

# Group 1 – Game Changers

## Project Brief

### Group Members:

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|------------------------------|----------|
| 1. Aarav Trivedi             | 24110001 |
| 2. Aayush Kuloor             | 24110004 |
| 3. Aayush Mohan Bhagat       | 24110005 |
| 4. Abhinav Thakur            | 24110007 |
| 5. Abhishek Deepak Nair      | 24110009 |
| 6. Aditya Gupta              | 24110011 |
| 7. Adsul Atharv Kantilal     | 24110015 |
| 8. Akshit Chhabra            | 24110026 |
| 9. Amartya Vivek Tuljapurkar | 24110034 |
| 10. Arav Ravi Patil          | 24110049 |
| 11. Aryan Lohiya             | 24110057 |
| 12. Atharv Phadnis           | 24110059 |
| 13. Ayushi Meena             | 24110063 |



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

## Target Users

1. Professional guitarists who focus on playing chords in a band are looking for a reliable and compact instrument.
2. Guitarists frequently travel to different venues and require a portable and lightweight guitar that is easy to transport.
3. This will also benefit beginners learning to play the guitar and want a simplified and user-friendly instrument to ease their learning process.

## Environment/Context

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

# Design Opportunities

01



To make it easy to play within the first few frets of the guitar, focusing on the essential chords

02



To make the guitar small, lightweight, and portable while maintaining functionality and sound quality

03



Use gentle string materials on the player's fingers, reducing discomfort, especially for beginners.

04



To make it easier for beginners to learn by reducing the size and complexity, minimizing the learning curve by focusing on the first five frets.

# Task Analysis

The first few frets are used the most for singing songs and chords.



Most of the fretboard is not being used.



# Problems Faced

- The guitar is a very bulky instrument, which makes it extremely difficult to transport
- The strings, which are usually made of brass or steel, cause cuts on the player's fingers
- The strings can break unexpectedly, which can cause severe injuries to the player
- It is difficult to maintain a proper body posture when holding the guitar for long periods due to its bulky nature and shape, causing body pain to the player
- The guitar loses its structure and bends in humid conditions. This increases the distance between the strings and the fretboard, making it hard to push the strings and play
- The strings are prone to rust within a few months. They require frequent replacement, adding to maintenance costs.

# Main Takeaways From the Interviews of Users

## Jovith (Guitar Player):

- It is difficult to switch between different chords as a beginner, and it hurts the fingers a lot
- The guitar is too big for a younger player
- Transporting the guitar is a difficult task, especially when playing for bands
- A smaller guitar would be useful when playing chords, but leads need a wide range of notes
- It would be beneficial for beginners if the guitar had a lesser number of frets, which reduces the complexity of playing the guitar

## Siddharth (Guitar Player):

- The steel strings are hard, making it difficult to press it and use the higher frets
- When plucking the strings fast, the guitar tends to fall, so it would be good if there was something to hold the guitar in place
- The fretboard should be soft on the inside so that the strings can be pressed easily and smoother from the

## Piyush Makhijani (Keyboard Player):

- The keyboard is big, so it is hard to cover all the keys while playing
- It is heavy, making it hard to carry from one place to another
- It would be beneficial if there was an adjustable stand attached to the keyboard

## Ayush Alhat (Tabla Player):

- As a beginner, he did not understand what the teacher was saying due to a language barrier
- The upper leather face's scale changes in cold weather conditions
- It is difficult to adjust the scale of the side leather belts of the tabla
- It would be better if the material of the upper face is changed to something else
- It is hard to find a stable stand for the tabla with adjustable height

## Eshaan (Guitar Player):

- The effort required to press the strings is very high
- Sometimes, it is difficult to keep both of our hands in sync

# Expert's Opinion

The biggest problem I've always had with the guitar is how bulky and large it is. Most guitarists use the first few guitar frets, especially when playing chords or accompanying vocals, which is what acoustic guitars are mostly used for. The other frets often go completely unused. They're mostly only used in riffs and licks, played commonly on electric guitars instead of acoustic ones. This suggests that an acoustic guitar limited to the first five frets could meet the needs of many musicians without compromising on musical functionality. The guitar feels unnecessarily large and bulky to carry around when I only use the first 5 frets most of the time. By reducing the fretboard and overall size of the instrument, it's possible to make a compact, lightweight, and portable guitar that retains its core sound quality. Such a design could also enhance portability, making it an ideal choice for traveling guitarists and beginners looking for a simpler instrument.

- Professor Srinivas

Reddy

# Existing Product: Ukelele

## Pros

The light strings and the short neck of the ukelele make it easier for beginners and players with small hands

The ukelele is compact and lightweight, making it portable

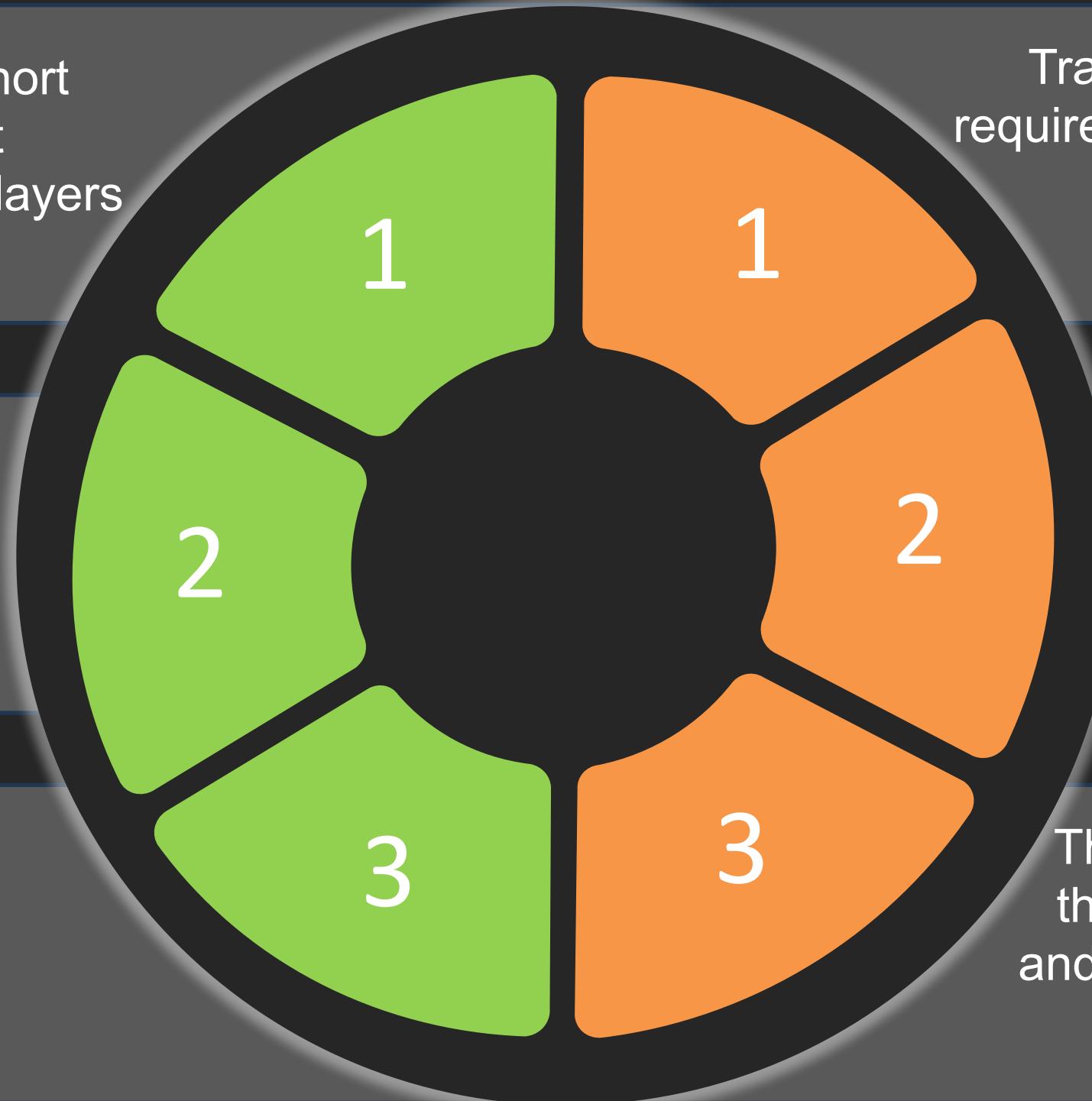
The smaller size of the ukelele makes it more affordable than a guitar

## Cons

Transitioning to the ukelele will require players to learn new chord shapes and fingering styles

The ukelele's sound is shrill compared to guitars, making it unsuitable for many musical styles

The ukelele has fewer strings than the guitar, limiting the music range and the complexity of the music that can be played





Thank You!