

# Group 1 – The Game Changers

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Concept Development Report

# Group Members

Name	Roll no.
Aarav Trivedi	24110001
Aayush Kuloor	24110004
Aayush Mohan Bhagat	24110005
Abhinav Thakur	24110007
Abhishek Deepak Nair	24110009
Aditya Gupta	24110011
Adsul Atharv Kantilal	24110015
Akshit Chhabra	24110026
Amartya Vivek Tuljapurkar	24110034
Arav Ravi Patil	24110049
Aryan Lohiya	24110057
Atharv Phadnis	24110059
Ayushi Meena	24110063



**Need Statement:** To design a small and portable guitar for guitarists who want to play chords and sing songs without impact on quality of sound

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**Target Users:**

- Guitarists who frequently travel, and require a portable and lightweight guitar which can fit into their bags easily
- Guitarists looking for a flexible guitar with multiple use cases
- Beginners who are learning how to play a guitar and require a simplified and easy to handle guitar
- Guitarists who play in informal gatherings, or casual guitarists who want a small, compact and reliable instrument

### **Environment and Context:**

- In venues such as cafes, bars, and streets, making travel and setup easier
- For parties, get-togethers, and other informal gatherings where guitarists of all skill levels participate
- In guitar classes for students who are learning how to play the guitar

### **Design Opportunities:**

- To make it easy to play within the first few frets of the guitar, focussing on the essential chords
- To make a portable guitar which can fit in a suitcase
- To make a guitar for professionals who can swap the fretboard, without the need for carrying separate guitars



# Mock Up 1 – Foldable Guitar

## Members Involved:

- 1) Aarav Trivedi (24110001)
- 2) Aayush Kuloor (24110004)
- 3) Aditya Gupta (24110011)
- 4) Atharv Adsul (24110015)

## Features:

- Portable, easy to carry and easy to store
- The hinge mechanism is intuitive
- Strings get untangled by themselves due to the tension
- Strings don't have to be detached before folding the guitar

## Materials Used:

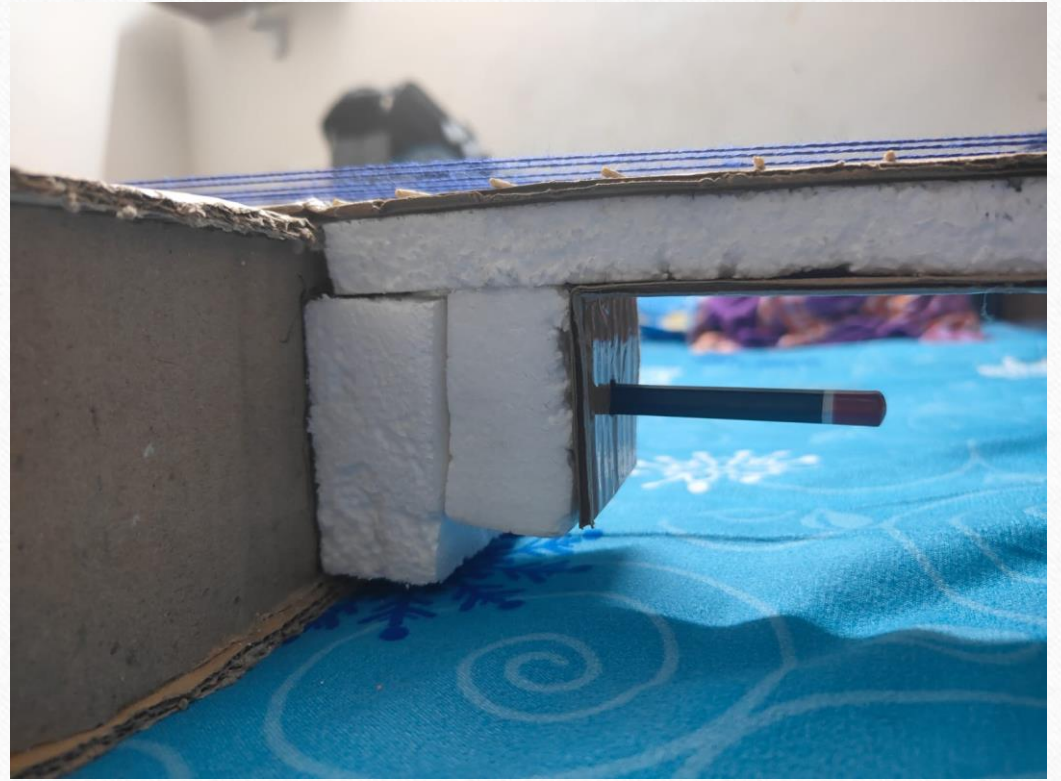
- Cardboard, styrofoam, cotton threads, board pins

## Target Users:

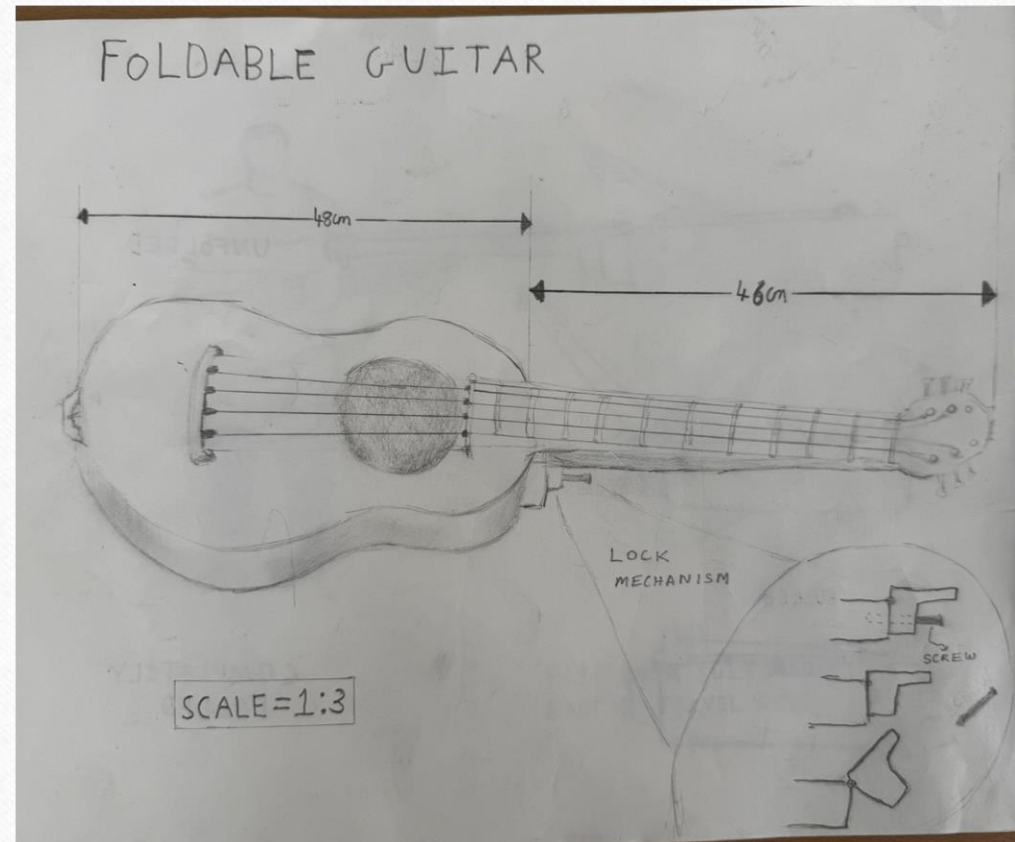
- Guitarists who travel often but don't want to compromise on its size



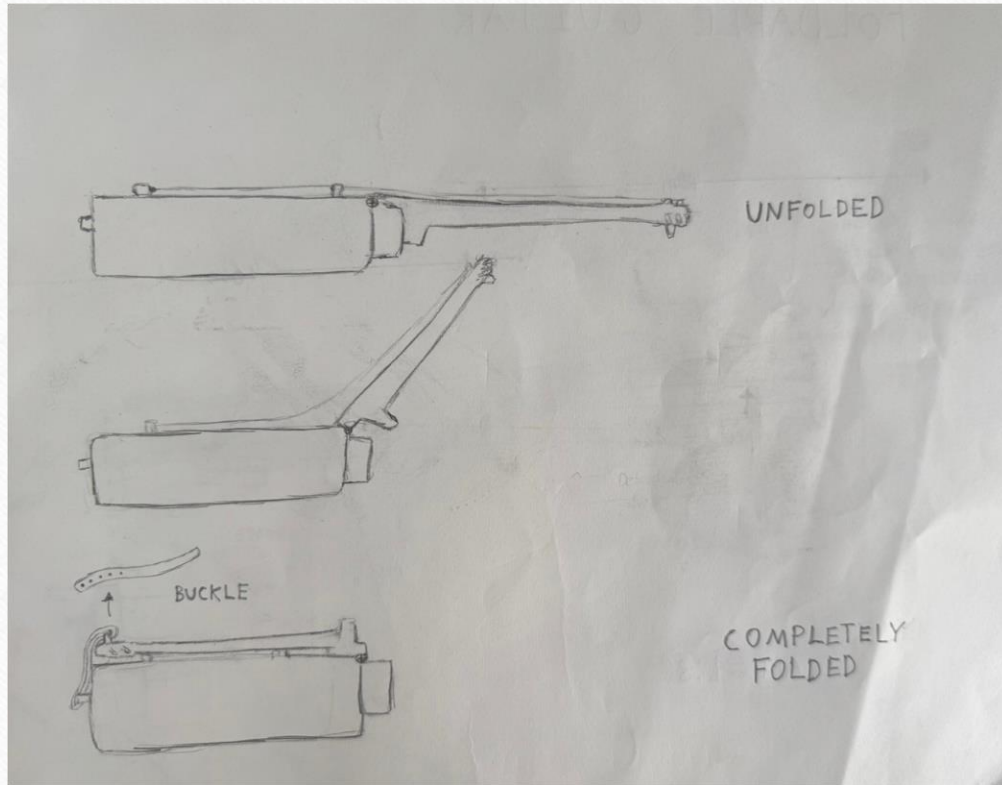




# Sketches









# Mock Up 2 –Modular Guitar

## Members Involved:

- 1) Aayush Mohan Bhagat (24110005)
- 2) Abhinav Deepak Nair (24110009)
- 3) Akshit Chhabra (24110026)
- 4) Amartya Tuljapurkar (24110034)
- 5) Ayushi Meena (24110063)

## Features:

- Portable since fretboard is removeable
- Lock mechanism to keep the fretboard in place when in use
- No need to carry multiple guitars, you can swap the fretboard when needed
- Strings can be changed easily

## Materials Used:

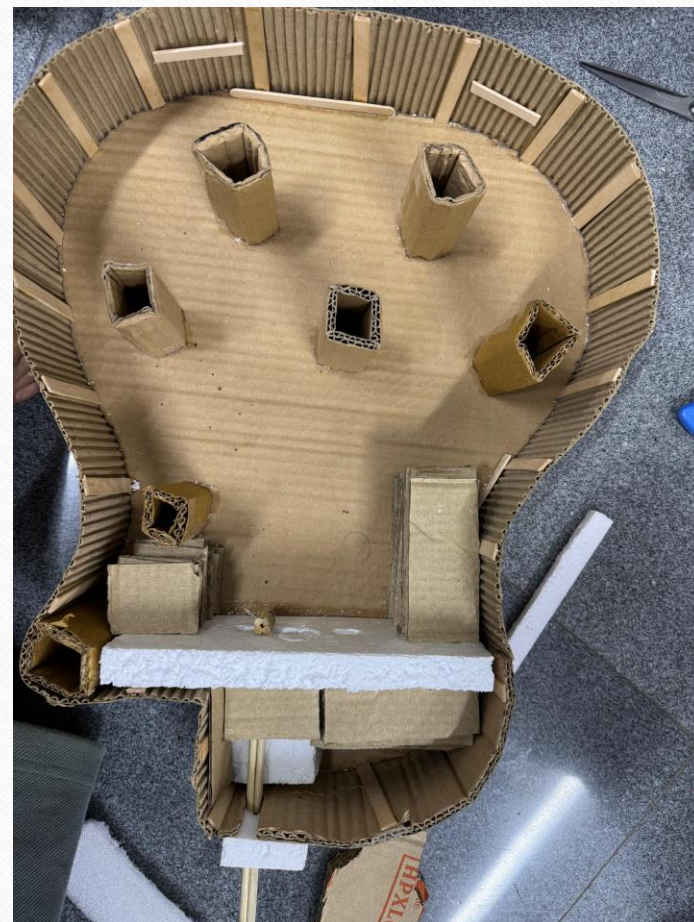
- Cardboard, thermocol, board pins, cotton threads, bamboo sticks

## Target Users:

- Guitarists looking for a flexible guitar which can be used for multiple use cases

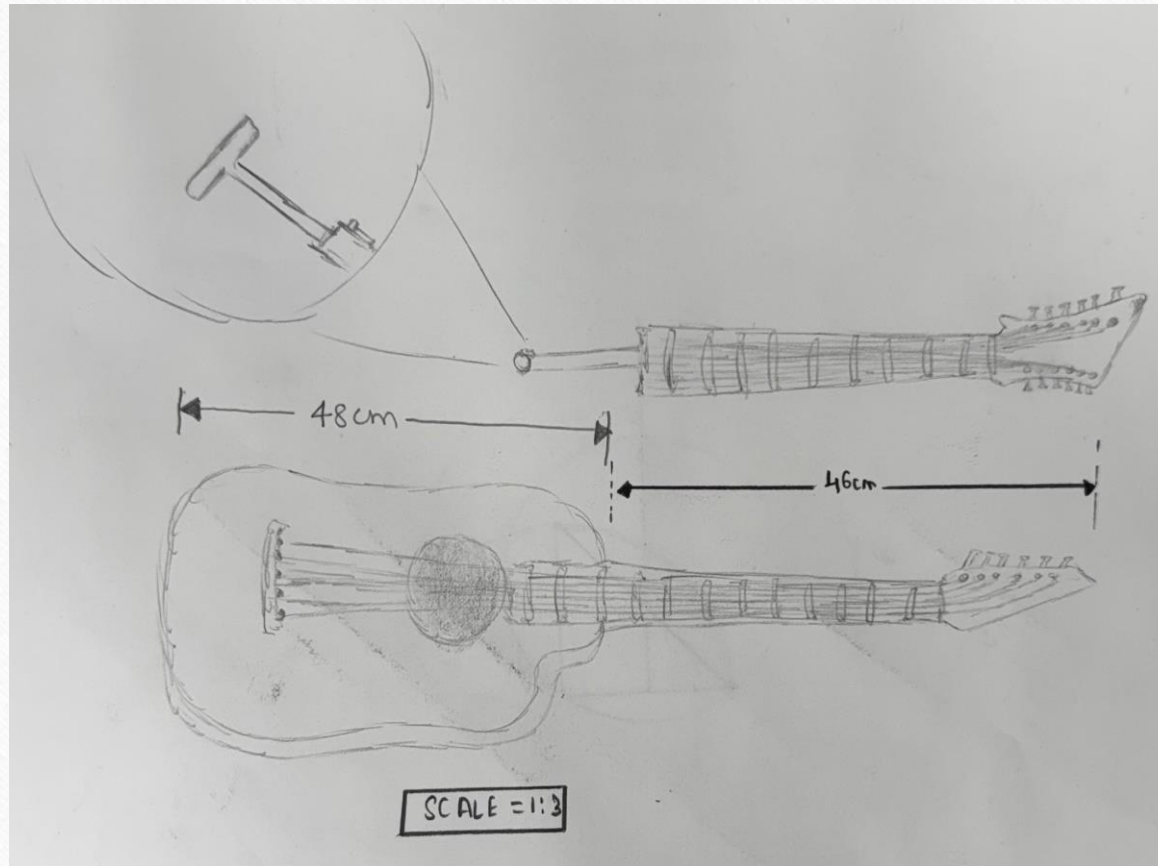


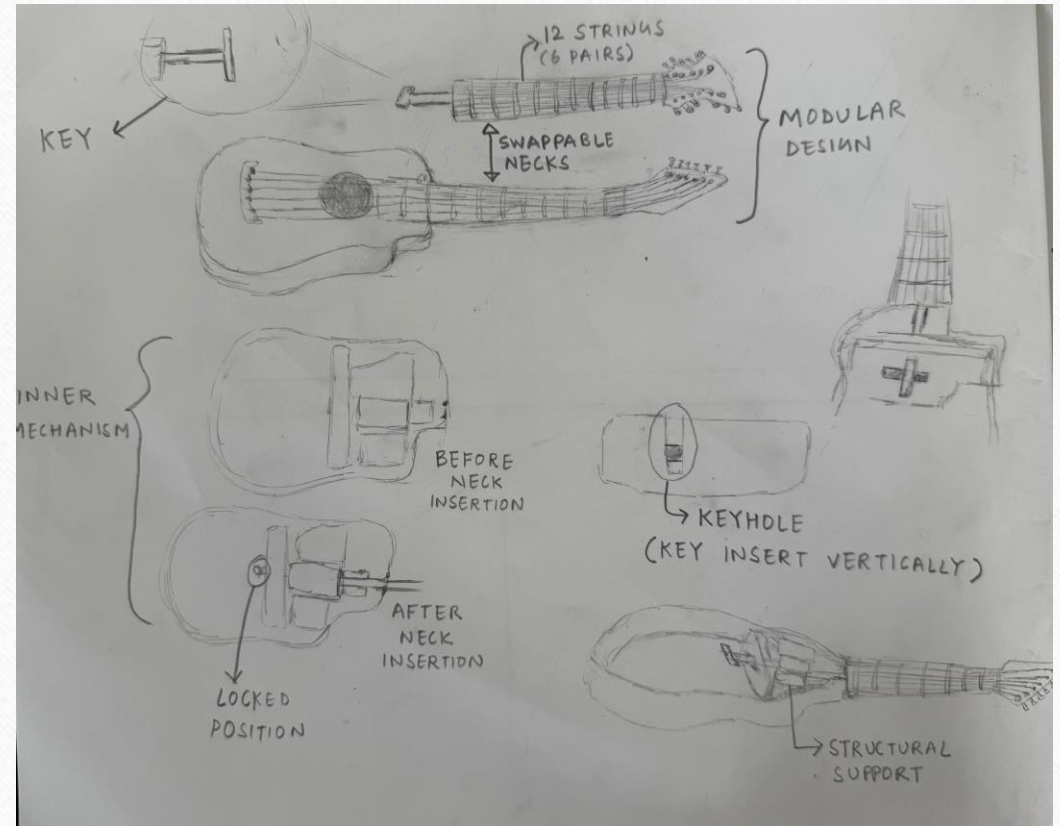
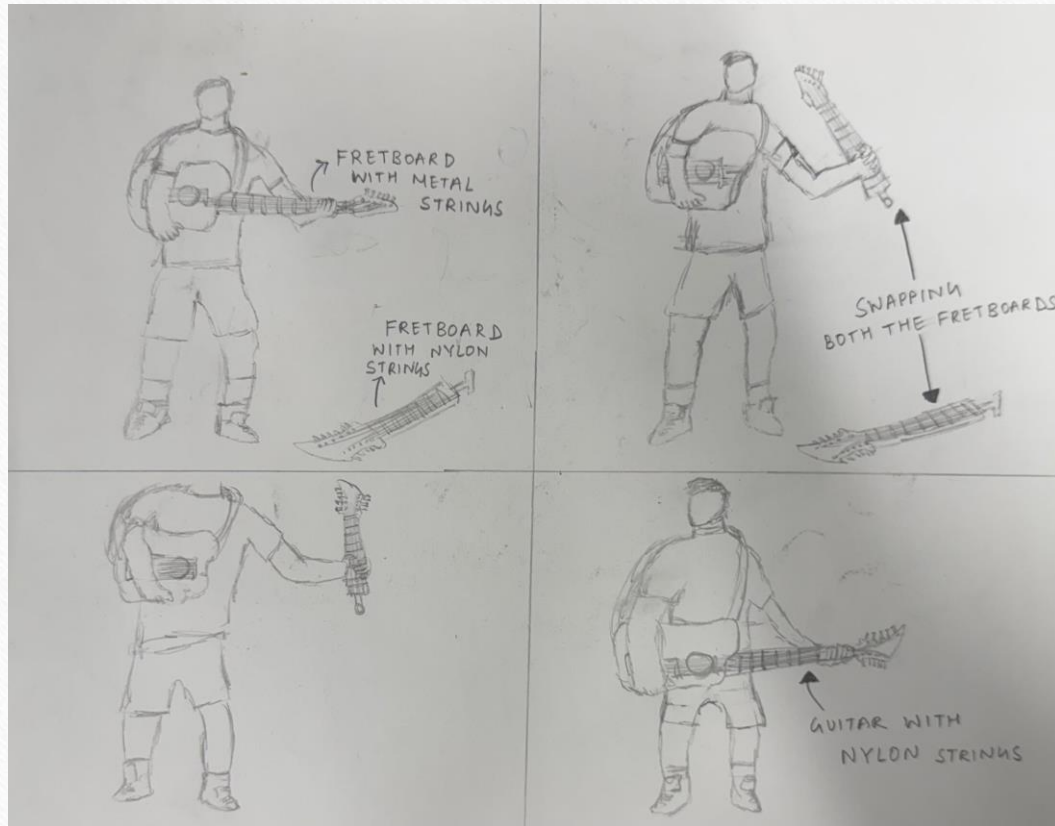






# Sketches







# Mock Up 3 – Compact Guitar

## Members Involved:

- 1) Arav Patil (24110049)
- 2) Aryan Lohiya (24110057)
- 3) Abhinav Thakur (24110007)
- 4) Atharva Phadnis (24110059)

## Features:

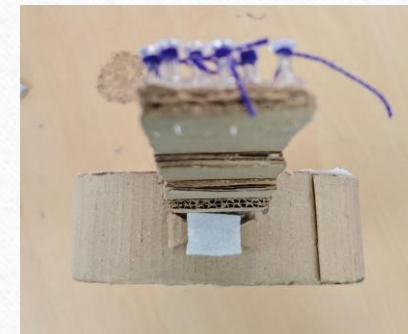
- Compact, portable and easy to handle and play.
- Only six frets, as most songs can be played on them.
- No headstock (reduces bulkiness)
- More playable area (end is farther than conventional guitar)
- In-built pick holder

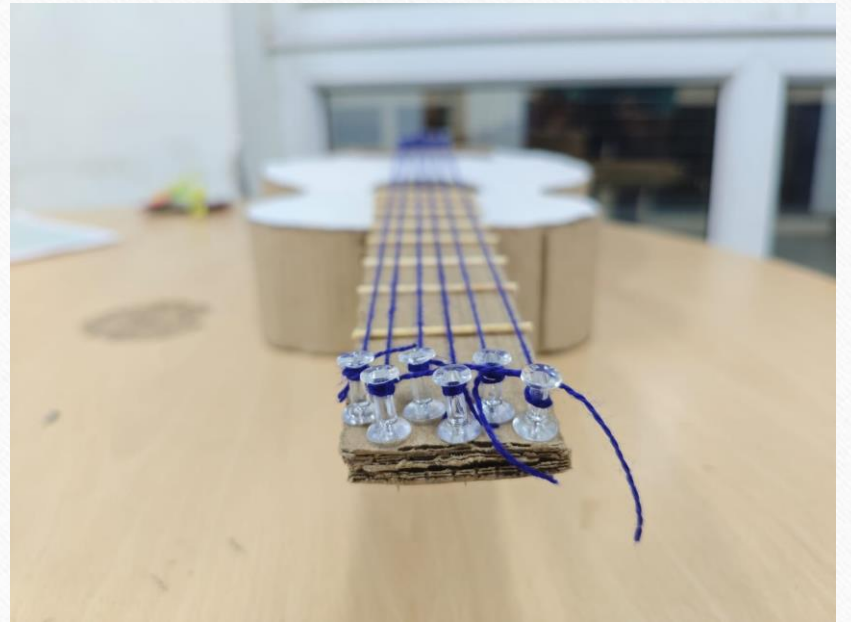
## Materials Used:

- Cardboard, cotton threads, polystyrene, board pins, cotton strings and chart paper.

## Target users:

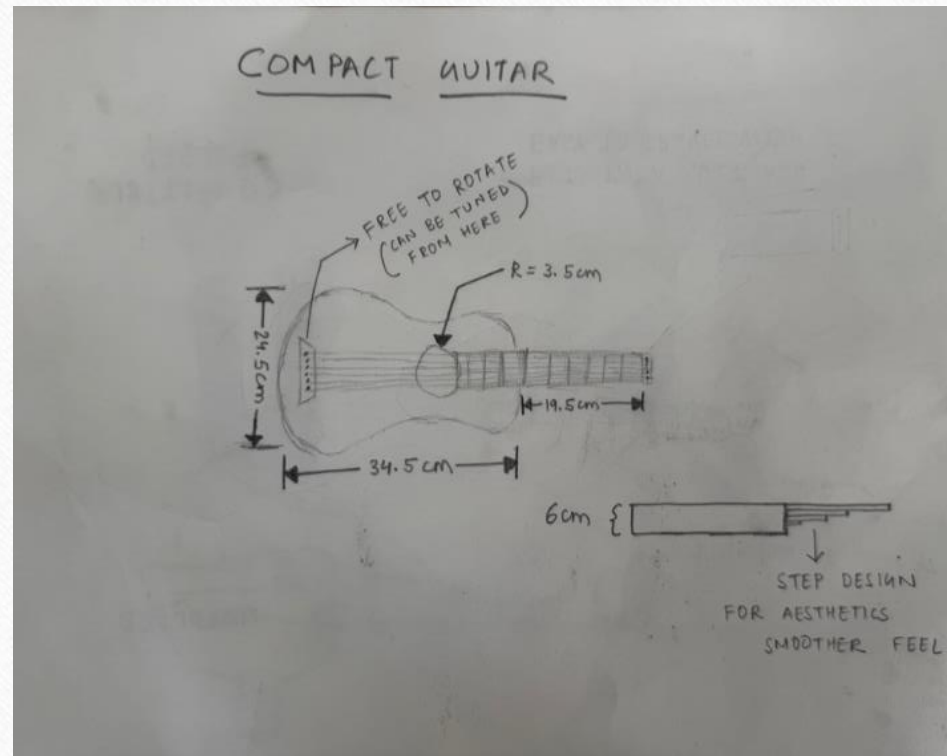
- Beginners, people with a small body (children).



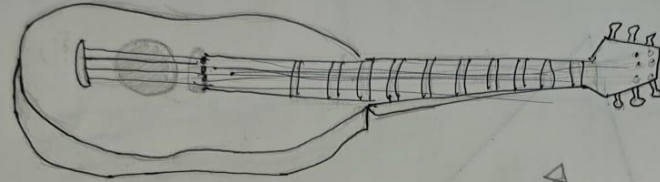




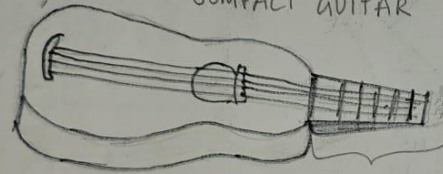
# Sketches



NORMAL GUITAR



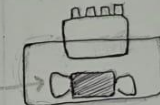
COMPACT GUITAR



NO HEADSTOCK  
IN ORDER TO REDUCE  
BULKINESS.

MOST PLAYED  
FRETS.

BUILT IN PICK HOLDER

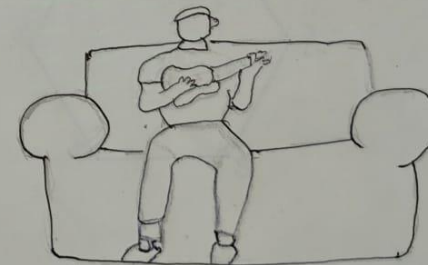


MORE PLAYING  
AREA THAN  
A NORMAL ONE  
DUE TO FARTHER  
ENDING OF THE  
STRINGS.



FITS RIGHT  
INTO  
HANDS  
(SUITABLE  
FOR  
CHILDREN)

EASY TO PLAY ANYWHERE



(AT THE COMFORT  
OF COUCH)



# Media Links

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- [Video presentation of the mock-ups](#)
- [Detailed view of the sketches](#)
- [Work-in-progress photos](#)
- [Close-up shots and mechanism \(Foldable & Modular\)](#)

# Learnings

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- Detailed idea about the mechanism and functioning of the guitar, which might be helpful in the final product.
- Purpose and role of different materials at different guitar parts and the right way of using them.
- Distribution of work among members according to their capabilities, knowledge and interests.
- Value of teamwork and asking for help from each other whenever needed.



# Challenges

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- Choosing the right materials for the respective parts to maintain their structural integrity and fulfil the purpose.
- Creating appropriate sketches to explain the parts, especially minor details that might not be visible via video and photos.
- Coordinate between different team members and keep everyone's interests in mind by finding flexible work hours that work for everyone.
- Scavenging the materials required for the mock-up to fulfil the purpose at the lowest cost

## Failed Ideas:

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- Designing a slide mechanism to lock and unlock the fretboard. Rejected due to its added complexities.
- An electric tuner was to be added to the mock-ups, but it was rejected because we could not find the proper location and non-aesthetic nature.

## Rejected Options:

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- Making of the guitar, which handicapped people can utilise. Due to a lack of information and data, this option was dropped.
- The option of designing a guitar which has a different body shape than the conventional one ended up being eliminated because



# Glimpses





THANK YOU!