

Art portfolio

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Republic of Korea | London

01 N1

02 I Need Something More

03 KTS

2026

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ESKAS

Read this portfolio online





Project N1 brings traditional Korean mother-of-pearl inlay and lacquer into a contemporary speaker. The project began with a question about how these craft techniques could change the form and presence of an audio object.

As a Korean designer, I wanted to begin with materials and techniques from my own country. I chose Korean najeonchilgi, or mother of pearl lacquerware, particularly the tradition associated with Tongyeong, as the starting point for this research. The project connected my interest in enduring finishes with my wish to create a body that withstands the passage of time.

Materials

Birch plywood, lacquer & mother-of-pearl

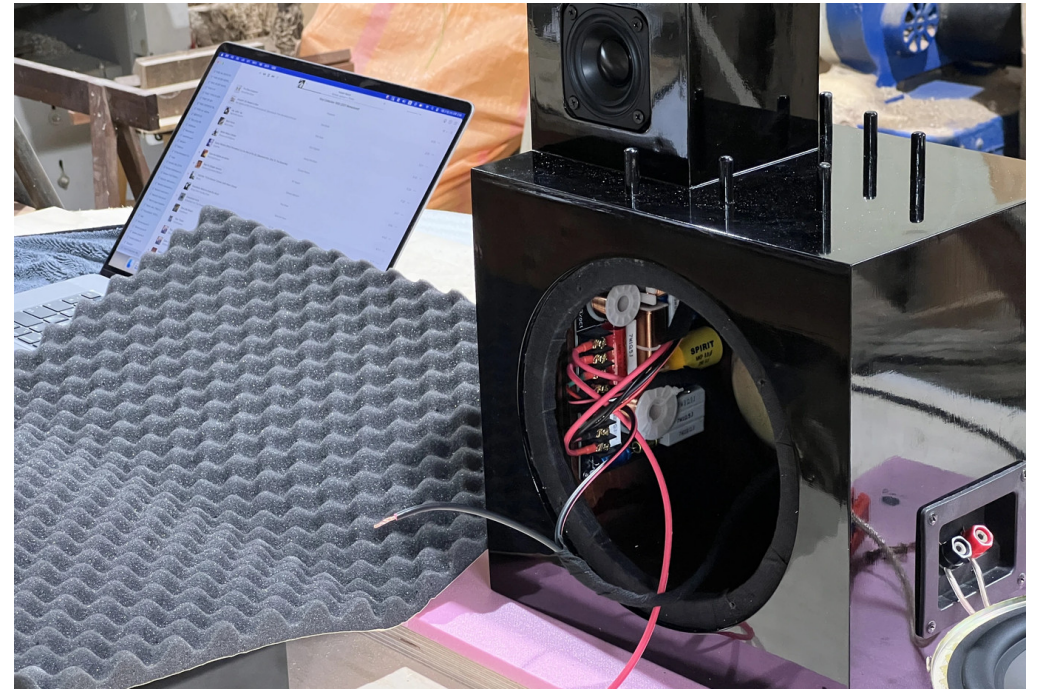


Mother-of-pearl and lacquer



A changing silhouette

The side panels reveal the inlay and create a wider, more sculptural presence around the speaker cabinet. The reflective lacquer and shell patterns sit alongside the visible speaker drivers.



Inside the cabinet

The open cabinet reveals the wiring and components behind the lacquered exterior. These photographs record the interior during assembly.

Work at the artisan's bench



Working on the speaker cabinet



Cabinets with drivers installed



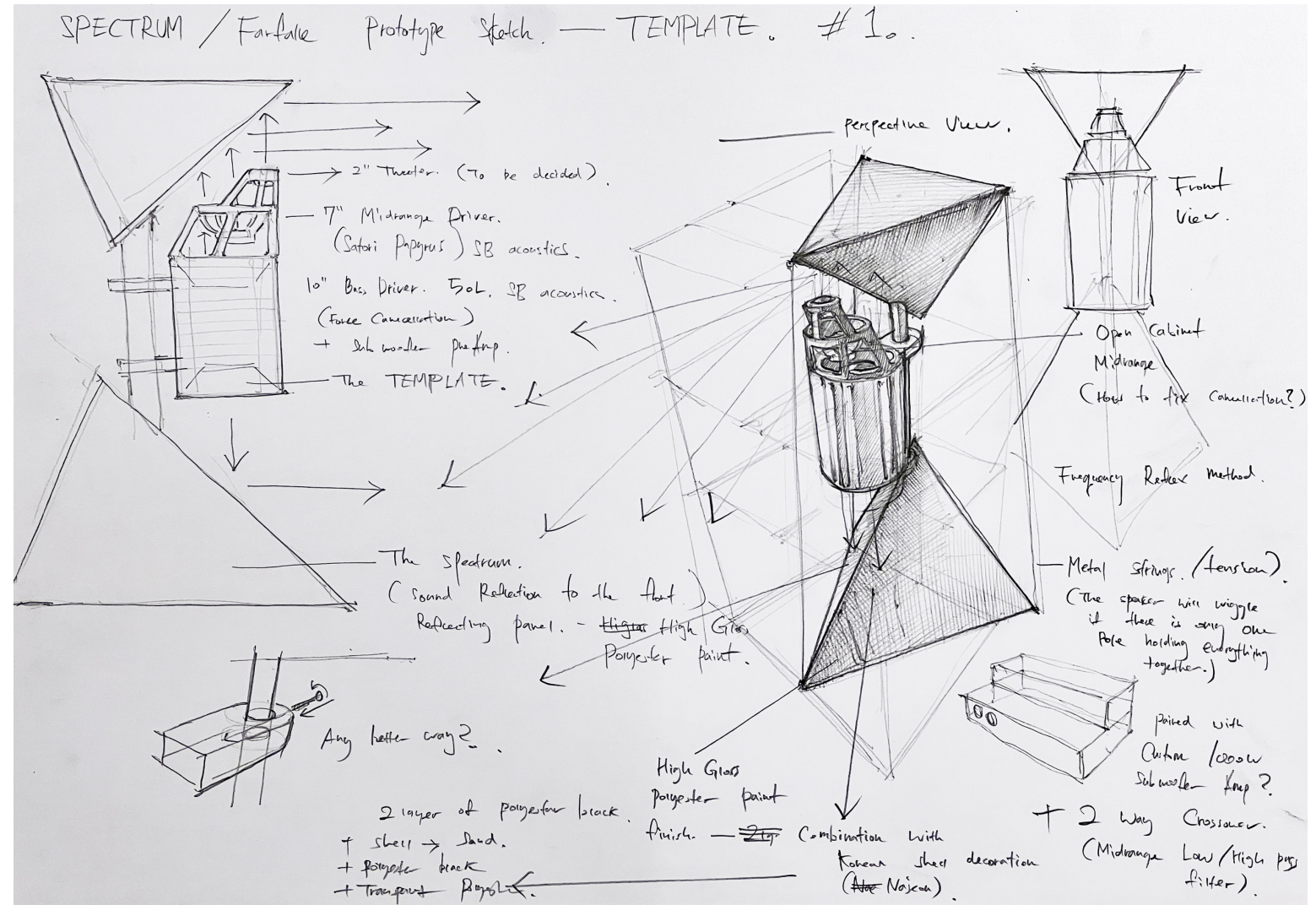
A collaboration in craft

I designed the exterior, inlay patterns, and internal structure, while Master Kim Jong Pyo made the physical body to the design. Russian birch plywood, seven layers of lacquer, and carefully refined mother-of-pearl patterns give the object its surface and structure.

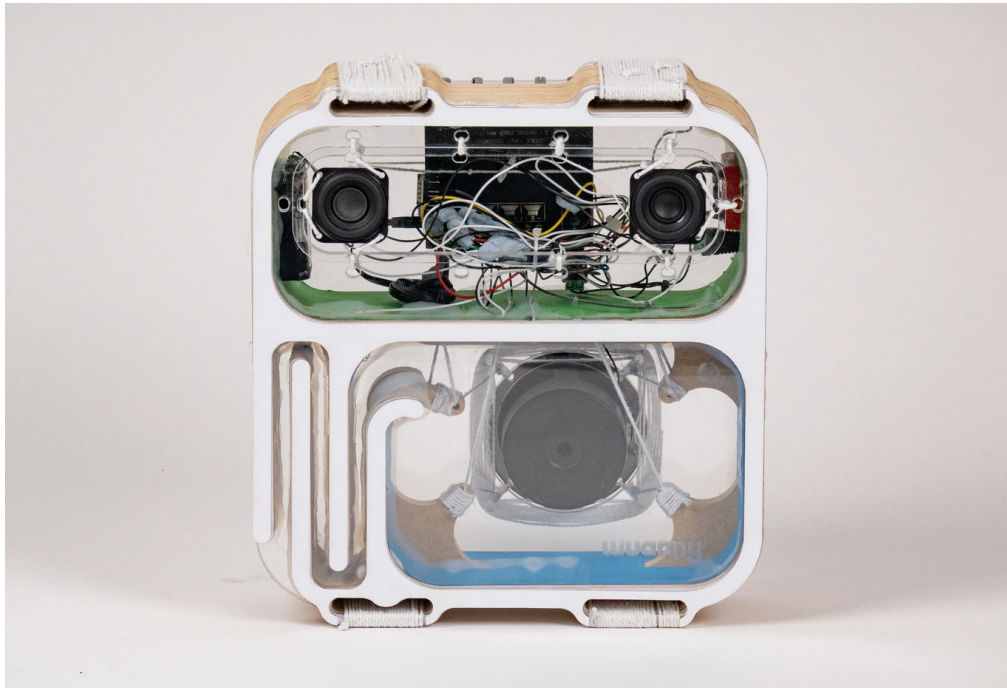
Material success. Acoustic work in progress.

The body achieved the material result I was looking for. The speaker works, but its sound has not yet reached the quality I want. I have kept the project unfinished as part of a longer investigation into producing more sound than a visible structure seems to promise.

I am considering developing N1 further for my graduation project at my current university.



Wave (2025) and I Need Something More (2026) are presented as one development story within selected work 02.



This project began with a simple question. What would happen if we changed the very nature of what a speaker is? Instead of a device that plays only the music we command, I designed a speaker created for a single piece of music.

It plays only one song, Wave by Antonio Carlos Jobim. It cannot be paused, and it begins playing the moment it is powered on.



Wave has a separate battery and stops operating when it is depleted; accessing the battery requires disassembling the speaker. Instead of a machine that obeys its listener, Wave proposes a speaker with its own character and a beginning and an end.

When I first designed this speaker, I considered many different materials. However, I decided that I should first make an initial prototype as easily and quickly as possible. The material that allowed me to make it quickly, cheaply, and relatively easily was MDF.

I wanted to make it more like a musical instrument, so I also wanted to avoid using nails and screws.

Because of this, I decided to cut multiple layers of MDF using CNC machining and stack them together to create one solid body. I believed this method would allow me to create a stronger structure and thicker walls.

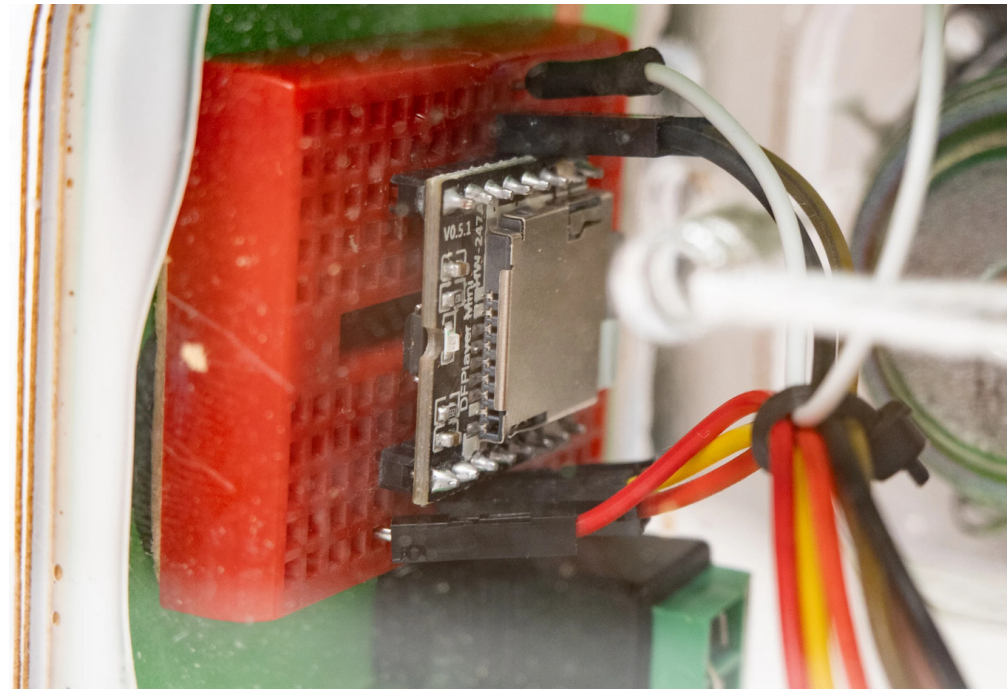


For the speaker drivers, I decided to use a 2.1 channel structure, so I ordered the woofer driver and the left and right drivers separately. I designed the internal space by separating the chamber for the left and right stereo drivers from the chamber for the woofer.

The bass port was tuned with the contrabass in mind, focusing on the region around 50-68 Hz. The interior colours refer to the album artwork, extending the relationship between the music and the object beyond sound.

While designing the speaker, I was also thinking about fixing the internal driver with thread. Because of this, I created many small holes in different places so that the thread could pass through them if needed. As a result, I was able to complete the final object with the woofer driver fixed only by thread.

A DFPlayer chip is a very small module that plays music stored on a memory card. However, problems began when I tried to connect and operate the circuit. The chip required a different power input, so I had to run it with a separate battery. The DFPlayer also often had contact issues and did not work reliably. However, through this problem, I was able to develop a new conceptual idea: that the speaker itself could have a limited lifespan.



Wave has reached the end of its working life. The object remains as a record of an experiment in listening, attachment, and the limits of a device.

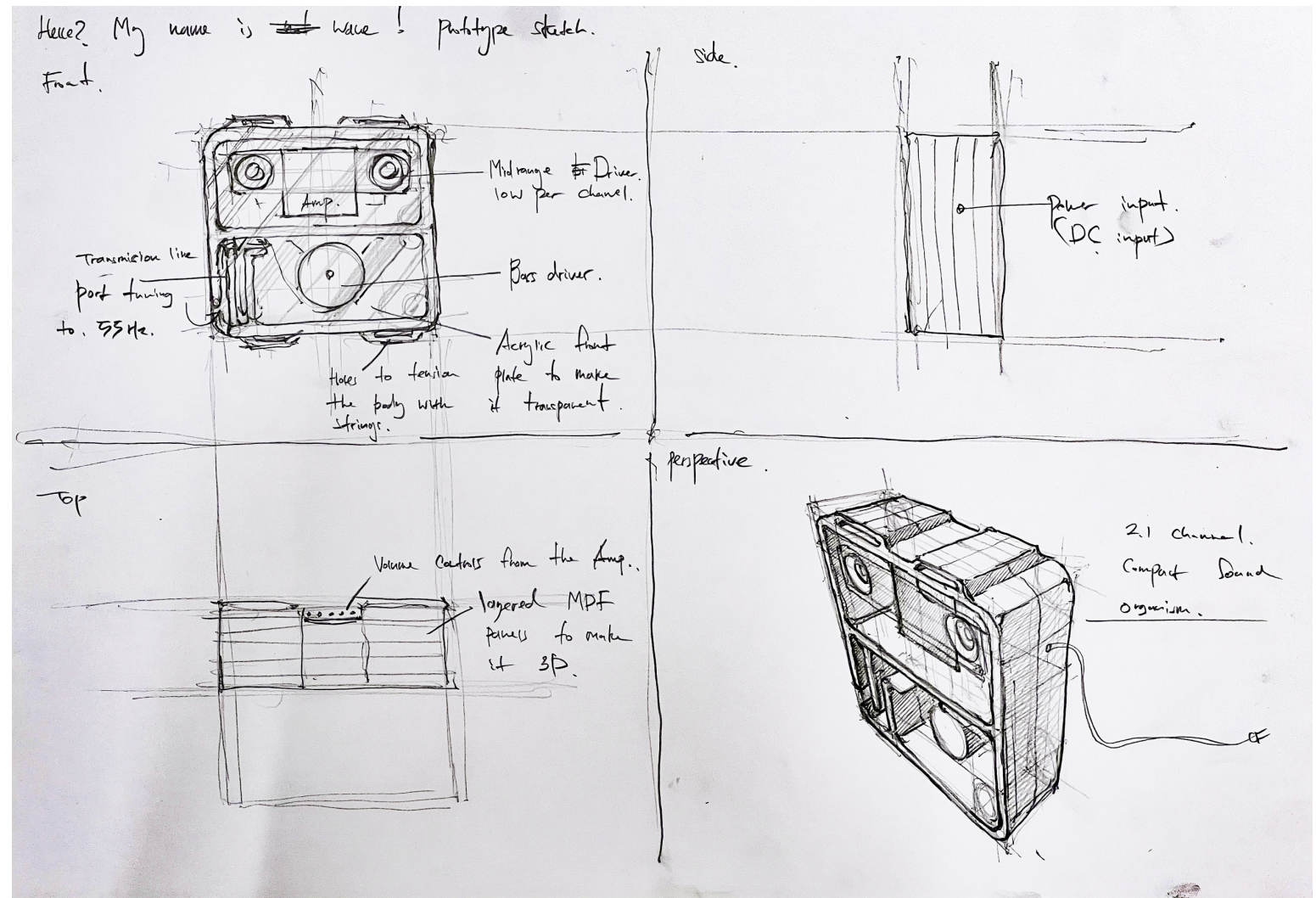
Through this project, I learned that I need to think much more carefully about finishing methods from the beginning of the design process. I also learned how important time management is in order to work more efficiently. In addition, I realised that I had focused too much on making the object itself and did not leave enough documentation files. In future projects, I need to build a stronger habit of documenting each stage of the making process in more detail.

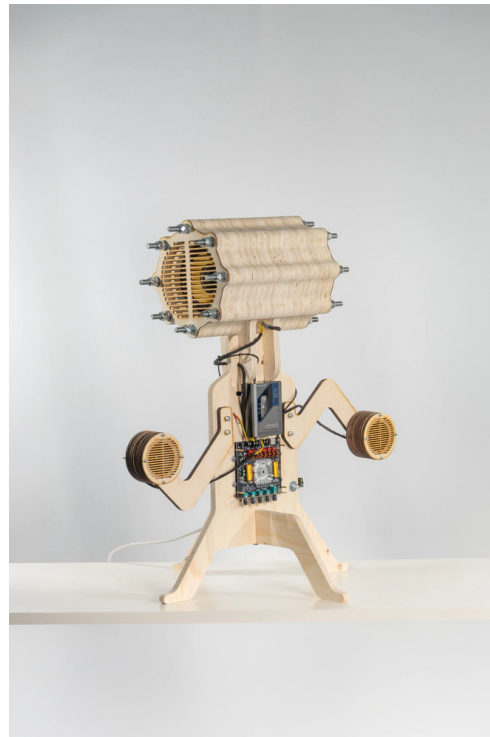
There were also many parts of the final assembly where I could not pay enough attention to the finish. I wanted to fix all the stacked MDF layers together and finish the front and back with acrylic panels. However, when I cut the acrylic, I had not properly considered how it would be attached to the body. Because of this, I had to fix it with glue at the final stage.

As a result, the glue could not withstand the internal pressure and vibration produced by the speaker, and it began to leak. The finish also became visually messy, as the glue spread out between the gaps. This made the final appearance less clean than I had intended.

Hello? My Name Is Wave

An earlier prototype sketch, included here as part of the development of I Need Something More.





I decided that my second revisit would be to remake Hello? My Name Is Wave with a higher level of completion and on a larger scale. I wanted to make up for the mistakes I had made in the first version, and focus on achieving better sound quality and a better method of playing a single piece of music. I also wanted to move beyond playing one whole song, and instead focus more precisely on one specific part within a piece of music.

The form

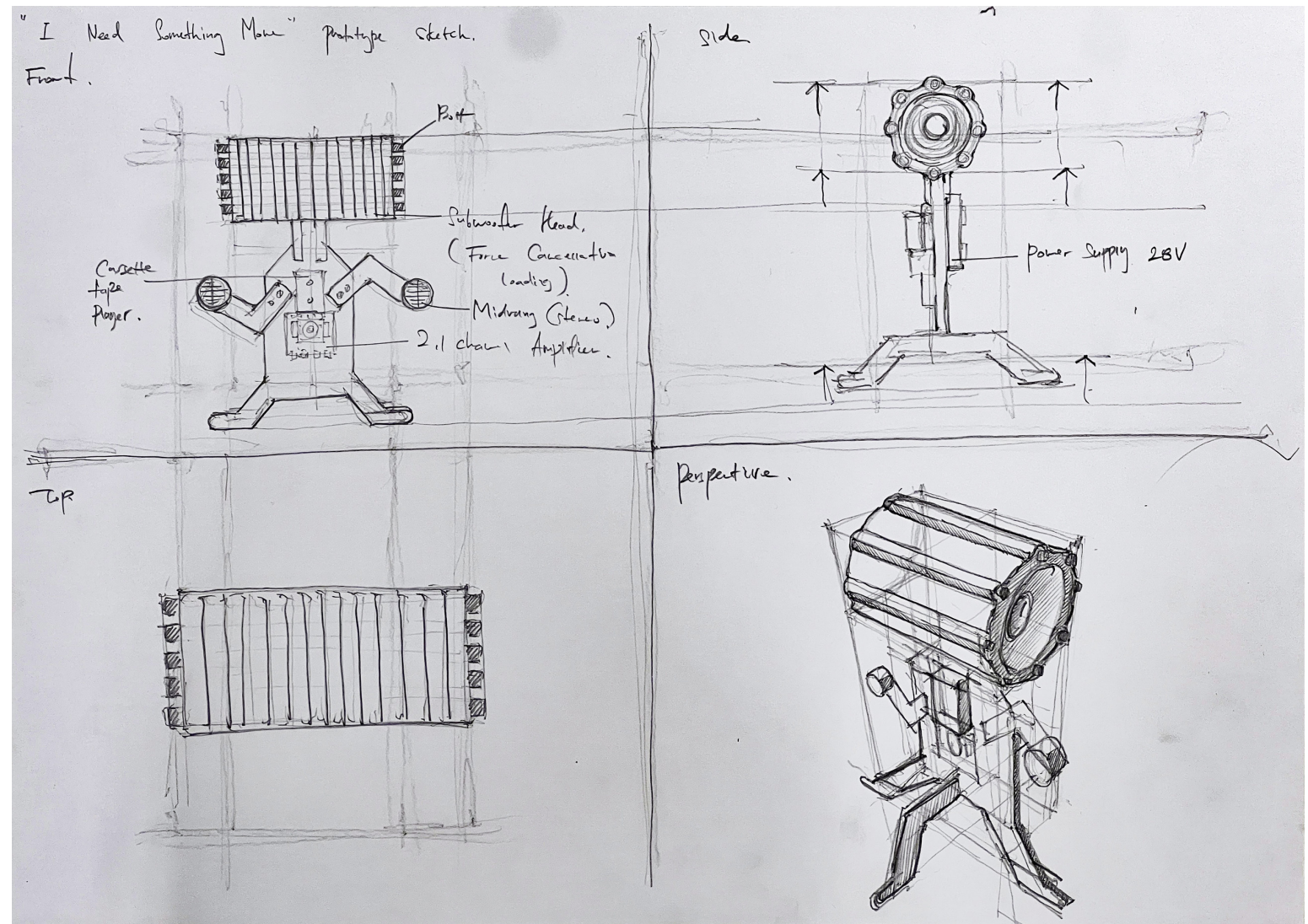
I also redesigned the form completely. The original version had a fairly ordinary rectangular speaker shape, but I began to think that if this object was meant to be a living being with a soul, then it should at least have the appearance of a living creature rather than a conventional speaker. Because of this, I redesigned the entire exterior from the beginning.

Plywood, speaker drivers & cassette player

[View project and film online](#)

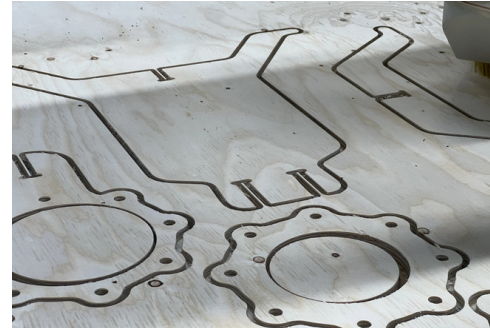
I Need Something More

Front, side, top and perspective views.





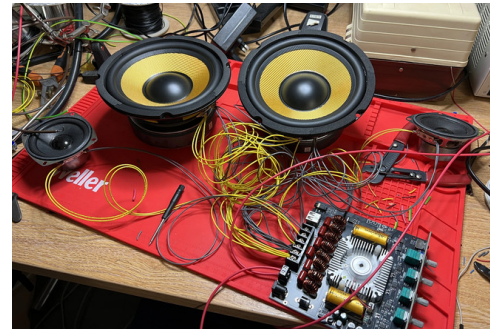
Cutting the layered head profiles



Body and arm profiles



Assembling the body and head



Wiring and testing the drivers

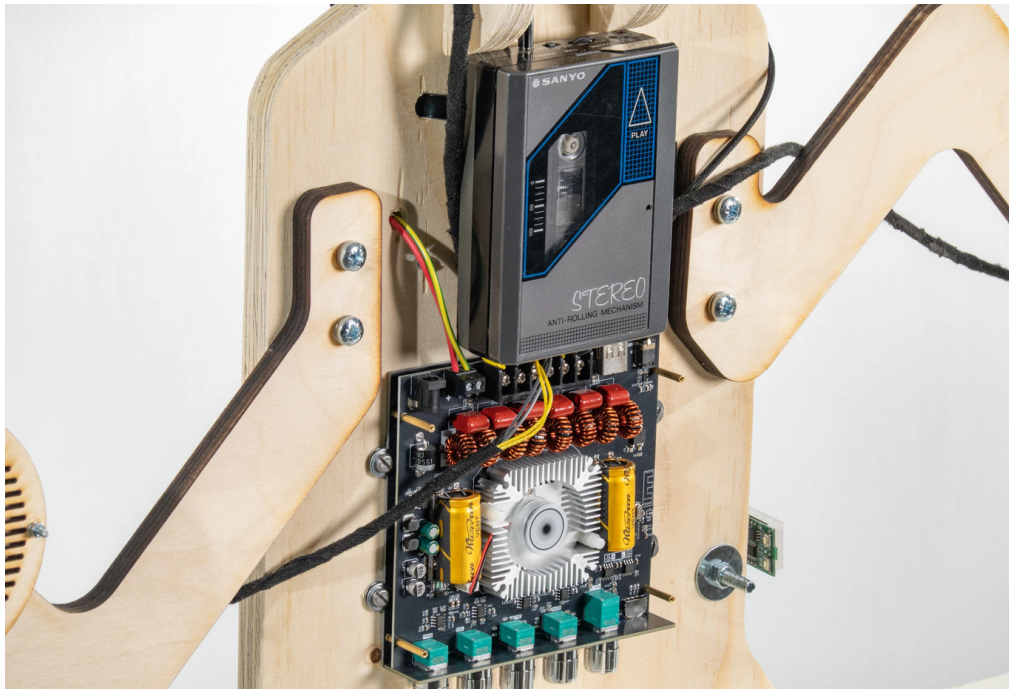
When considering what material to use for the speaker body, I decided to use higher quality plywood this time. After making the body, I sanded it carefully to make the surface as smooth as possible.

This speaker also has a higher output than the previous version. As the size of the woofer increased, the amount of wood that needed to be cut and shaped also became much greater.

This time, I changed the placement of the woofers. Instead of using the previous bass port method, I placed two woofer drivers symmetrically in the head section and used an isobaric loading technique, which meant that I did not need to calculate a bass port in the same way. Isobaric loading is a technique where two drivers are used together as if they were one driver, allowing a similar level of output to be produced from a relatively smaller volume. It also

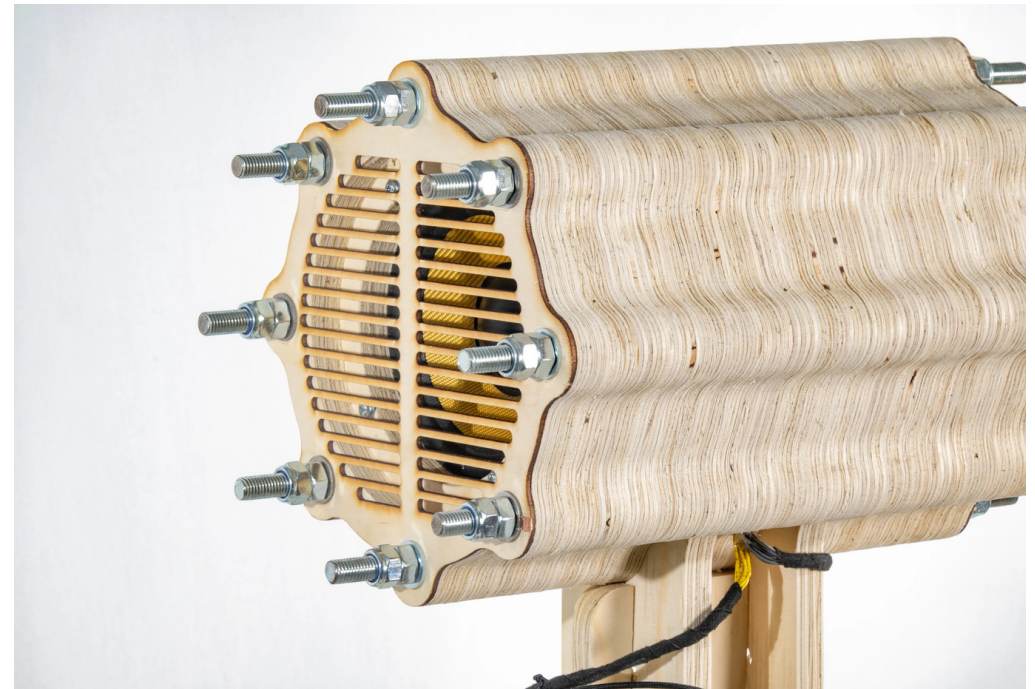
helps reduce unwanted vibration on the sides of the speaker.

I installed the left and right speakers in the two arms. In a way, it can be seen as the hands holding the sound, while the head produces the bass.



The cassette

I also changed the music playback method from the previous DFPlayer chip to a cassette tape system. This was a solution I came up with because of the contact issues I had experienced with the chip. Using a cassette deck, I recorded only the middle instrumental section of Daft Punk's Touch as a one and a half hour loop, giving the speaker its own soul. This speaker now endlessly plays only that instrumental section of the music.

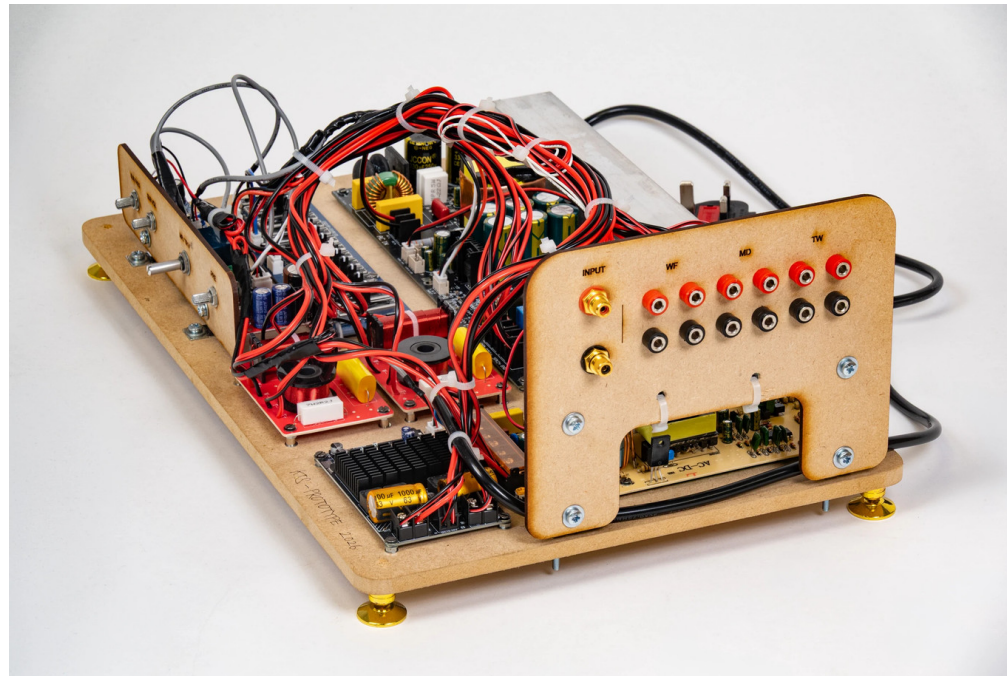


I Need Something More

The name of this speaker is I Need Something More. I chose this title because of a lyric that appears in the song.

Compared to the original Wave, this version has much stronger bass, higher clarity, and a much louder output.

Watch the working object on my website



KTS was my first attempt at making a "universal key" for testing speakers. I wanted to make it easier to test N1, as well as the speakers I will design, develop, prototype and experiment with in the future. I also wanted a tool that would let me experiment with speaker cabinets and explore their limits more easily.

I built this amplifier with separate amplification for the low frequencies and the mid and high frequencies. The output of each channel can be adjusted independently.

Type

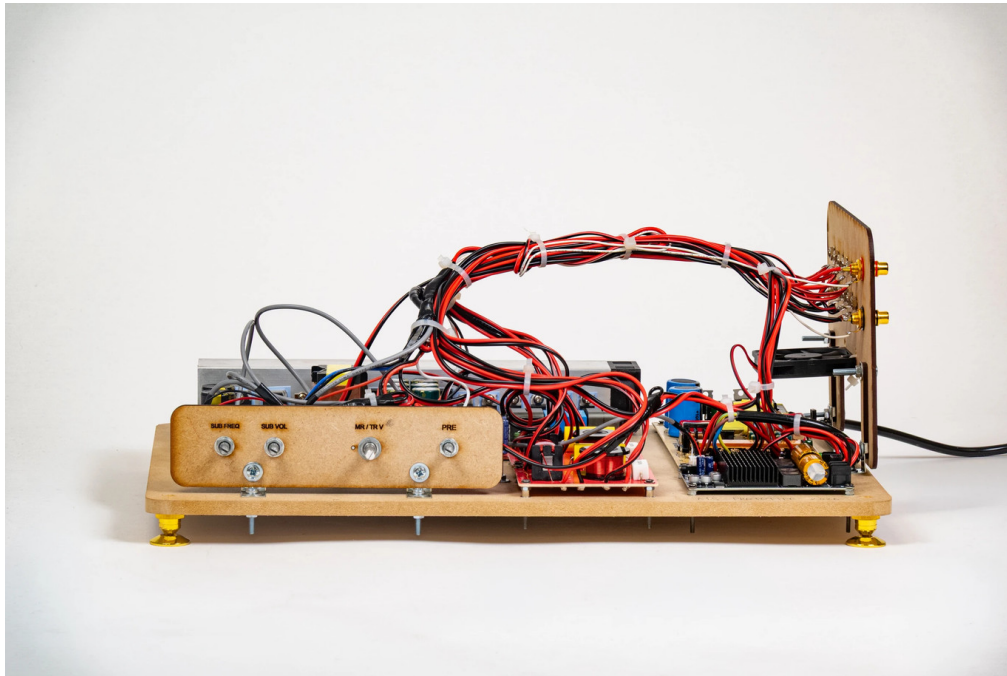
Analogue signal processor and amplifier

Control

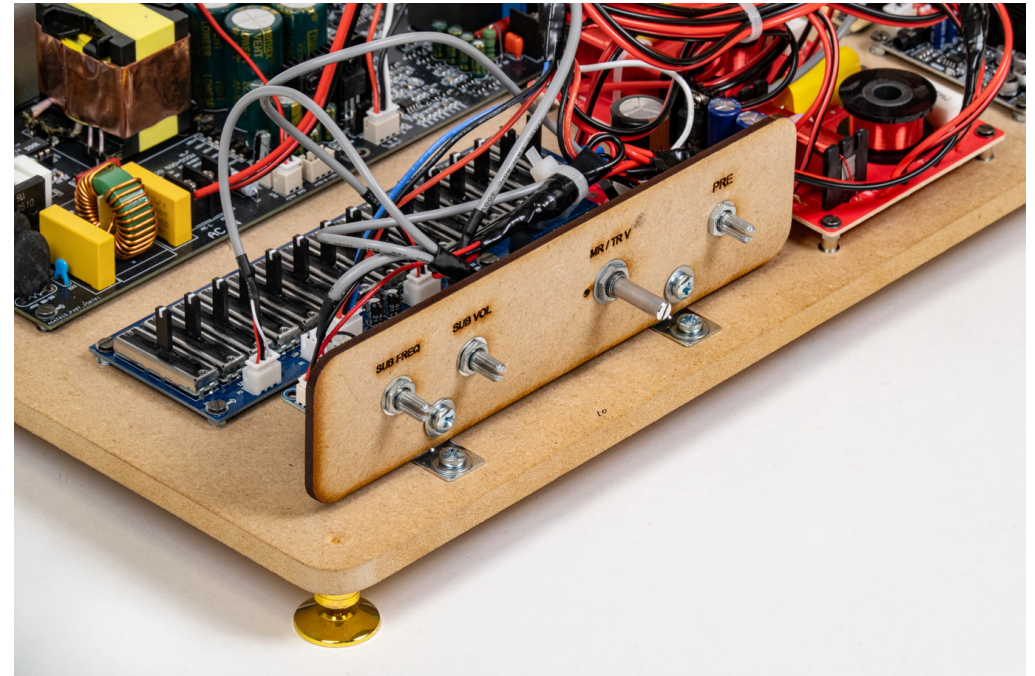
Independent channel output

[View KTS online](#)

The amplifier and its front controls



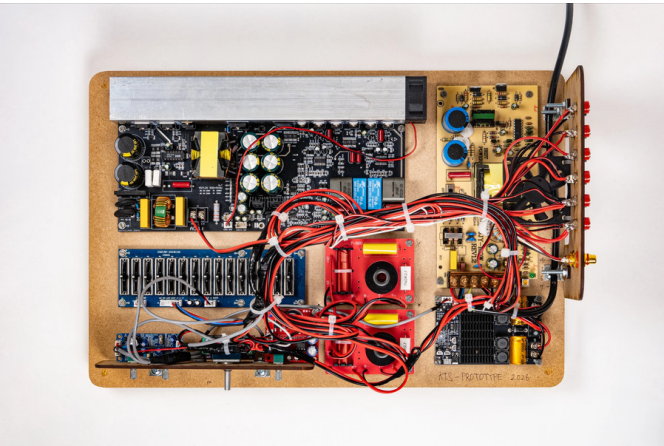
Individual channel controls



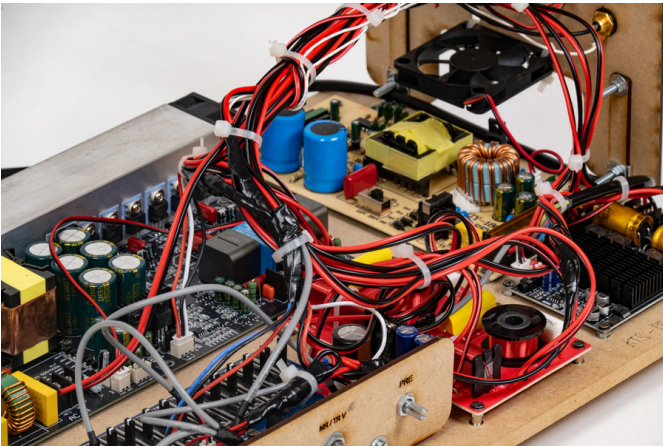
Separate amplification

Separating the amplifiers gives me control over the balance between the low and mid and high frequency ranges. Rather than adjusting the whole system together, I can set the output of each channel individually.

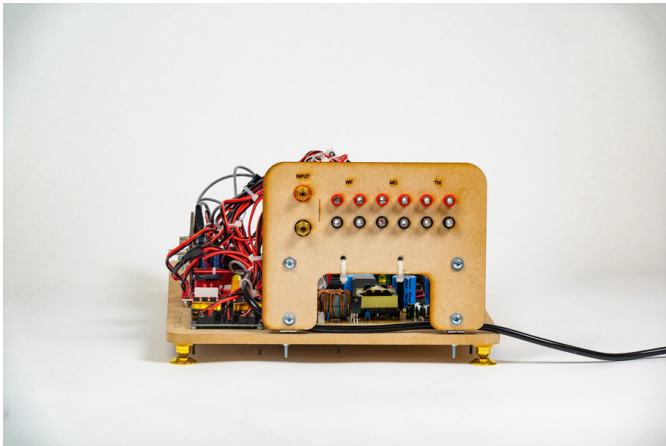
An overhead view of the layout



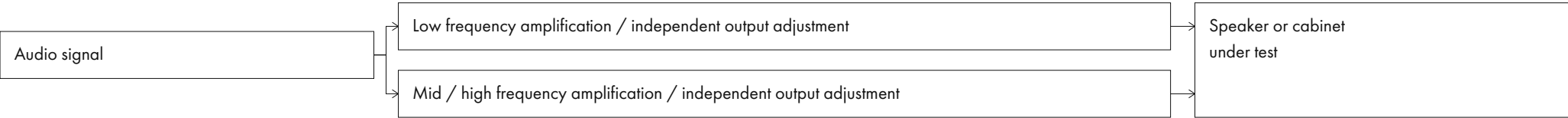
The circuitry and wiring



The connection panel



Functional overview



An analogue approach

I think of it as a form of ASP, an analogue signal processor, bringing frequency range balance and channel output control into a physical amplifier.