

SitGuard

Airbag Posture Corrector for Unconscious Poor Sitting Habits

Nowadays, more and more people develop **poor sitting habits** like leg crossing or slouching, often **unconsciously** while focusing on work or study. Over time, these postures can lead to spinal issues, muscle fatigue, and circulation problems. Designing a solution that detects and gently corrects such behaviors without disrupting the user is a key challenge.

Keyword

Unconscious Habits

Poor sitting

Airbag System

Wearable



PROTOTYPE DISPLAY

An airbag system with variable pressure is ideal for non-invasive behavioral prompts. It provides adjustable feedback, flexibility, and safety, outperforming other methods in responsiveness, adaptability, and comfort. Therefore, it is the preferred design solution.

process



Bad sitting posture detected

Trigger different levels of airbag compression

User feels squeezed



Wearable
Considering portability, wearable is a good choice



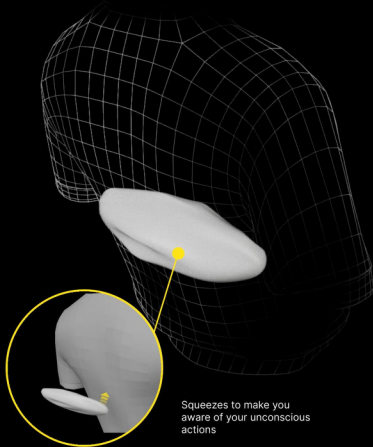
Air bag
Can provide different levels of thrust



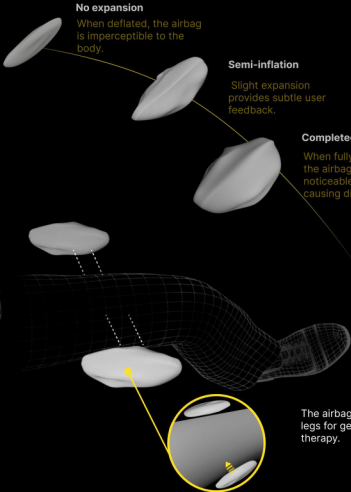
Extrusion
Physical push is the best clue to unconscious behavior



Product



Squeezes to make you aware of your unconscious actions



No expansion
When deflated, the airbag is imperceptible to the body.

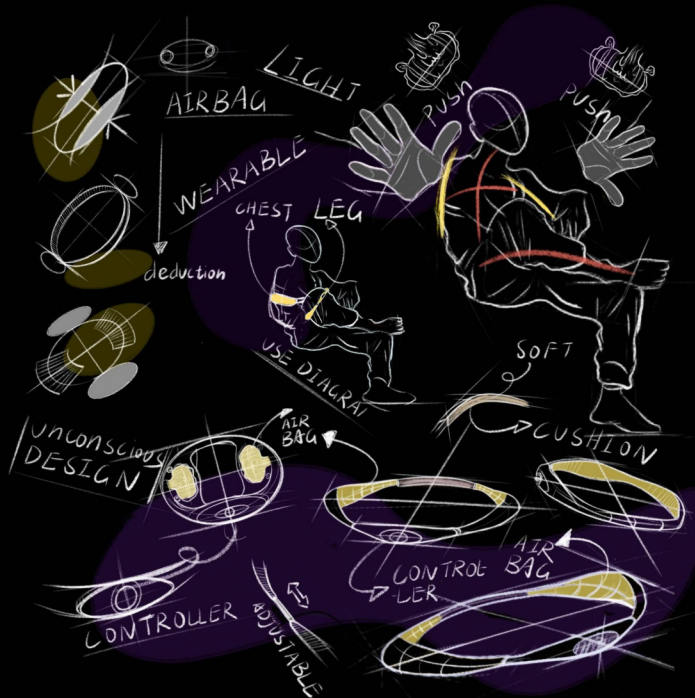
Semi-inflation
Slight expansion provides subtle user feedback.

Complete expansion
When fully expanded, the airbag provides noticeable thrust without causing discomfort.

The airbag squeezes the legs for gentle feedback or therapy.

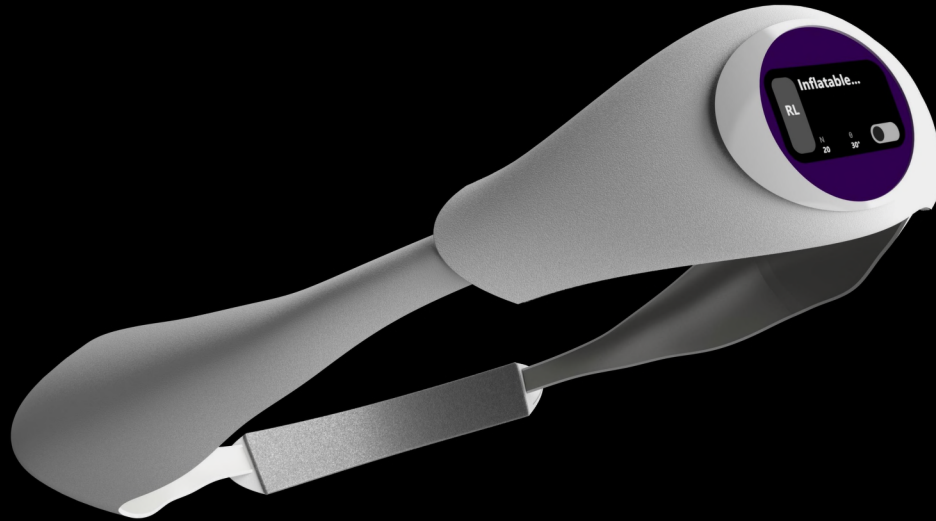
IDEATION SKETCH

Sketches of different parts of the product and some inspiration



PRODUCT POSITIONING

The bad sitting posture adjuster is a health aid device based on intelligent posture monitoring + dynamic airbag support + remote control by mobile app. It can detect the user's sitting posture in real time and intervene in poor posture through automated or manual control, helping to improve spinal health and sedentary habits, especially suitable for offices, students, and professionals who need to maintain a sitting posture for a long time.



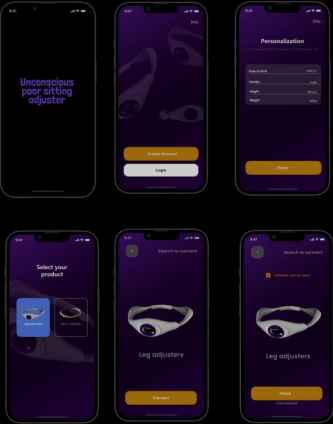
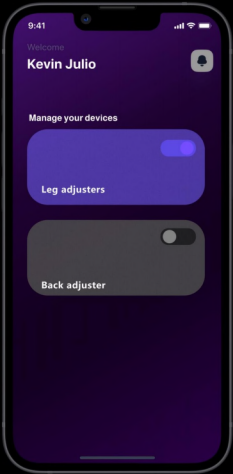


PRODUCT FEATURES



SMART APP CONTROL

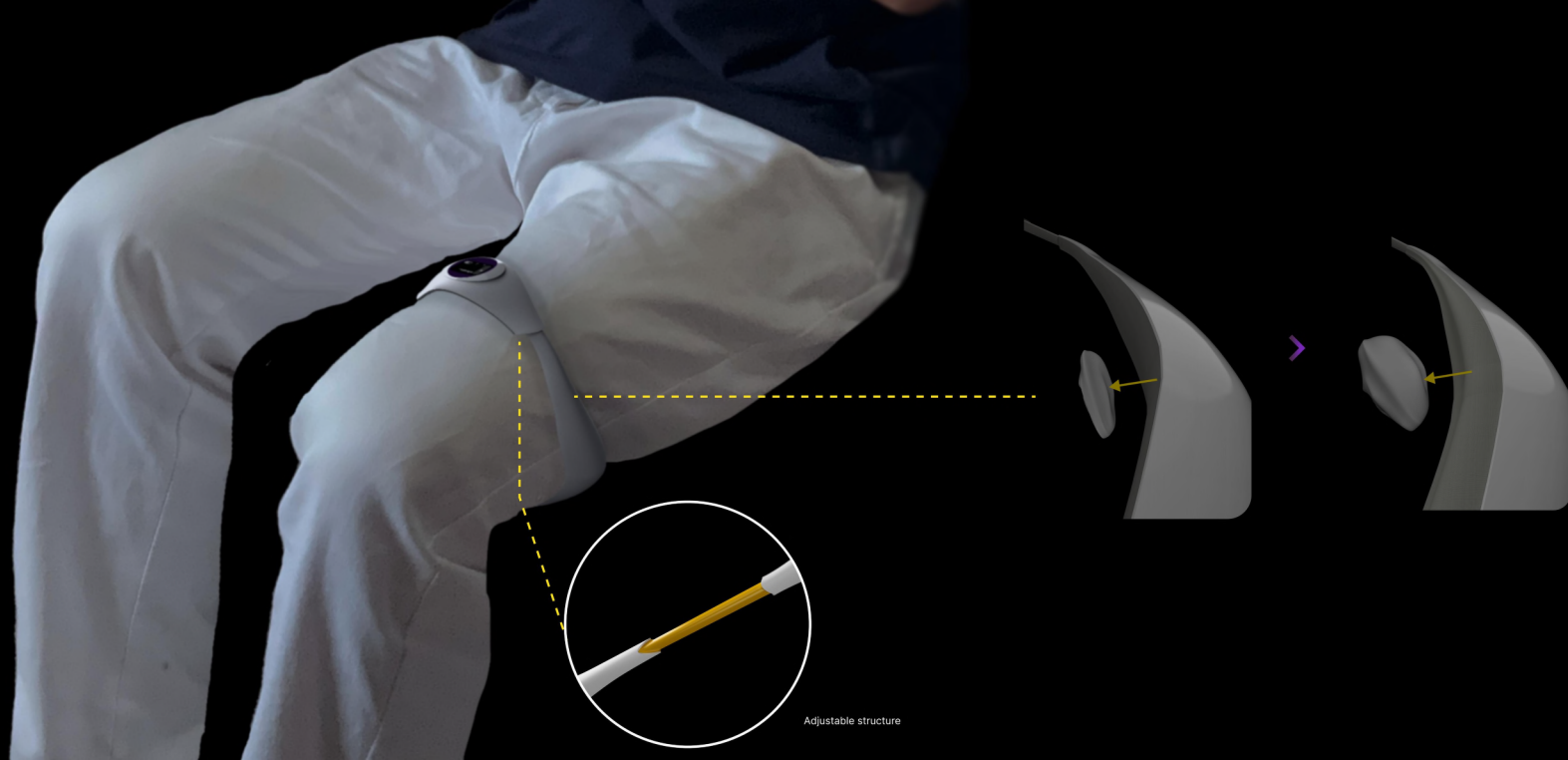
- 1.Real-time posture data: View the tilt angle, sitting time, and posture record in the mobile app.
- 2.Remote control: can be manually inflated/deflated to adjust the support force.
- 3.Custom mode: Set the trigger angle and reaction time to meet the needs of different groups of people.
- 4.Historical analysis: Statistics on daily, weekly, and monthly sitting posture improvements.

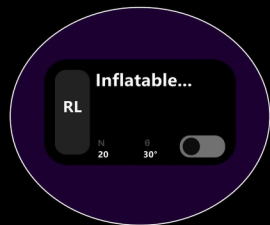


PRODUCT FEATURES

AUTOMATIC AIRBAG CORRECTION

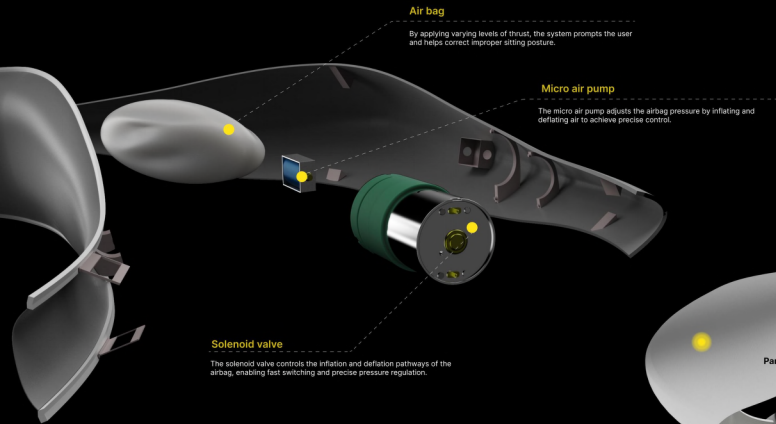
When left or right tilt is detected, it automatically inflates the corresponding side airbag to flexibly support the body to return to a neutral position





INDEPENDENT AND CONVENIENT CONTROL

This product is equipped with a high-definition touch control screen, which can display the tilt direction and angle of the sitting posture in real time, and supports automatic/manual mode switching, support force and trigger angle adjustment, as well as sitting reminder and system status display, so that users can easily control it without a mobile phone and maintain a healthy sitting posture at any time.



Air bag

By applying varying levels of thrust, the system prompts the user and helps correct improper sitting posture.

Micro air pump

The micro air pump adjusts the airbag pressure by inflating and deflating air to achieve precise control.

Solenoid valve

The solenoid valve controls the inflation and deflation pathways of the airbag, enabling fast switching and precise pressure regulation.

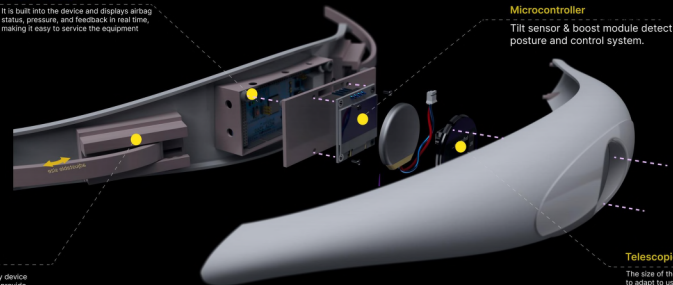


Internal display

It is built into the device and displays airbag status, pressure, and feedback in real time, making it easy to service the equipment

External display

It is on the outside and can display device switches, airbag strength, etc., to provide interaction for users



Microcontroller

Tilt sensor & boost module detect posture and control system.

Telescopic structure

The size of the device can be flexibly adjusted to adapt to users of different body shapes, improving wearing comfort, fit and stability of use.

Product explosion diagram