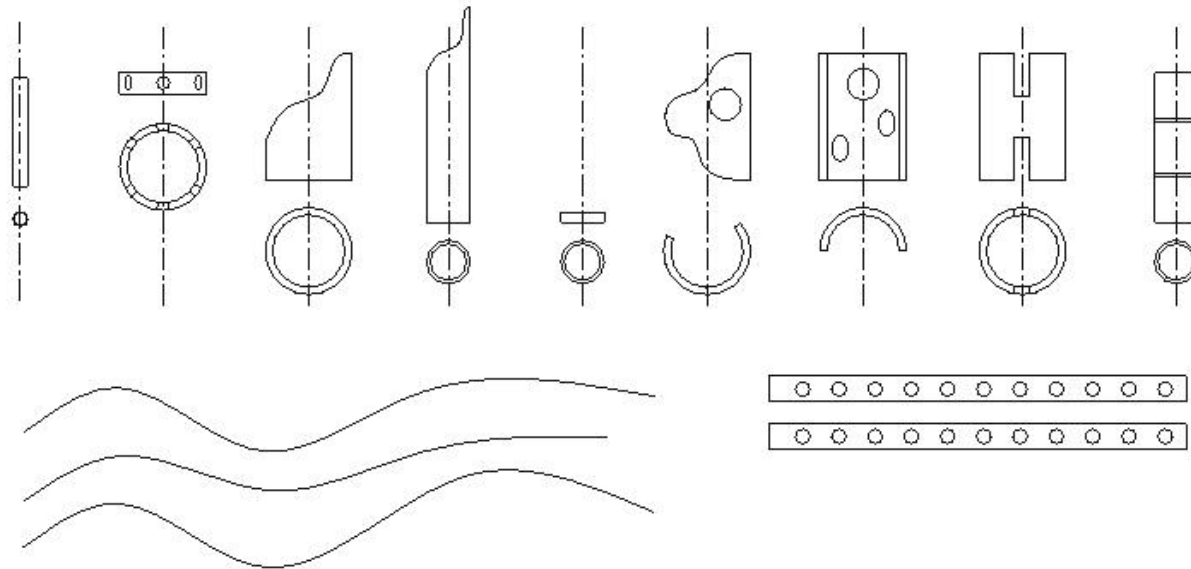
Mus

- test the musical aptitude in children
- make an object to think with and learn
- experience musical sounds
- make a personal identification
- kindle and promote the natural ability of child to search discover and Experiment



Musical Products in Bamboo

Ideation

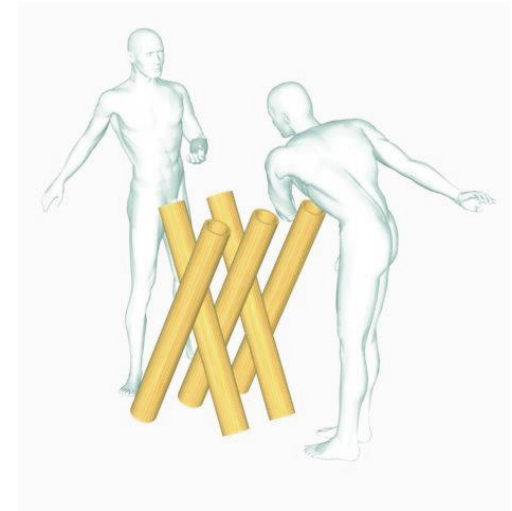


“I hear and I forget, I see and I remember, I do and I understand” - Confucius

Musical Products in Bamboo



Bamboo Drums



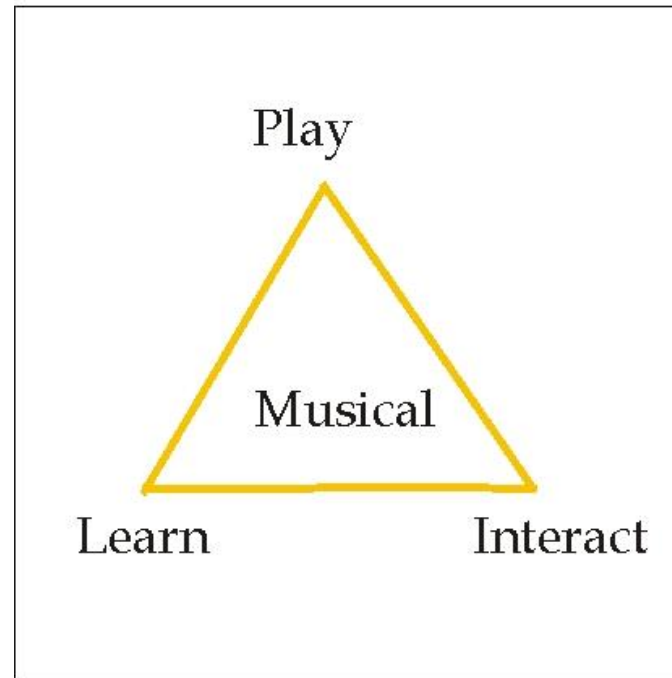
Belonged to percussions
Ability to create small compositions
Easy to use
Challenging for interaction
An Instrument

Musical Products in Bamboo



Bamboo Drums

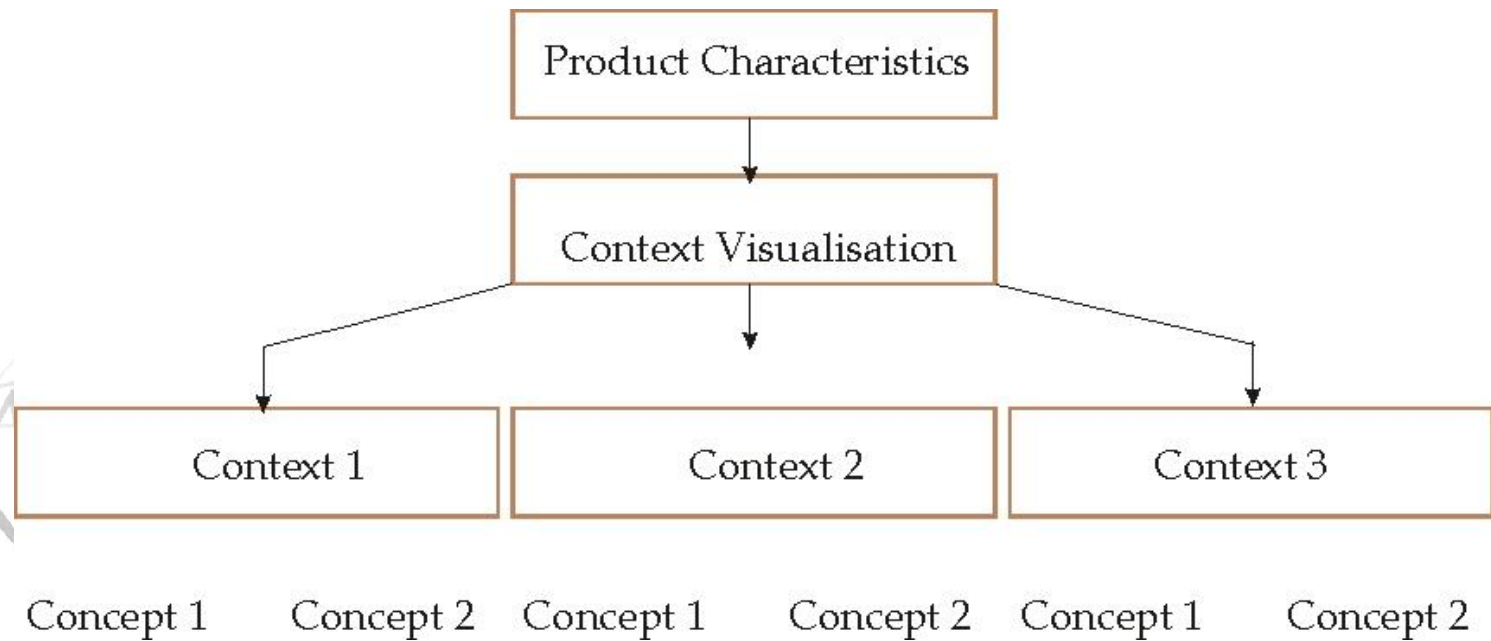
Product experience



Musical Products in Bamboo



“Market and projections”



Context Visualization

Region	Place	People	Product Form	Scenario	User
Goa	Homes Parties Theme Restaurants Beach Resorts Five star Hotels Public Places- Beaches Churches Local Bands	Tourist culture Open to music Party Bands Religious Bands	Instrument Public Interaction	Pay & Play -public interaction. Along with Guitar Band	12 yrs and Above
North East	Schools Village Bands Urban Centers	Relate Quickly Easy to make	Promotional Study Material Band Instrument	School Music Class Village Band	12 yrs and Above
Urban Centers	Corporate Offices Theme Cafes Music Schools Clubs Ashrams Airports 5* Hotels Music Shops	Cosmopolitan Open to Music Rock Culture	Instrument Interactive Game Stress Reliever		

Musical Products in Bamboo



Bamboo Drums categorization



Musical Products in Bamboo



Bamboo Drums

Context

- Personal bamboo drum to be played at home along with guitar
- Pay and play concept carrying to a public place (like the beach or a party) in Goa
- Theme Restaurants in Urban Centers
- School Bands in N.E Indian Villages
- Star Hotels - Musical Cubicles
- Children Games
- Stress relieving music for corporate offices in urban centers

Musical Products in Bamboo



Bamboo Drums

Concept generation

Market : Goa

Placed at homes

User: family head

Features: single/double user

Can be played along with guitar and a small band

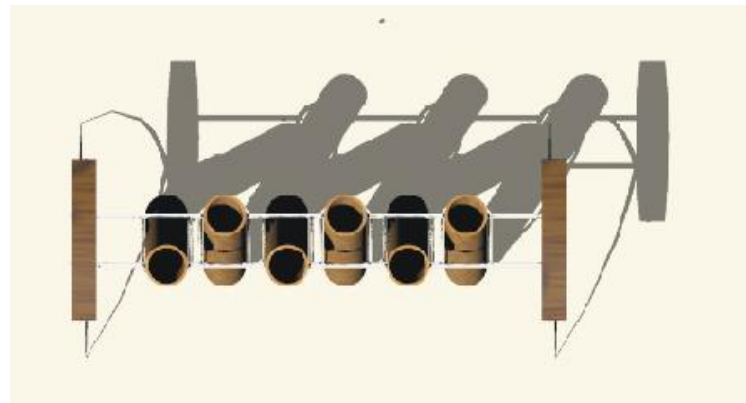
Can be Dismantled

Instrument can be a part of party or a prayer

Age group: 30yrs and above

2. Urban theme restaurants

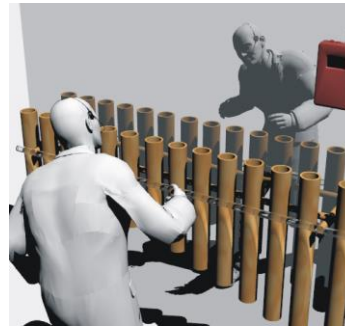
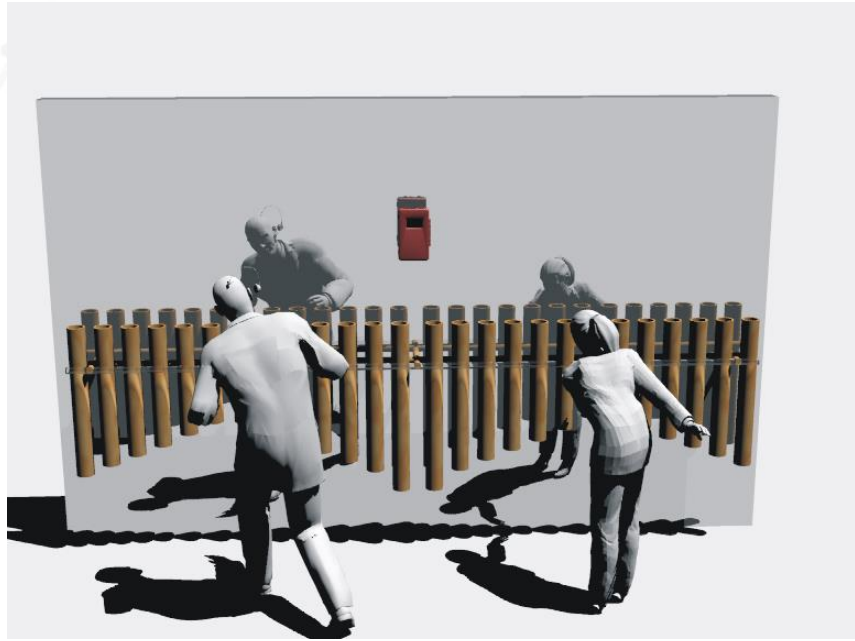
Recording facility



Musical Products in Bamboo



Bamboo Drums

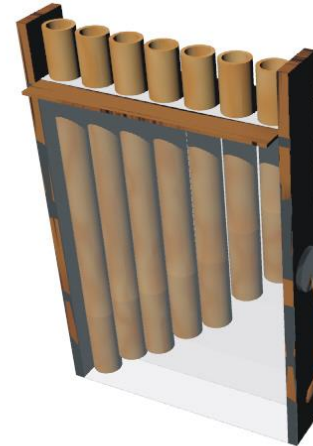
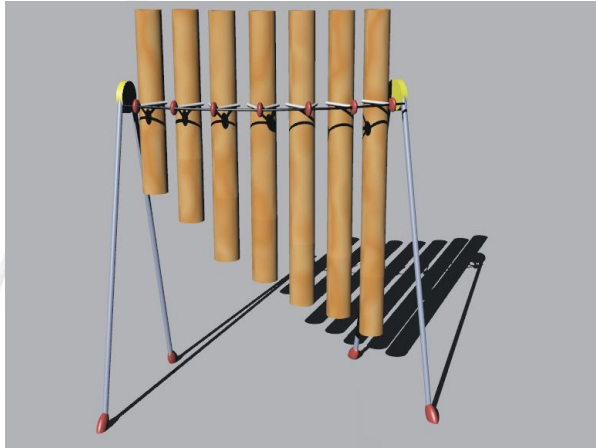


Market : Urban
Corporate offices
User: Professionals
Features: single/double user
Can be played along with Disc-man
Instrument can be a part stress reliever by
the relaxing music
Age group: 20yrs and above

Musical Products in Bamboo



Bamboo Drums



Bamboo game Kit:

Urban

Smaller in size

A set of 8 games along with the instrument

1. Child's own operetta

Musical effects to the stories

2. Fun sign Language

Sounds are secret signs

3. Create your dance

Wearing the masks and creating an action
for a sound

4. Musical Chair with cards

5. Musical memory game

6. Play and collect game



Musical Products in Bamboo



Bamboo Drums

There could have been endless ways of conceptualizing the product
The context visualization gave insights into the reality of situations
And designing accordingly
The market outlets were visualized for the product and hence
The probable user

Musical Products in Bamboo



Bamboo Drums

User Observations

User study was primarily to know the essential Anthropometrical data

The stack measurements and heights

- To see the possibilities of interaction between two Players.

To understand “arrangements” of stack.



Musical Products in Bamboo



Bamboo Drums

Drums Pitch Variation Limitation : 13 Variations

Bamboo Type: Jati – Assam

Max Nodal Distance: 60 cms

Weight (1 piece) –0.9 kg

Wall thickness: 0.75-1.2 cm

Diameter of the rim: 6.9- 7.2 cm

Vertical standing position:

Rim height from the ground: 110cm (elbow parallel to ground)

Max length : 60+15 cm (lower octave notes)

Least length: 20+15 cm (upper octave notes)

Vertical sitting position:

Rim height touching the ground: 80cms

Inclination: 10-15 degrees

Minimum drum distance C/C : 15 cms

Chest to rim distance : 50 cms

Plug length:30 cms

Weight : 200 gms

Musical Products in Bamboo





Musical Products in Bamboo



Arriving at the numbers

3 drums – as a percussion instrument

6 drums – as an interactive instrument

13 drums – as a classical instrument

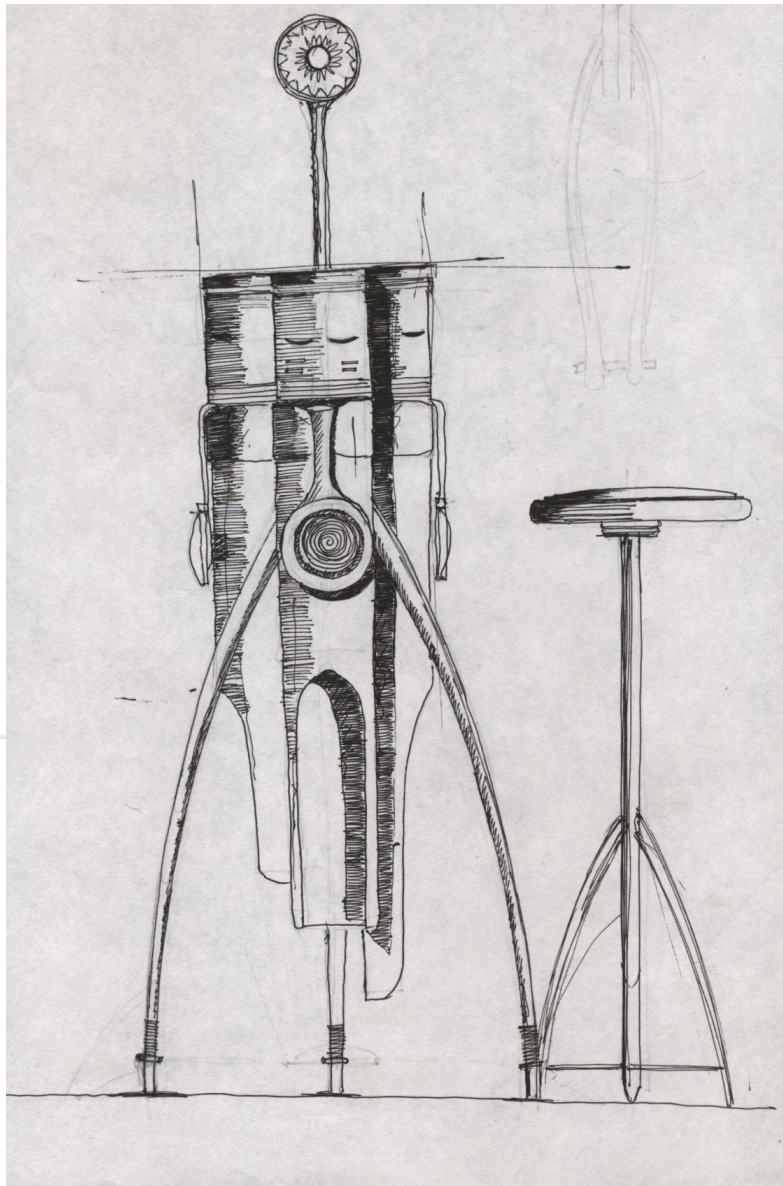
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Musical Products in Bamboo



Bamboo Drums

Final Concept

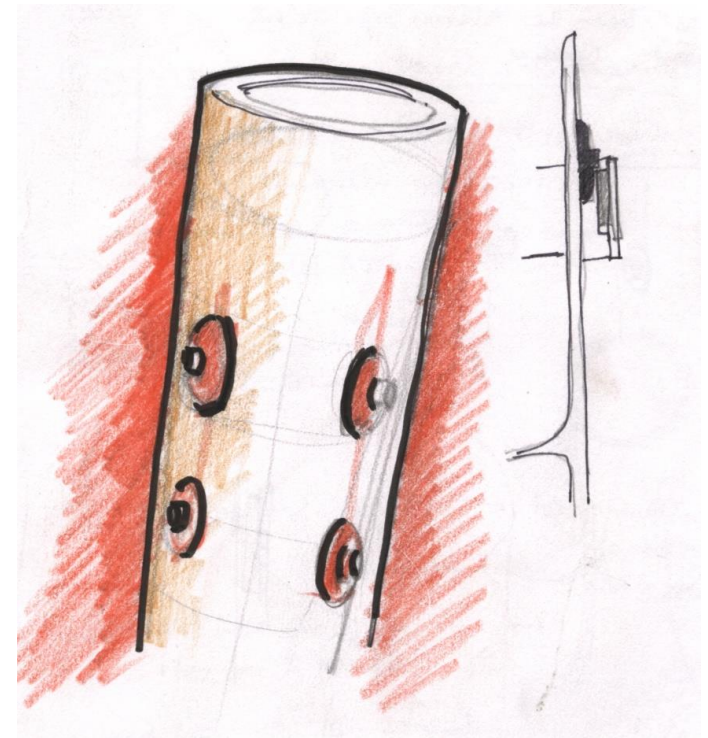
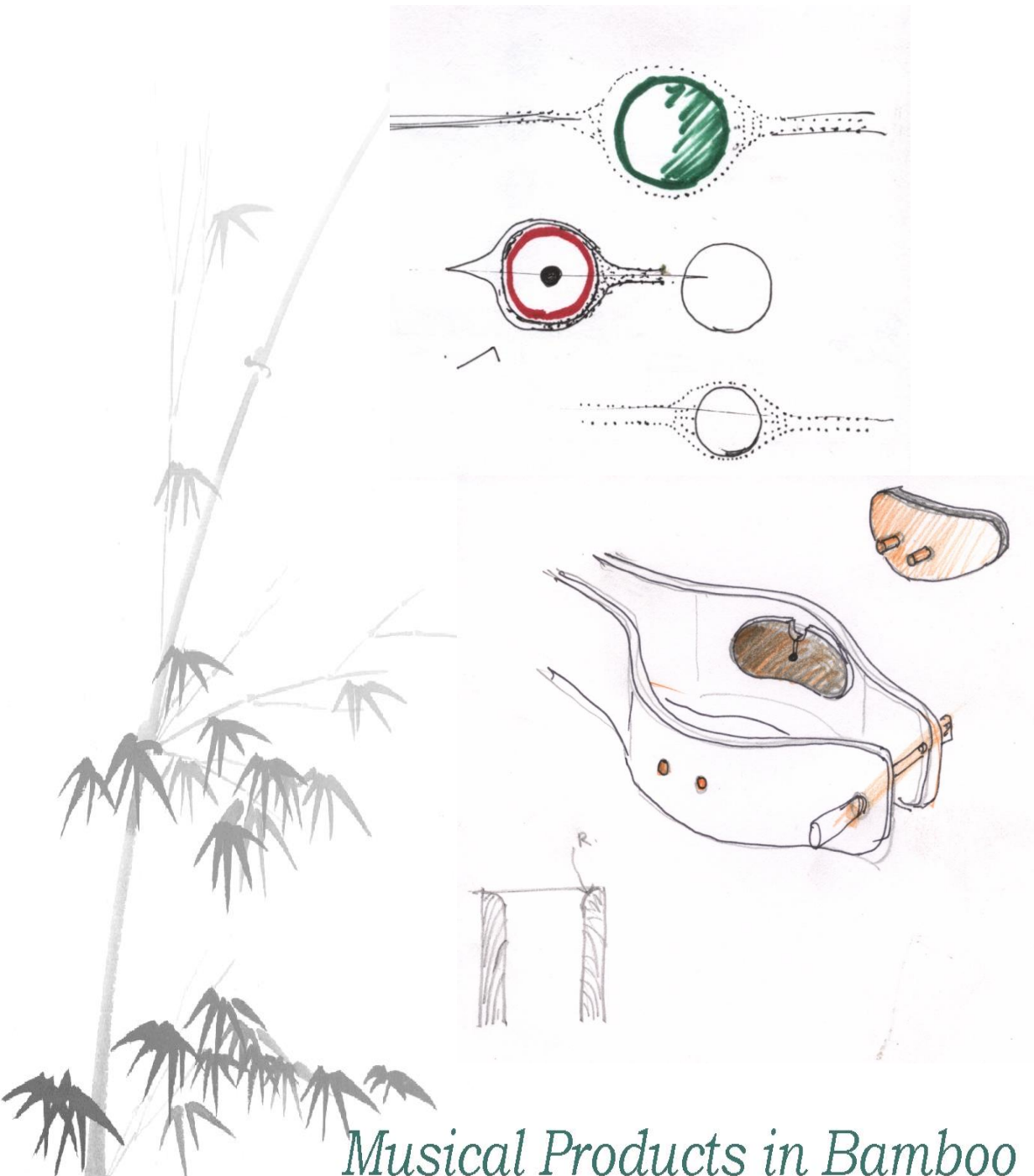


Musical Products in Bamboo



Bamboo Drums

Final Concept

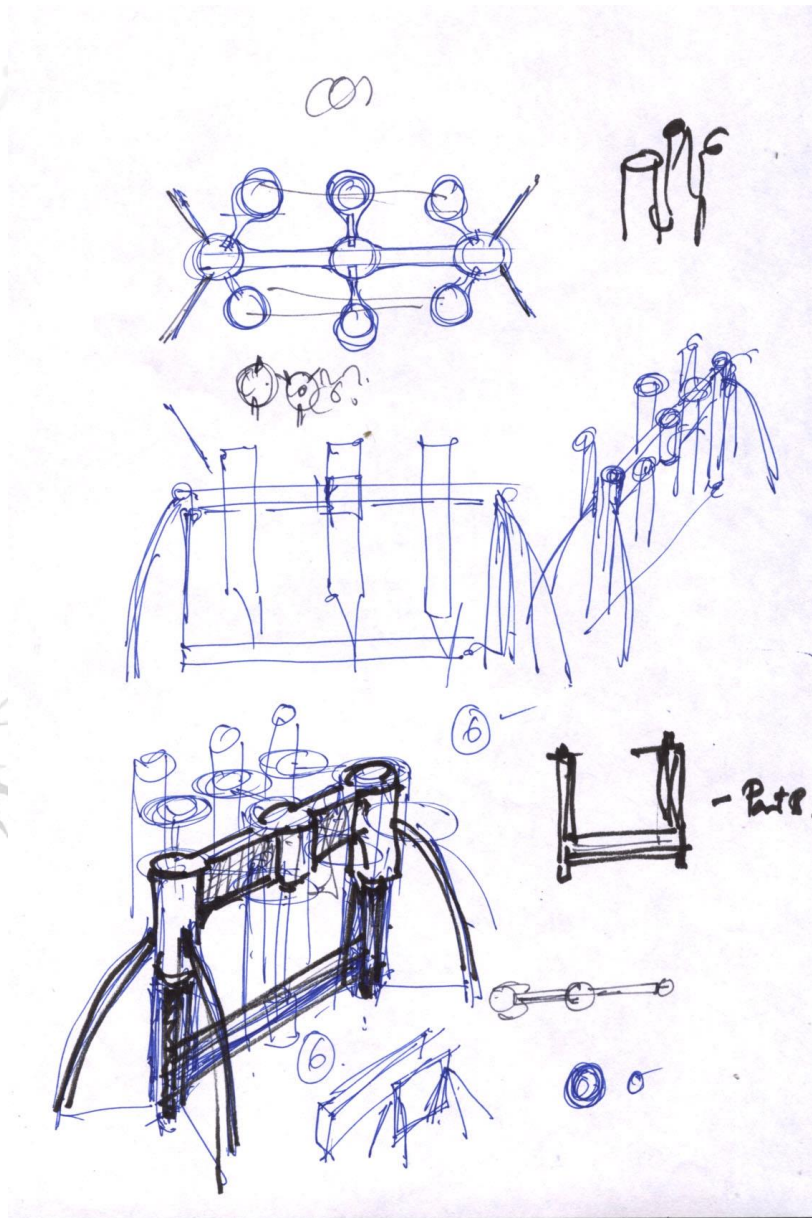


Musical Products in Bamboo



Bamboo Drums

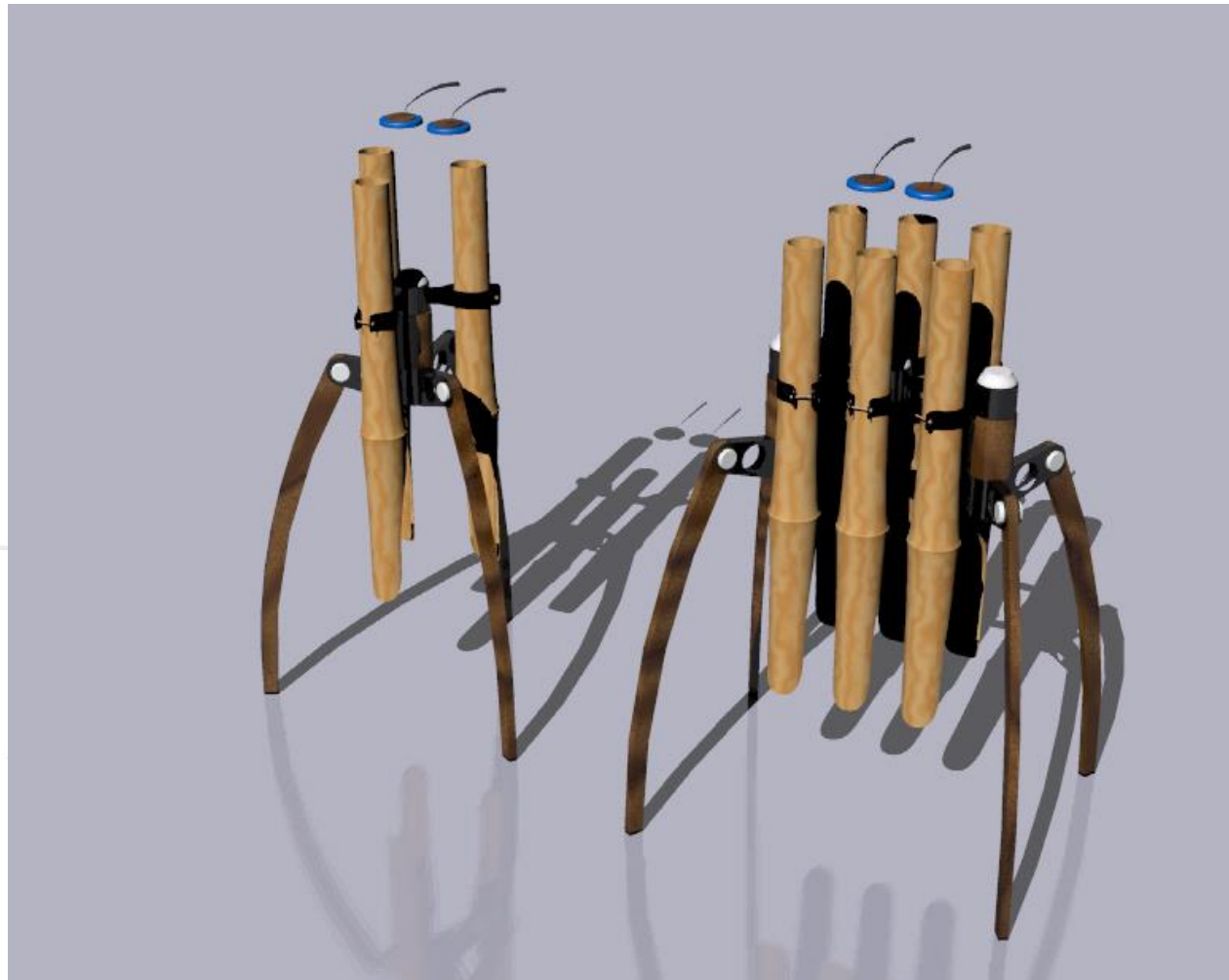
Final Concept



Musical Products in Bamboo



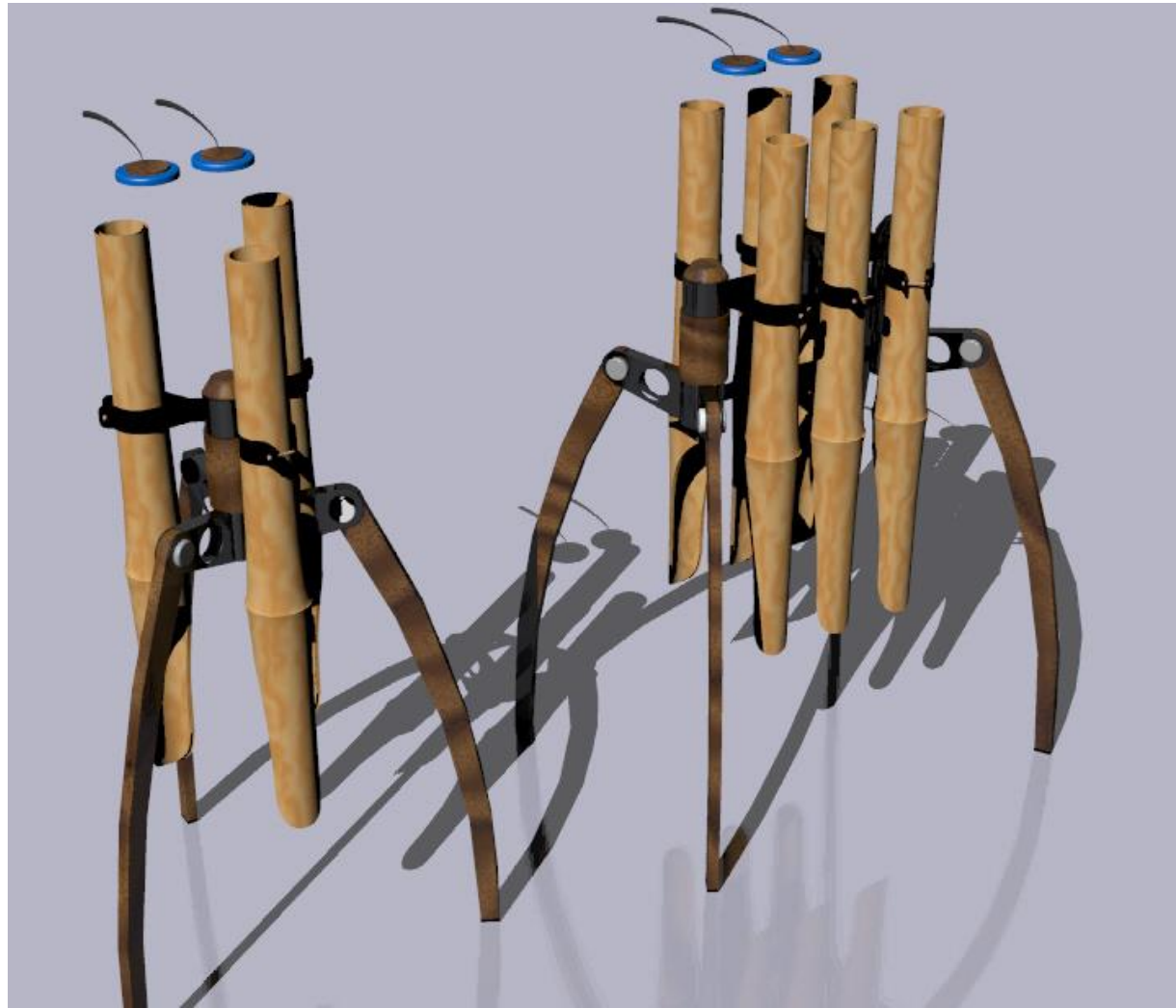
Bamboo Drums



Musical Products in Bamboo



Bamboo Drums



Musical Products in Bamboo

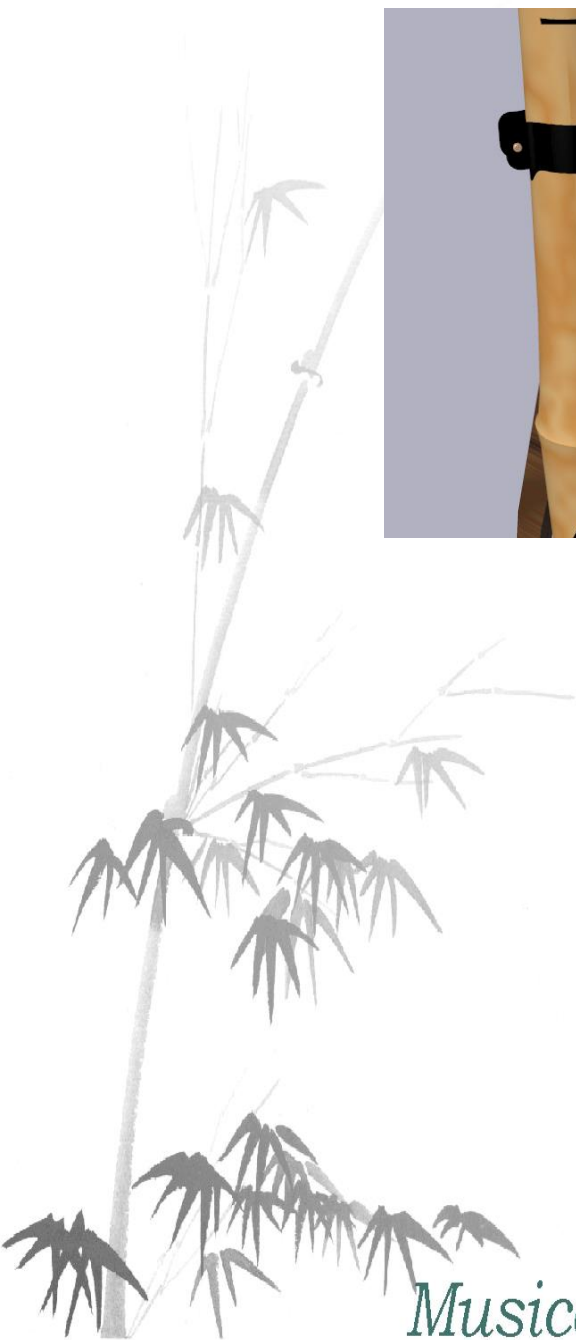


Bamboo Drums



Musical Products in Bamboo





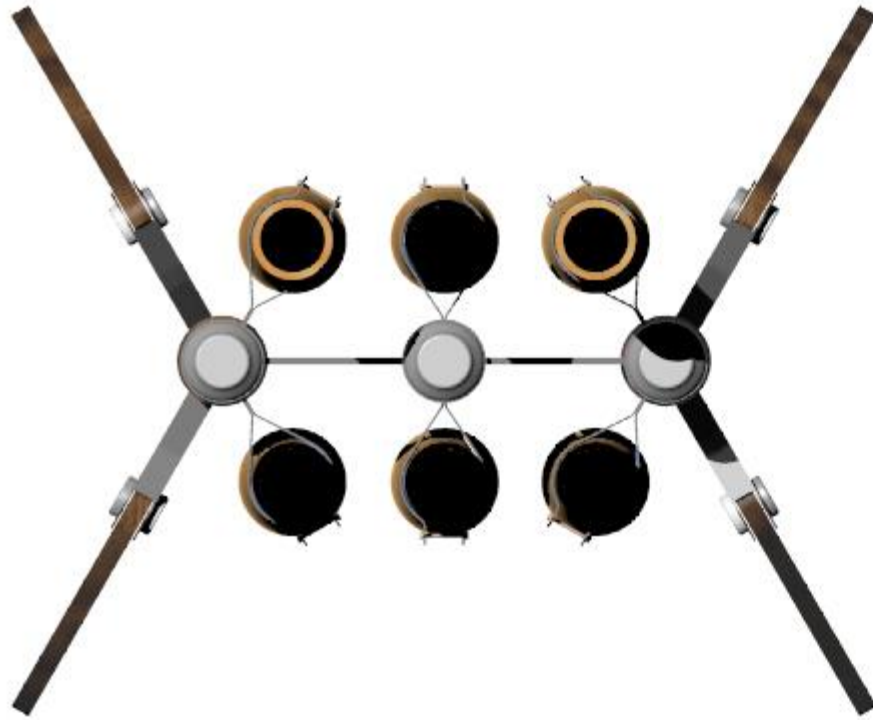
Bamboo Drums



Musical Products in Bamboo



Bamboo Drums



Musical Products in Bamboo



Thank you



Musical Products in Bamboo

