

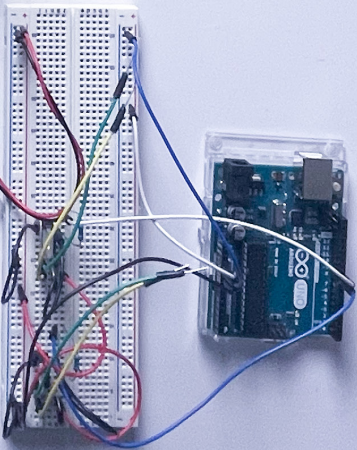
# **Sleep Rhythm**

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## About sleep rhythm

Some memories of childhood sleep sometimes come to mind: my grandmother gently patting me to sleep with the palm of her hand; me lying on my father's belly, feeling the softness of his skin as he breathed in and out before drifting off to sleep; or an even older, slumbering scene in a swaying cradle. What are these rhythms? It made me want to explore what the relationship is between these rhythms and our sensory experiences, the way we sleep and our brain memories.

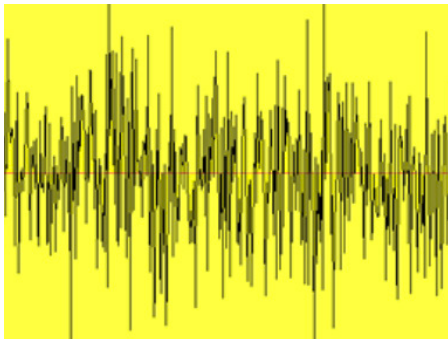
As we grow older, sleep seems to become an increasingly difficult task. Have you ever tossed and turned late at night in a soft bed or a quiet bedroom? Has your brain become too excited by chores to concentrate on sleep? Why is it so easy to fall asleep in a noisy, bumpy car? In my recent experiments, I focused on converting the sounds collected in my life into different rhythms that simulate the ups and downs of breathing. People can feed the audio into this sleeping device and feel the 'breath of life' of this piece of furniture by falling asleep with it. For me, it is more of a tactile form of bedtime reading than just a sleep appliance, and through it I hope to tell and explore the story of the body and rhythm, evoking and healing the primal emotions of sleep.



# Contextual information

There are variety of reasons that caused people sleep to be less than perfect. Stress from daytime work, revenge bedtime procrastination, insomnia, mobile phones distractions etc. Any one of the reasons would make people tossing and turning on the bed, with their brains active despite the silence around them and their keeping playing phones in their hands, sleepy but reluctant to fall asleep.

In early morning traffic, rocking motion, white noise and psychological factors are the main reasons why people fall asleep.



## White noises

White noise puts us to sleep because the base noise from moving vehicles reduces sensitivity to other noises and makes it feel quieter.



## Rocking motions

We rock back and forth on the bus, and researchers have found that rocking motion puts us to sleep. It regulates the physiological parameters of sleep. It facilitates the transition from wakefulness to sleep.



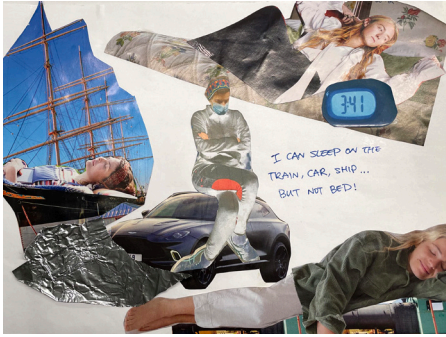
## Psychological factors

On a psychological level, many of us were rocked as babies and we usually fall asleep. We have learned to associate rocking with sleep. It rocks us when we are in a moving vehicle, triggering early childhood memories.



## Collages of context

People have difficulty sleeping and the stress of all aspects of their lives causes their brains to be constantly active. Compared to infancy, the conditions for adults to fall asleep are relatively more demanding. I interviewed people in the city and recorded their stories about sleep, exhibit their interviews in the form of collages, in order to come up with concepts for the following steps.



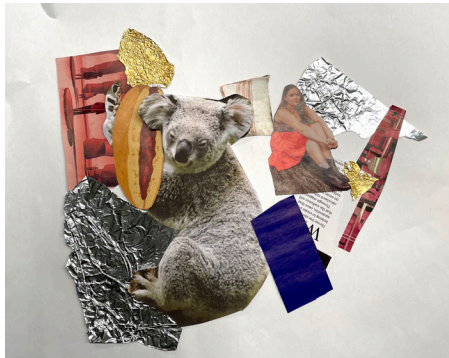
Sleep on the vehicles

"It's quite easy for me to fall asleep on the bus, the swaying of the car always makes me drowsy."



The excited brain

"I cannot hold myself to think about my project development, which makes me very anxious and brain excited!"



Sleep like koala

"I need to hug pillows or someone so that I can sleep in a comfort mode, I like the pose of koala."



Reflect on a day

"When I consider I did nothing meaningful today, I feel guilty so that cannot get into sleep."



Sleep companions

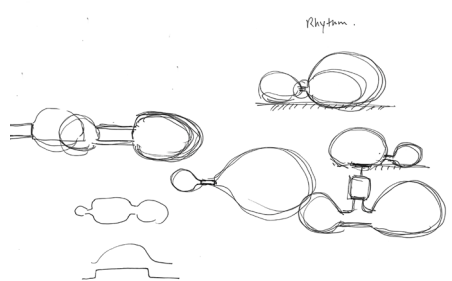
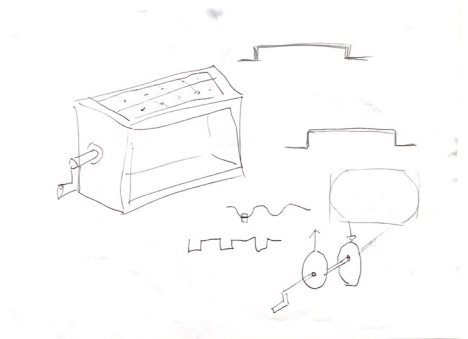
"I can't fall asleep naturally without music, soft bed or books."

## Concept

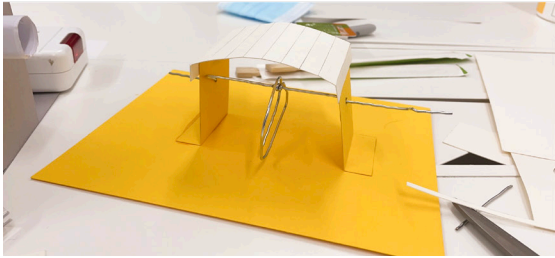
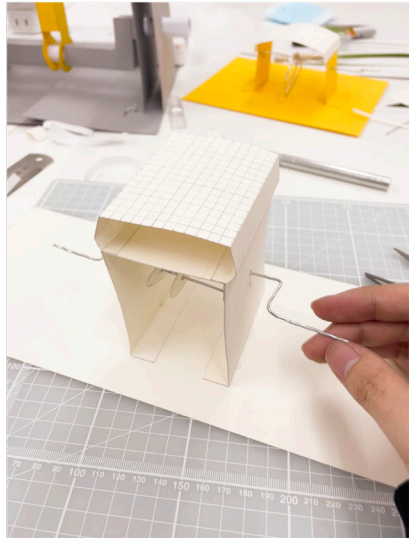
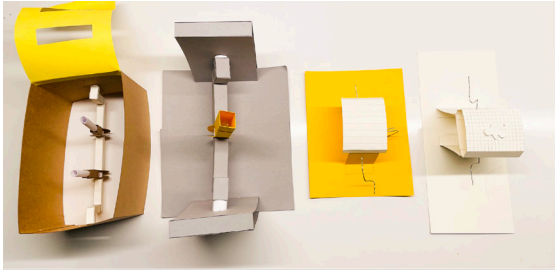
A good sleep and a bad sleep are linked to human labour. The quality of sleep may be affected by human themselves, people surrounding them or the whole city environment.

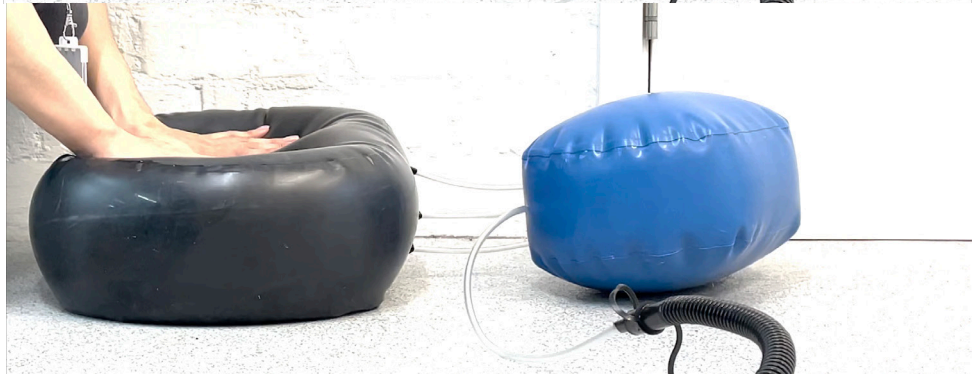
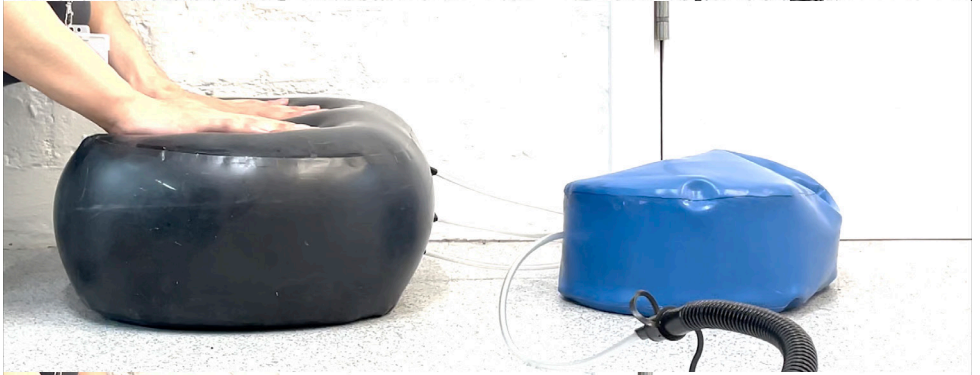
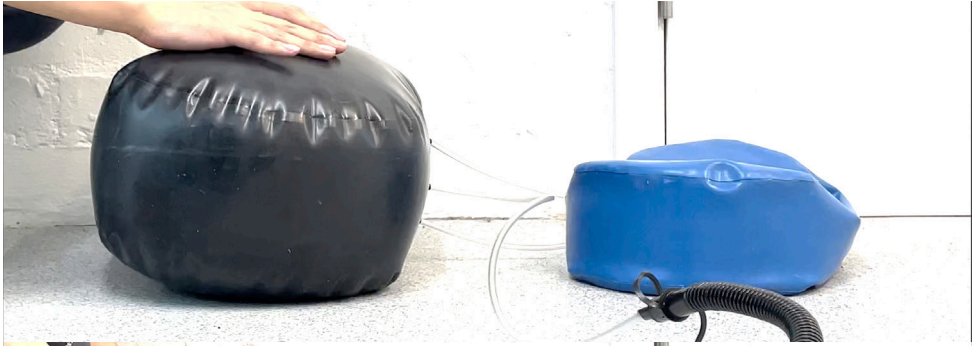
When people are tossing and turning when they can't sleep, can we somehow remind them of memories of good sleep in the past so that their brain gradually relaxes and they slowly fall asleep?

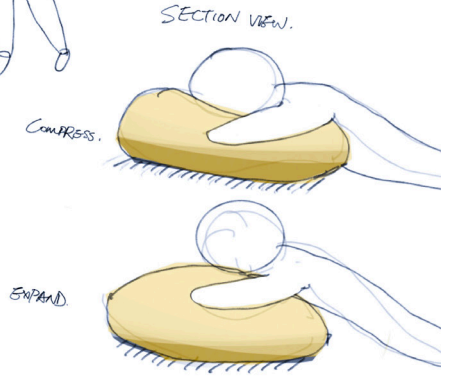
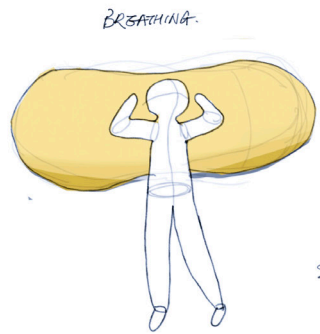
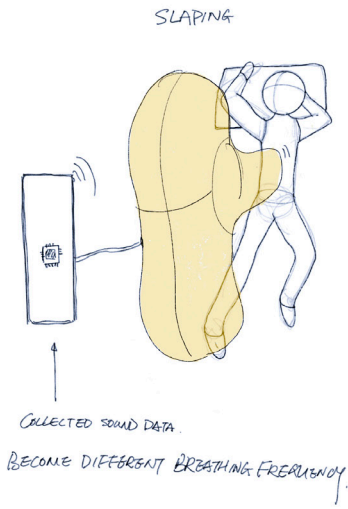
Based on the descriptions of people's memories, I wanted to simulate white-graphics by means of mechanical structures, i.e. piston movements and air-pressure movements, shaking to make people's bodies and brains recall what it was like to be soothed as a child during the interaction with these pieces of furniture.







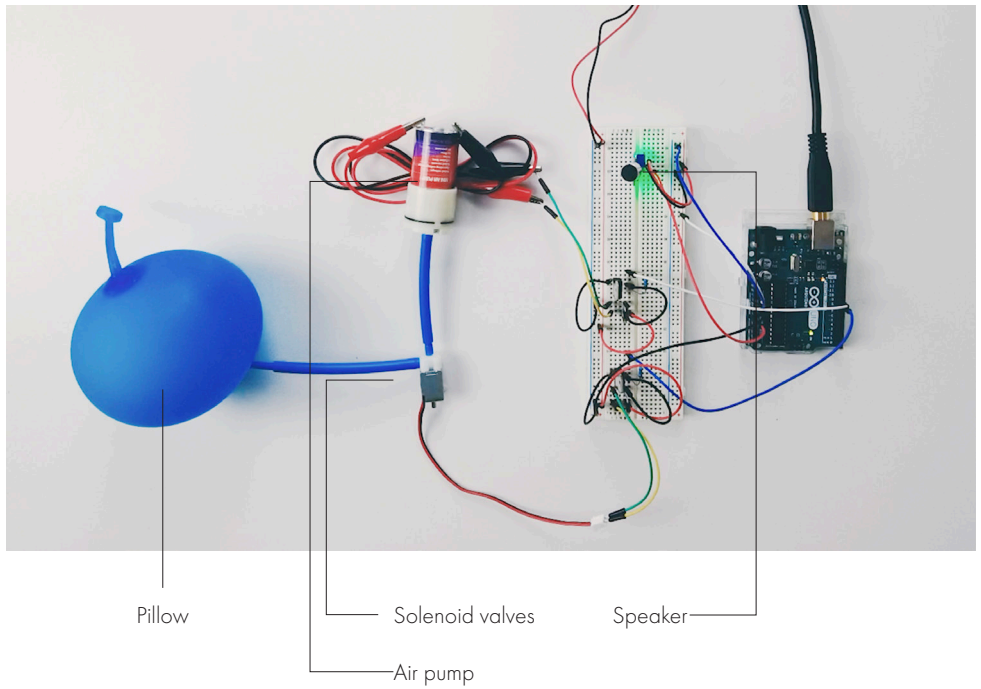




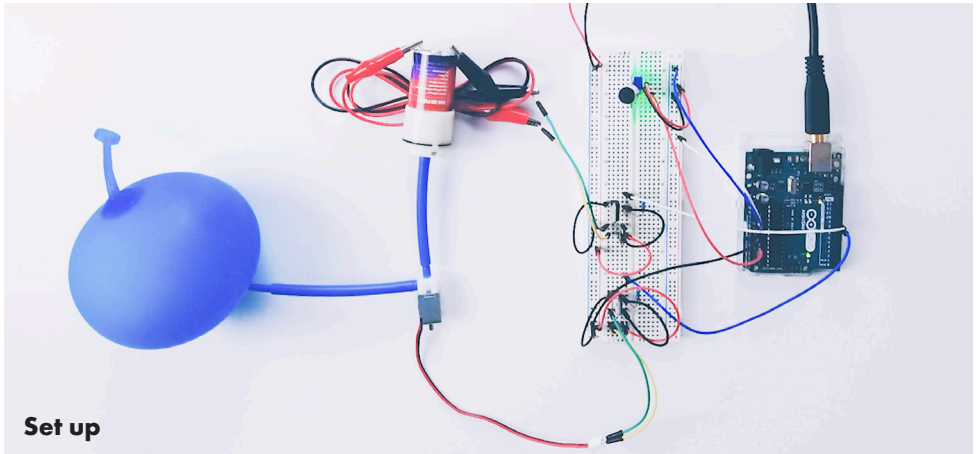
## Sound-driven breathing

After realising a prototype for making a pillow breathe through human hands, I started to think about how to make 'breathing' happen in an intelligent form. In my research, I discovered that people fall asleep by hearing. How could other senses be involved?

In addition, I have found that some families have different sleep schedules, resulting in different bedtimes for family members. How can a connection be made between their circadian rhythms? How to bridge between people who are separated in different countries with opposite timezones? How to make people feel the presence of their nearest and dearest when they are not around and yet go to rest with peace of mind?



After setting up the devices, the speaker will wait for the sound signal to activate the breathing system. Once the sound has been detected, the connected bed furniture will start its own rhythm and interact with people on the bed.

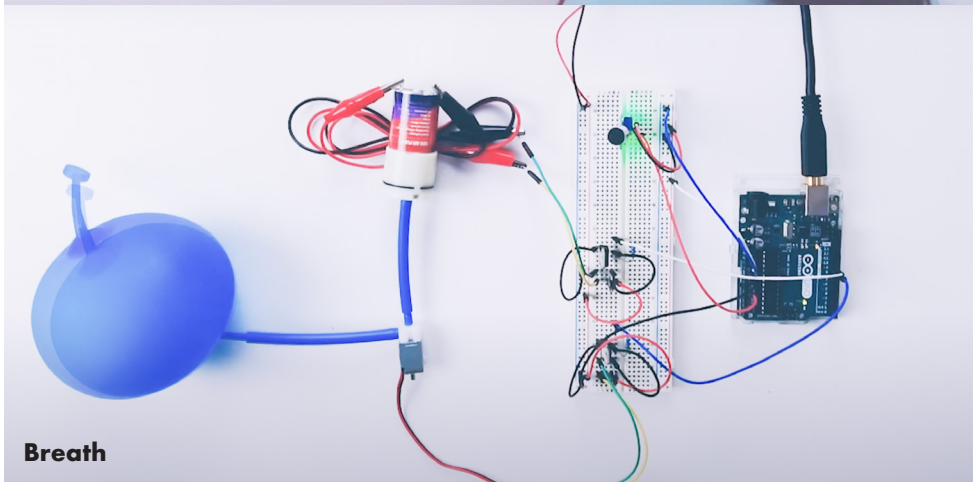


**Set up**

Watch Later - Sh



**Detect sound signal**



**Breath**

## Human-like material

To achieve better interaction, I used the biomaterial Scoby to create a skin texture, which was then programmed to transform a piece of auditory material into an undulating rhythm with a steady breathing rhythm.

In this prototype, the sleeping person feels the rhythm of the furniture and is able to awaken their experiences and memories from the day or from their past lives, exploring the amazing connections between the senses of hearing, memory and touch. At the same time, the biological material is constantly growing, in a sense it is alive, and when people interact they are soothed by the furniture of this material, even when their closest remembered ones are not with them.



