



Sonic Shell

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Provocations



1. Everyone is a musician



2. Musicians don't have to read music.



3. Playing an instrument is like playing a game.

In 2061, anyone is a musician. Music is no longer difficult to learn. Conversely, it is simple to proceed with and accessible for everyone. In 2061, technology continues to develop, people have more demand for services and products that are intuitive and convenient to use based on the needs of each individual. People only need to work 20 hours a week, so there is more leisure time to spend on their hobbies. As paper-formed objects get eliminated by 2061, musical scores will be expressed in a more visual way while the instrument is easier to control.

Today, there is already a trend where music is visualized using shape, movement, and colors in video games and music videos. Rather than music scores, expressing music through visuals and movement seems to be more intuitive for people to understand even if they do not have any musical background or any understanding of musical notations. This way music becomes more accessible and can be quickly mastered, perhaps enjoyed, and end with the feeling accomplished.



Manefesto

“To use personal customization to fit the needs of different people and provide equal access to all people”.

-The 2061 Manefesto-

“ In 2061, as technologies continue to develop, services from machines will become very common and advanced. People gradually increase their demand and desire services that suits them. However, since each individual has different attributes, they will have different needs and some may have more needs than others. Different needs should be treated with different solutions. With the help of technology, each person will have access to their desired services regardless of the person’s disadvantages in age, weight, height, body strength, smartness, wealth and etc. Creating an environment where each person can dream big even if their dream seems to be impossible.”

2021-2061

In 2061, technology continues to develop, people have more demand for services and products that are intuitive and convenient to use based on the needs of each individual. People only need to work 20 hours a week, so there is more leisure time to spend on their hobbies. As paper-formed objects get eliminated by 2061, musical scores will be expressed in a more visual way while the instrument is easier to control.

About Identity

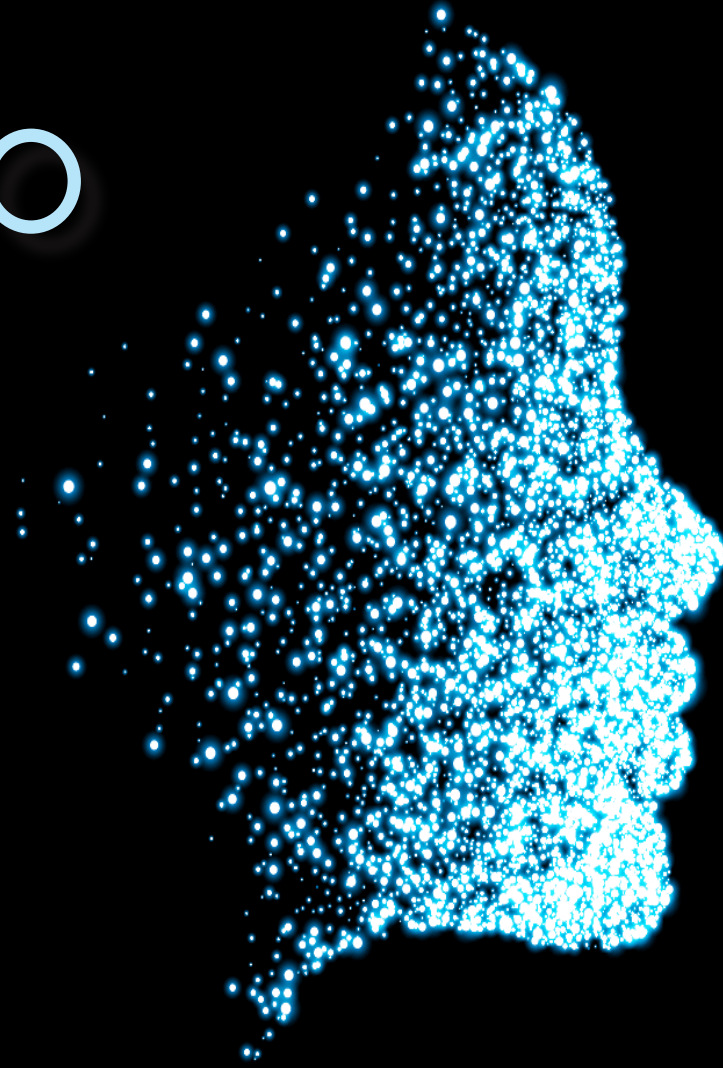
As a team, we focus on the theme of identity. Identity includes traits that people use to identify themselves and others. As we agree on together:

“One’s identity can be based on the qualities, beliefs, personality traits, family origin, hobbies, and/or occupations. Individuals have two identities that are closely related. We have an identity that is based on the opinions of others and how they perceive us and we have our true identity which we understand intimately about ourselves. We choose to identify with different aspects of our life and share them with others, but some aspects of our identity are passive. So much of our identity is self-perception and self-esteem. When we were establishing and defining identity within our group we made a list of things we identify with. The list that we chose to share with each other shows which aspects of our life we are willing to share and identify with. Although there are other things that have influenced our identity, we omitted some of those experiences or aspects of our self whether it was intentional or passive.”



Identity

Hobbies form because of dedication and practice. People need encouragement in the process of learning and if one is not surrounded by people who gives positive feedbacks, maybe objects can.



Origin
Beliefs
Traits
Hobbies
Family
Qualities
Occupation



Desired 2061

One of the things I struggled with when I was young was learning an instrument. I always thought people who were able to play instruments were cool but the process of learning it was boring and hard to persist. I think the two hardest part was the movement and reading the music score. **In my desired 2061, playing an instrument should no longer require skill and musician gets encouragement and feedbacks while they play and practice.**

Instrument Learning

Difficult



Blowing



Fingering



Gesture



Clicking



Typing



Swiping

Easy

All the instruments we have today required specific essential techniques. These essential techniques require the most practice in the entire music learning process. It is the hardest and the most time-consuming to learn and practice overall. As many instructors say, the skill of someone playing an instrument is determined by the skill of their technique. There is always a specific way to play an instrument. People would be judged or be evaluated as “wrong” when they do something different from the regular way. For example, blowing and correct use of your mouth and facial muscle is hard in brass instruments. Fingering is hard in string instruments. Violin is especially hard because people need to do the fingering while pulling the bow and holding it in place with their neck and facial muscles.



Research Analysis

As people are more and more reliant on technologies like computers and phones. People are very proficient in typing, maneuvering a mouse, and swiping. According to The U.S Bureau of Labor Statistics by 2020, up to 77 percent of jobs require computer usage. As people repeat movements like clicking, typing, and swiping thousands of times a day, these movement becomes familiar for people to do because of muscle memories.

Music Reading

Difficult!



Easy!



Dance Dance Revolution



Rhythm master

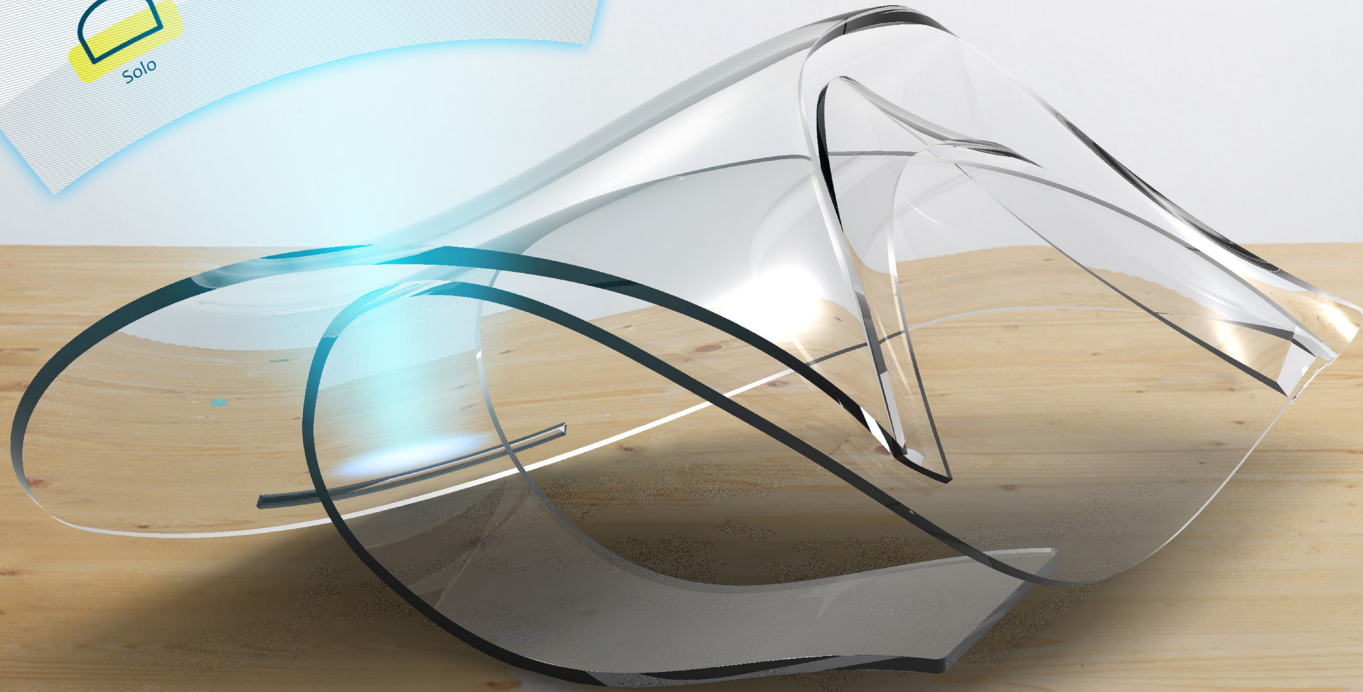


Taiko no Tatsujin

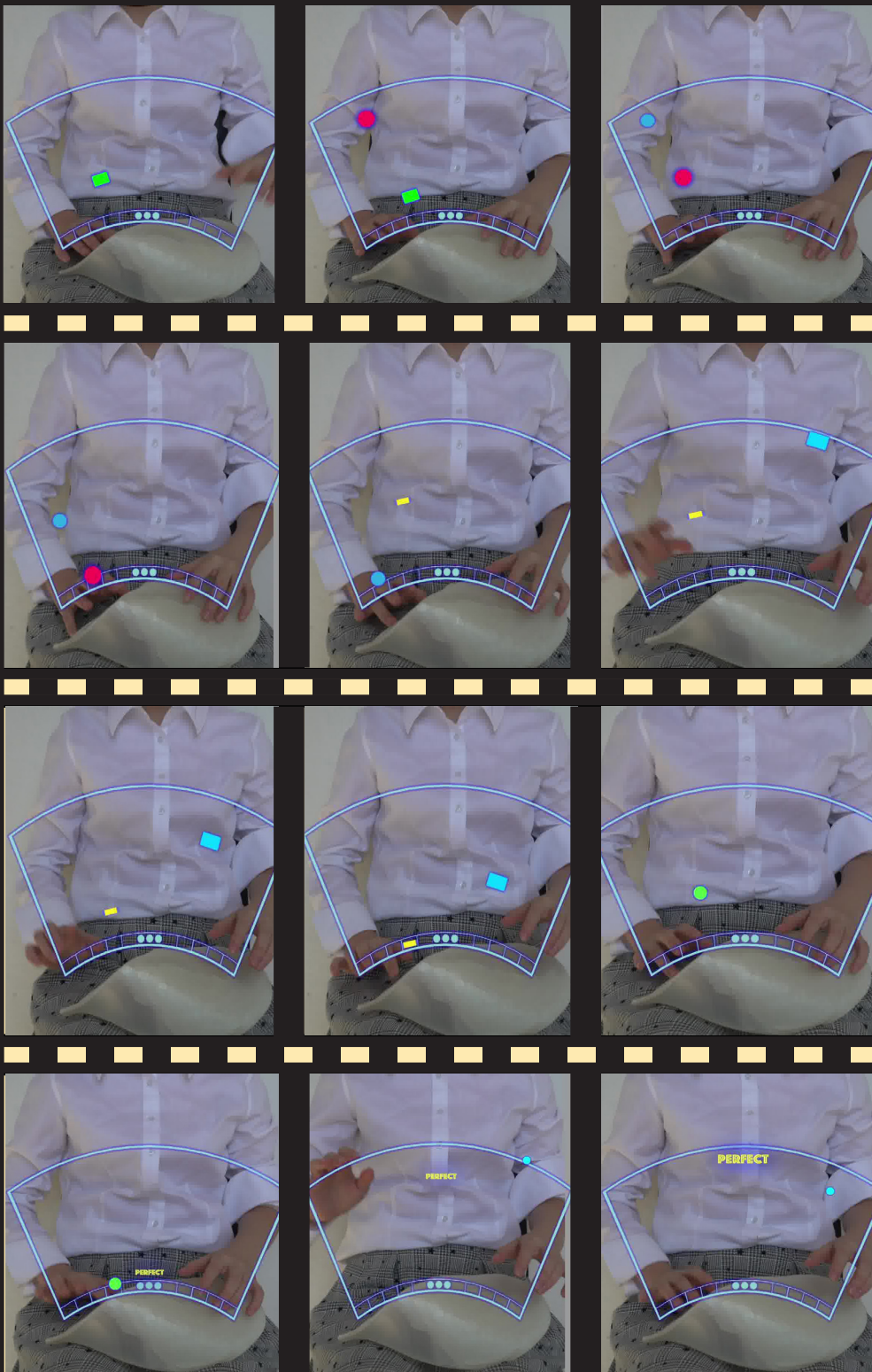
Learning music by the musical scale is difficult and time-consuming because there are many complex notations to learn. Treble cliff, bass cliff, sharps, and flats are complicated. Playing video games is easy. Musical video games use symbols like arrows, guiding lines, colors, and shapes in different sizes to guide the user on how to play a song. These visuals pop into the musician's eyes as simplified forms that show the rhythm, temple, flow, and note that people can easily understand. For example: Dance Dance Revolution, Taiko no Tatsujin, Rhythm master, and OSU. The popularity of these video games shows that people understand and accept this type of music expression.

Sonic Shell

An instrument that educates beginners to learn new songs using visuals and movements that are intuitive for people to understand and do.

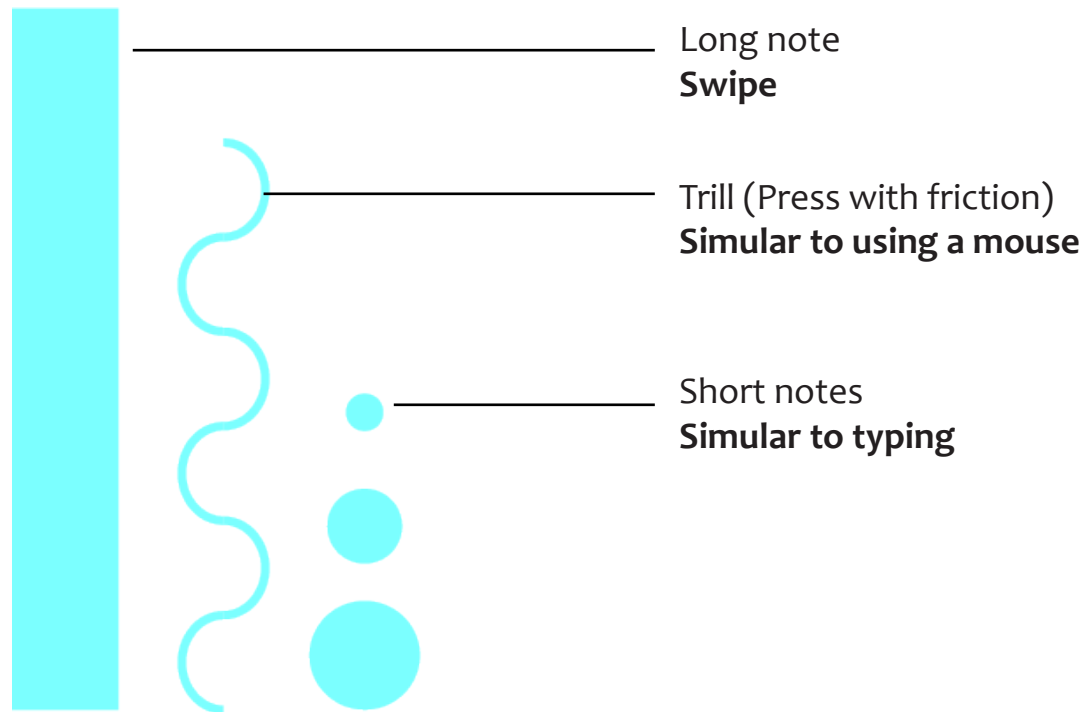


Sonic Shell



The Sonic Shell projects a holographic screen that navigates the musician through their using process. To begin, the musician swipes the instrument upwards to wake it up with a “bing” sound notifying the musician. The musician selects whether if they want to play solo or ensemble and the music they will be playing. The song will be ready to play when the user chooses to begin. Each note will be symbolized with visuals. Long notes are represented by a long bar which is similar to a swipe; short notes are symbolized by short bars or circles which are similar to typing and trills are represented by swirls which are similar to maneuvering a mouse. All the movements came from what people are familiar with doing on a daily basis. The visuals shown on the holographic screen will drop down like Tetris and when the musician will touch the Sonic Shell when the visuals pass the bar on the bottom bar. It will have a hectic effect on the area that is being touched on so that the musician gets direct feedback that there is a reaction to their action.

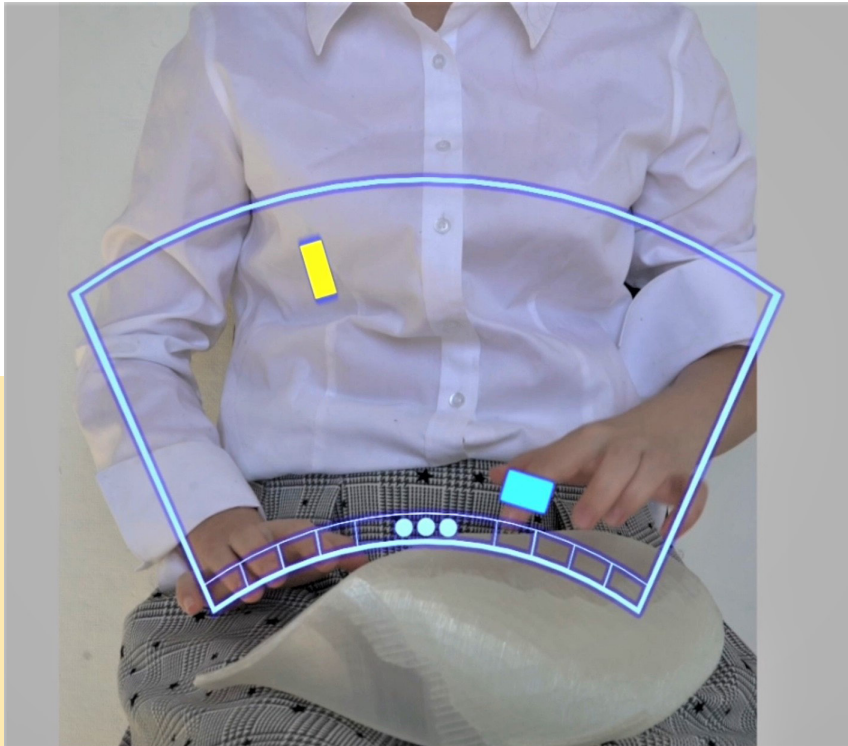
Movements Inspired By Computer & Phone Usage



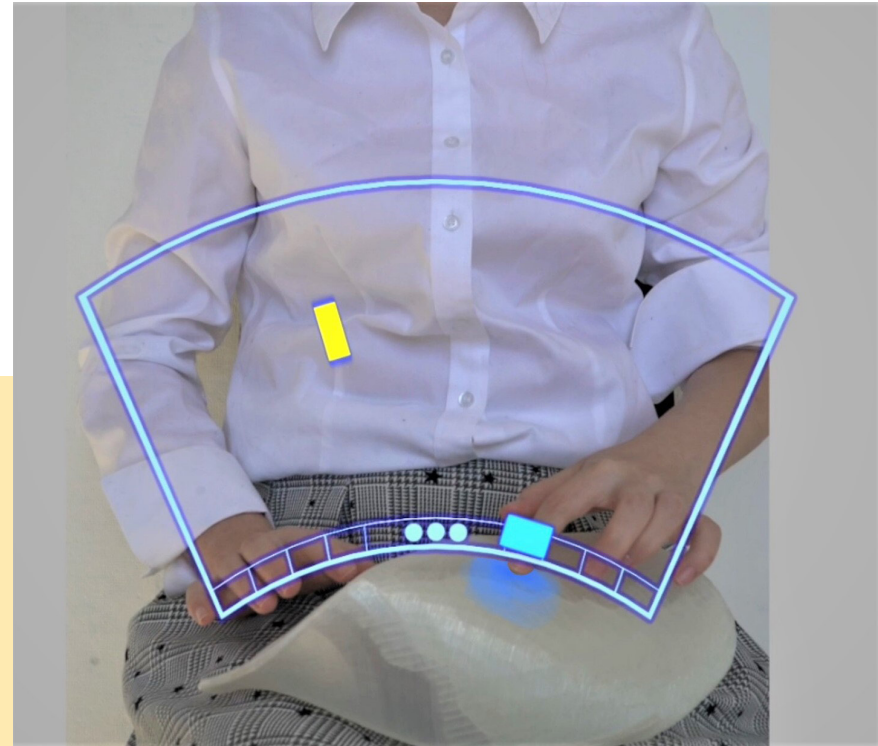
Press the key where the visuals are falling onto.
The length of the bars determines the length of each note.

Haptic Light Effect

Without touching

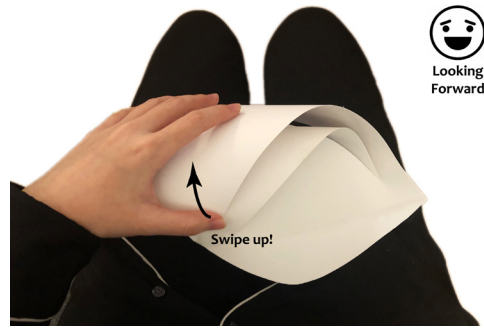


Light Effect while touching



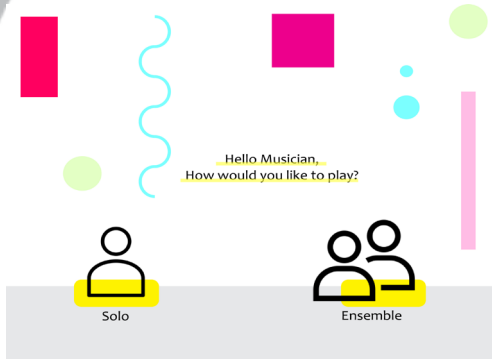
The instrument will have a haptic effect on the area that is being touched on so that the musician gets direct feedback that there is a reaction to their action.

Wake up instrument

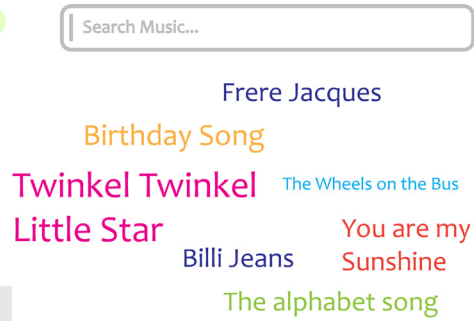


User journey

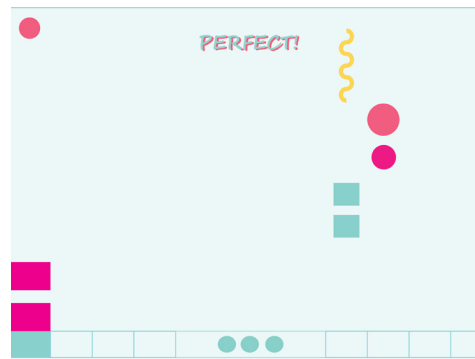
Select Player



Select Music

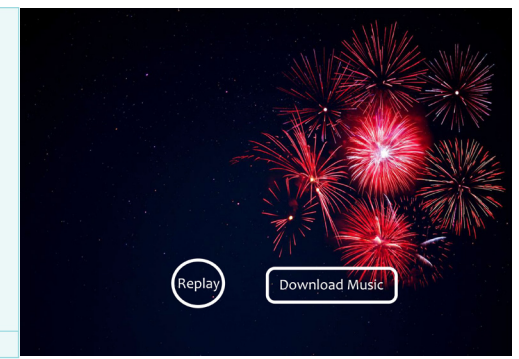


Start Playing



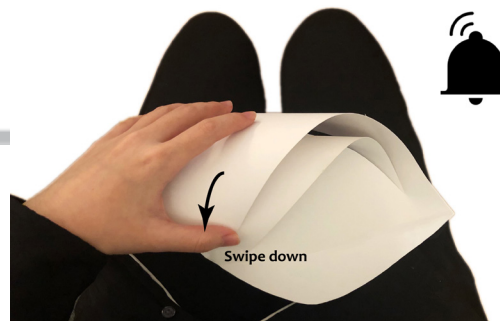
Encourage with words

End & Record



Encourages with fireworks

Put back to sleep



Moments to Encourage

Words



Fire works

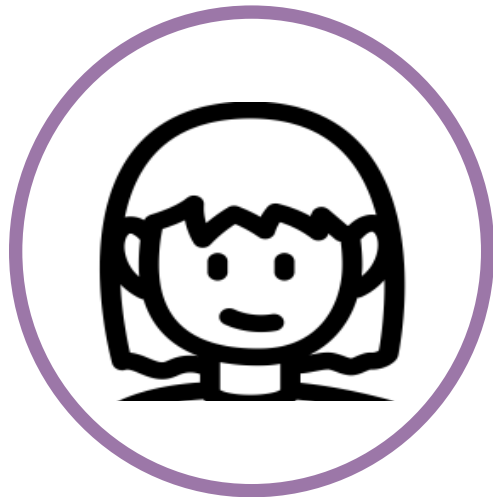


Clapping Sound



The musician will be encouraged throughout the process of playing the instrument. Encouraging words like “Perfect”, “Yes”, “Bravo”, “Bingo”, “Good” and “Congratulations” will appear on the center of the screen when the musician plays a beautiful note, smooth symphonies, after playing a very complex part successfully or when the chorus is done. The musician could see the words and be encouraged without being distracted. Towards the end of the song, the system will generate a firework show for the musician in the background while giving them the option of downloading the music with the feeling of accomplishment. It not only have the mode to play and learn alone but it can also be played as an ensemble or band with other instruments. They can be connected using Bluetooth and share the same encouragement moment and have a recording with very good sound quality just like albums of bands.

User Persona 1



BOB

**“Ordinary,
Lonely,
Unconfident,
Novice,
who could not find his strengths.”**

Bob tries to find something he could be good at while having a company in his leisure time.

Scenario: Bob wants to learn a skill but he easily gets discouraged so he chose to a something that is easy to master quickly. On a cloudy Saturday morning, Bob picked his instrument. As Bob swipes the instrument to wake it up, a cheerful sound came out from the instrument and a holographic projection lit on from it at the same time. Bob chose the easiest song to begin with--- Twinkle Twinkle Little Star. He watched the note “bars” falling down from the air and onto his instrument and quickly learned where to touch and swipe.

User Persona 2



Ann

“A very talented musician who loved to play music with friends. Performs in concerts and entertaining herself with music.”

She is very good at many instruments. A lot of instruments in the same family have many similarities, so she can easily learn and be good at them. However, She is stuck at home due to COVID so the experience of playing with others is out of her life for a year already.

Scenario: Ann tried to find a way to virtually play music with her friends (in a way that is not lagging, and has good quality sound). Ann heard a very good song that stuck in her mind. She called a few friends and scheduled a time to play a song together. They connected with each other through a contact list and chose a song together. Ann listened to their recorded version throughout the week.

User Persona 3

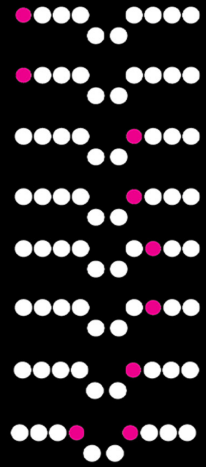


Bill

**“A teenage
gamer who was forced to learn music.”**

His parents are worried about his eyesight because he spends most of his time playing video games.

Scenario: Billi has a very good balance of hand-eye coordination due to his video game exercises. However, Billi doesn't know anything about music, he does not understand the music score, notes, rhythm, or tempo. He has judges music and dislikes to be forced to learn something new. However, Billi finds that this instrument looked a little different from others. He was able to simply let it sit on his lap and get started. Since the gesture and play pattern of playing the instrument was very similar to playing the video games, Bill gradually gained interest in it.

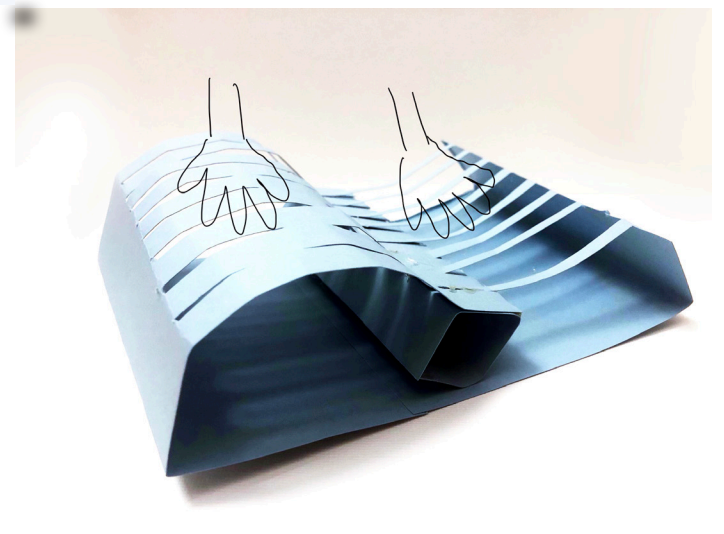
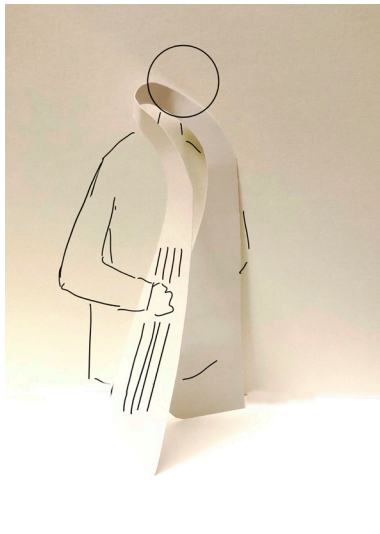
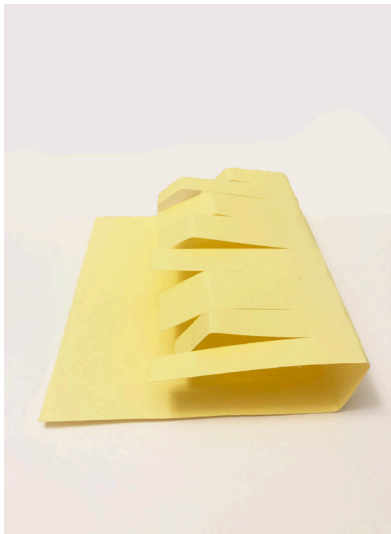
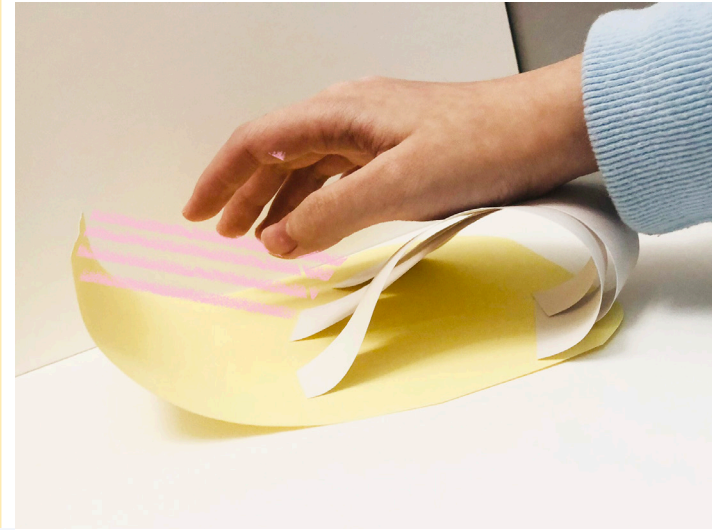


Process

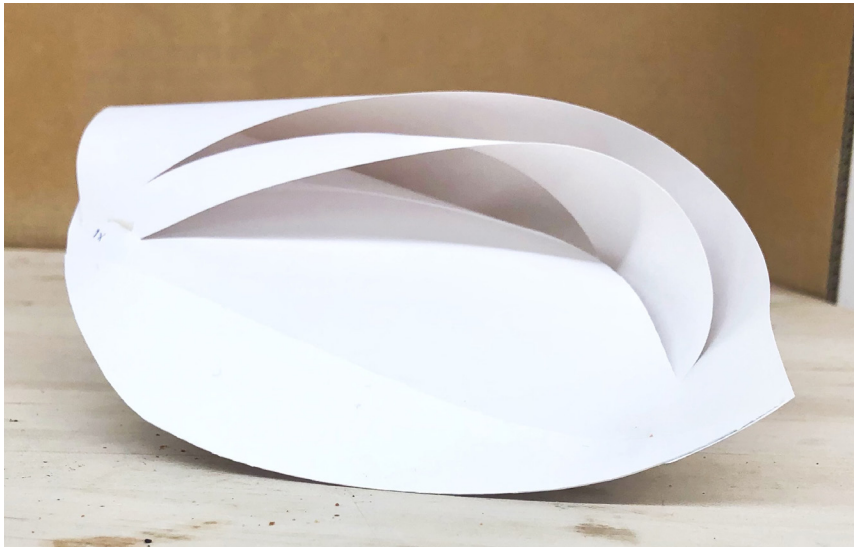
The process of designing this instrument was like visiting a pop-up store. I explored, wondered, and surprised myself as I moved forward with the class. The design process can be separated into three main parts: designing the setting (2061) as a class, exploring a theme I want to work on, and lastly designing the artifact that fits in the setting and theme. As a class, we created short stories and souvenirs; thinking about scenarios that could be different in 2061. We did many activities that stimulated deep thought and conversations. We had breakfast clubs every Monday where each group facilitated a setting that led to deep conversations setting a stage for ourselves to image ourselves already stepped into the future. These exercises prepared us for finalizing the manifestos for the class. Since establishing the setting of 2061 and believing in that future we each started designing our own artifact.

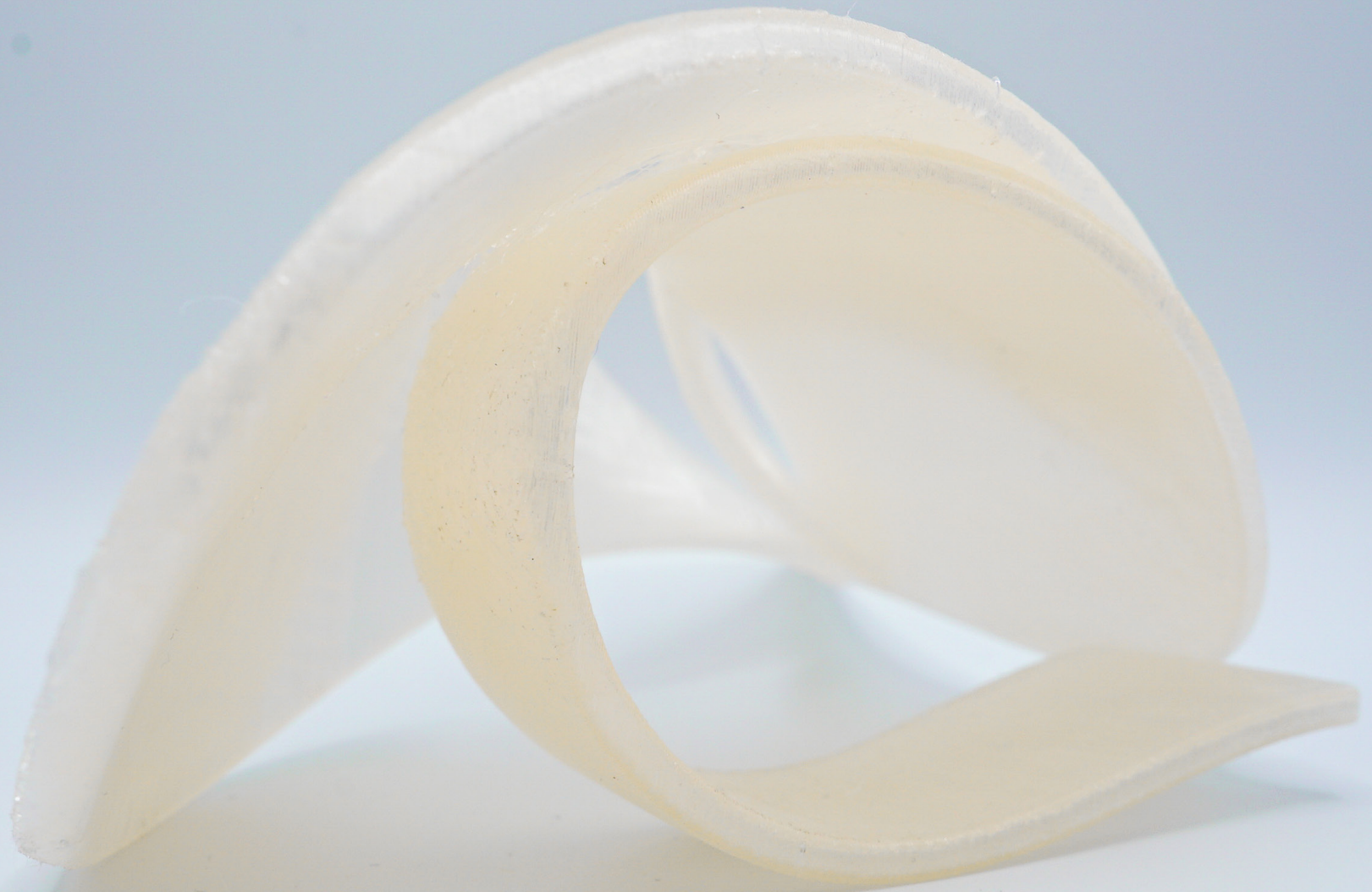
Having the idea of encouraging using feedback loops in mind, I explored different areas that people can potentially be encouraged during their practice such as playing basketball, running a competition, and learning an instrument. I chose to design an instrument because I can develop the instruments and make them look very futuristic. So I devoted a lot of time to find a dynamic form for the instrument while avoiding the convention looks of existing instruments.

Form Explorations

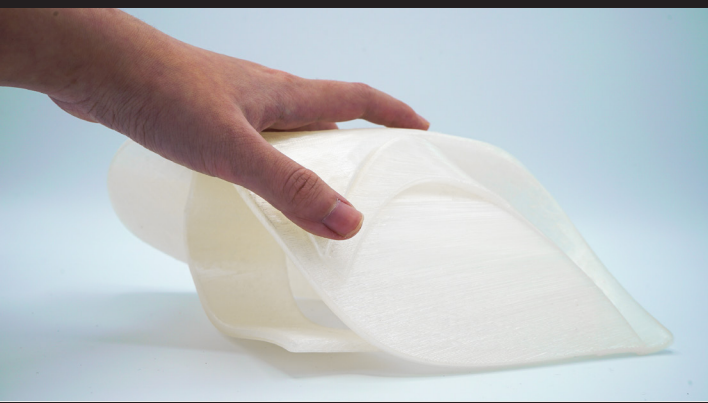


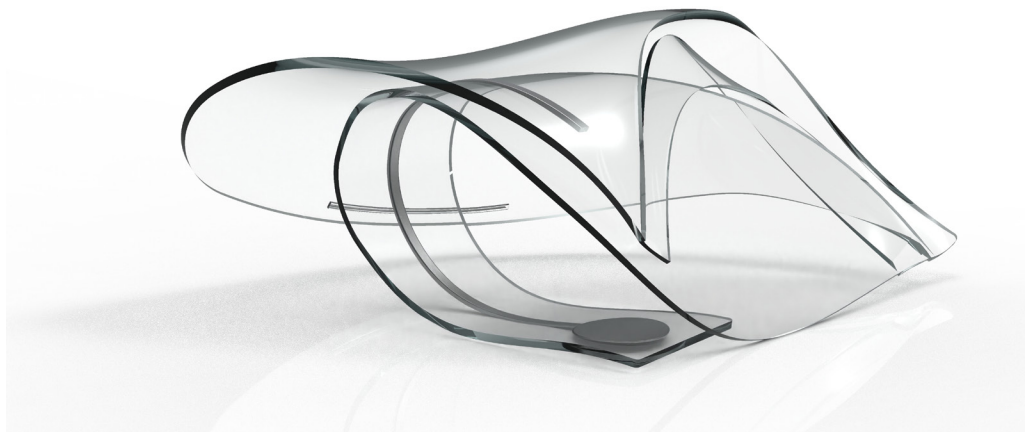
Iterations

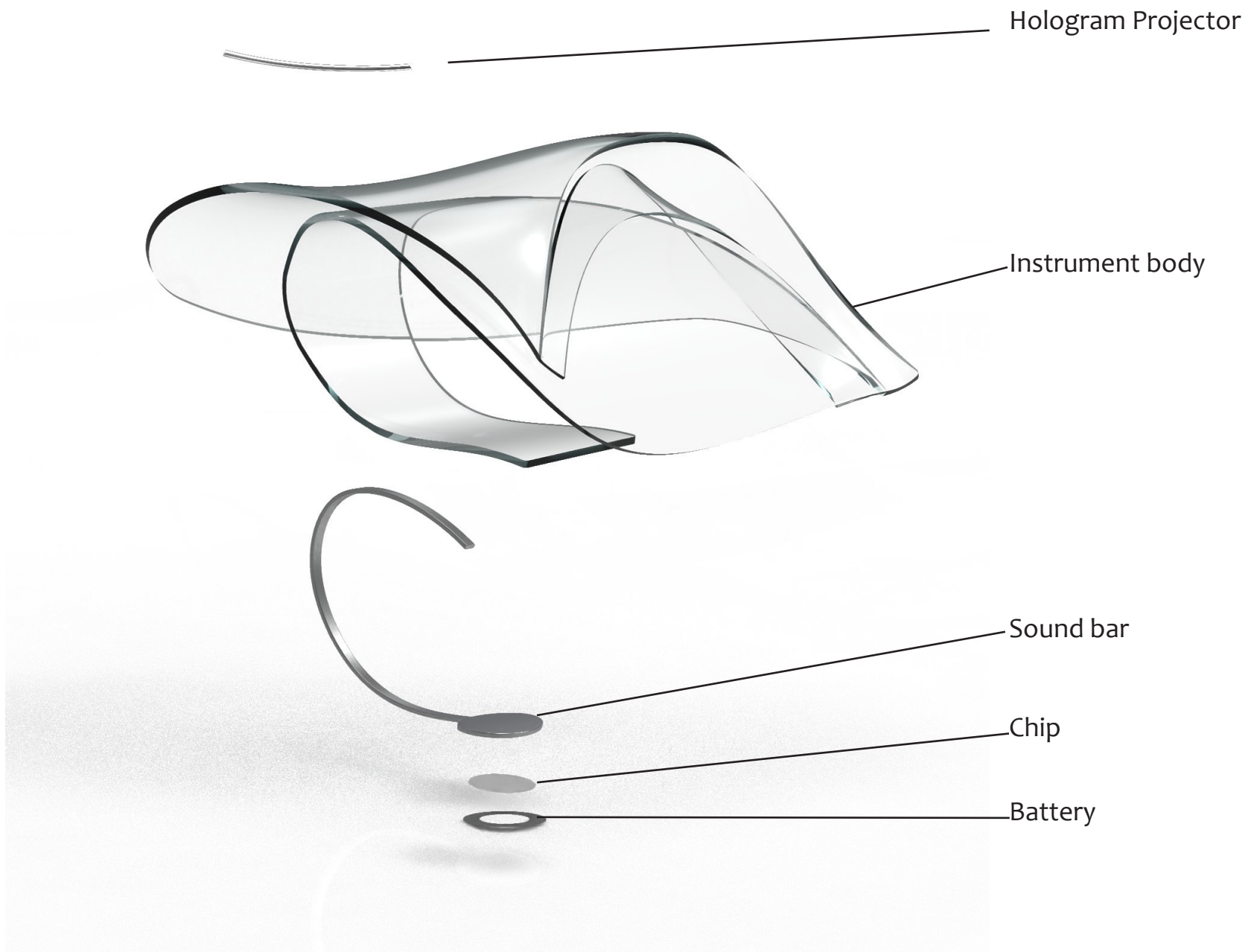




The shape of Sonic Shell is chosen because the curvature of the top side is fitted with the curve of the palm. It feels natural and comfortable to put the palm of the hands on the two curves where the hands are designed to place on. The musician can place the instrument on their laps while they comfortably place their hand on the Sonic Shell. It comes in a clear transparent glass exterior while the solar panel, chip, battery, and soundbar are embedded inside the glass located on the bottom of the instrument. The swirling curve provides the instrument with natural echoing sound quality.







Reflections

Designing for the future always excites me, in the process of designing, 2061 became a lot closer. It is no longer a random, mysterious number but a foreseeable tomorrow. As a class, we came up with many enriched ideas and imaginations. However, building upon the setting takes time and I have many next steps if I had more time to work on the design.

First of all, I mainly focus on designing the features for the solo mode. But, playing music with other people is a beautiful experience and I want to think about how the Sonic Shell can be connected with other instruments. All beginners will perhaps become a professional. There needs to be a higher level mode to keep the musicians interested. Secondly, I would research what kind of chip works on my instrument and make sure the technology works to project holograms under daylight. Although I am designing for forty years later, I still want to make sure the technology is capable of doing the job I want it to do. Or provide evidence that it will be working by then because I think without evidence that helps the audience understand and believe in a concept is very important in a design. Lastly, the projection on my instrument could be more futuristic and realistic if I was had better video rendering skills to make the effects look more futuristic.

Overall, I am very satisfied with what has been done for my project this semester. It made me excited for my elderly life after forty years and work baby steps to reach that brighter future we have come up with together. Everything thing becomes easier with a goal in mind.

