

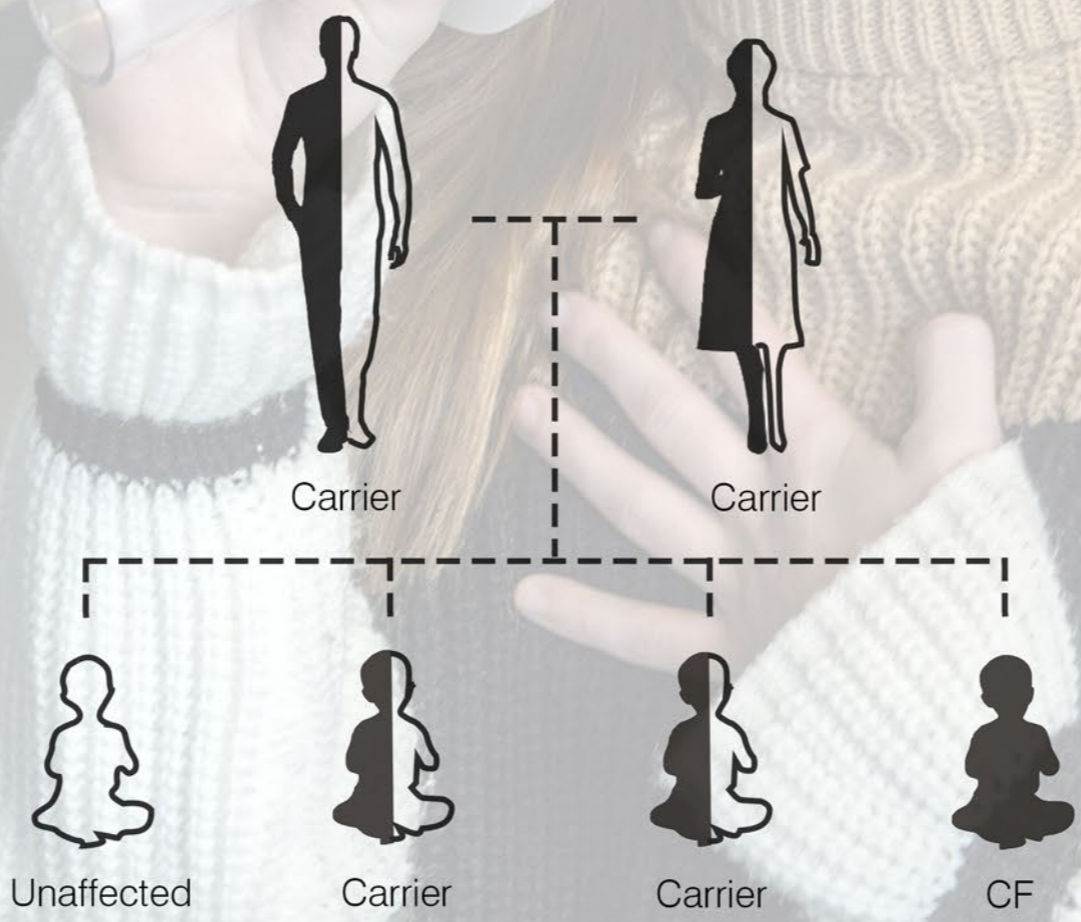


DNH803 Major Projects Oliver Young

Treatment adherence in young adult
Cystic Fibrosis patients

Cystic Fibrosis

1 in 7000 Australians are born with CF
30+ tablets and up to **2 hours of treatment per day**
Direct correlation between **low treatment adherence** and **poor lung health**
Young adult CF patients are **particularly at risk** of low treatment adherence





How can we encourage treatment adherence within young adult CF patients?

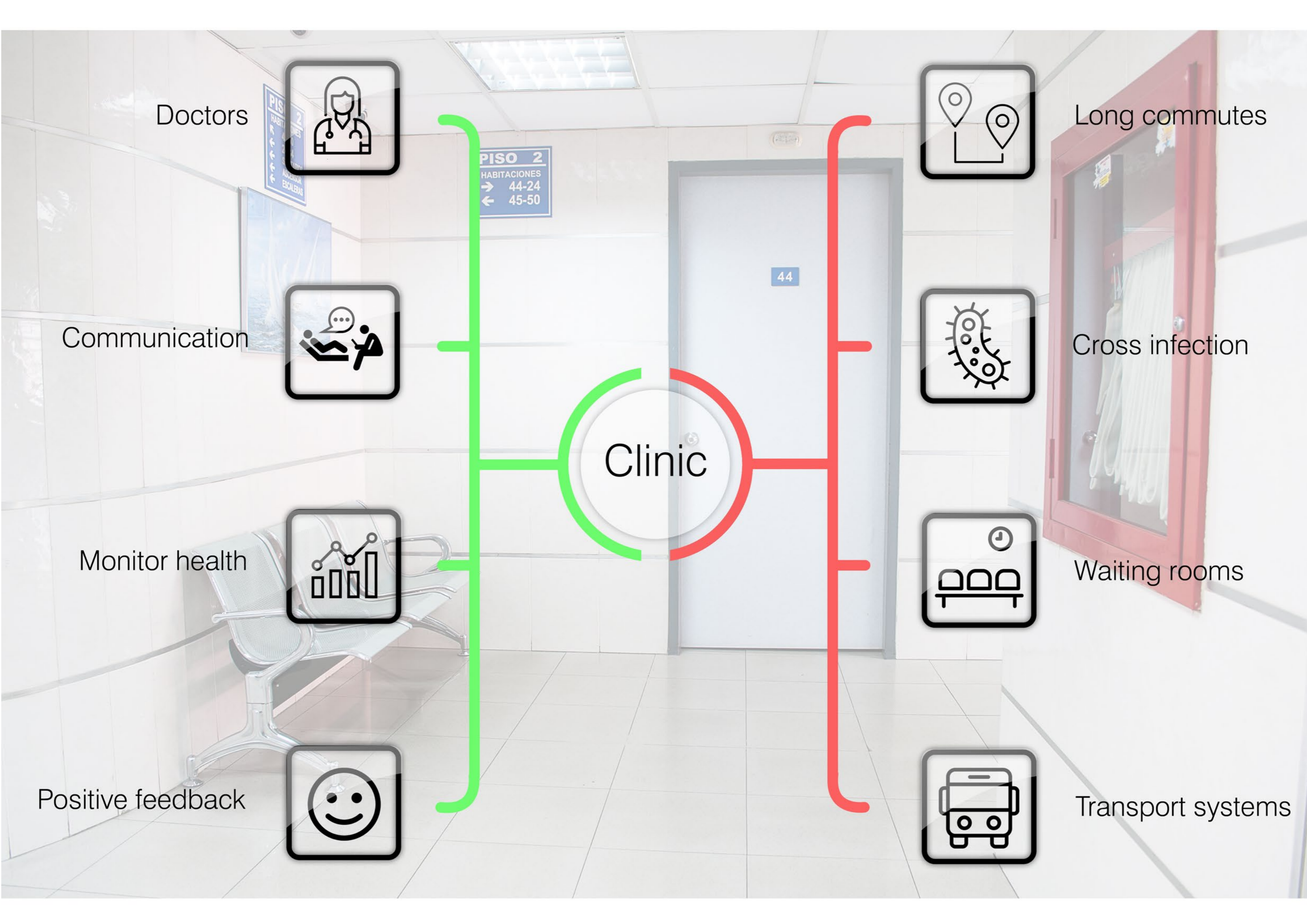
Key Findings

Importance of **clinic appointments**

Higher treatment adherence
around appointments

Lack of remote appointment
accessibility





Doctors



Communication



Monitor health



Positive feedback



Clinic

Long commutes



Cross infection



Waiting rooms



Transport systems



PISO 2
HABITACIONES
→ 44-24
← 45-50

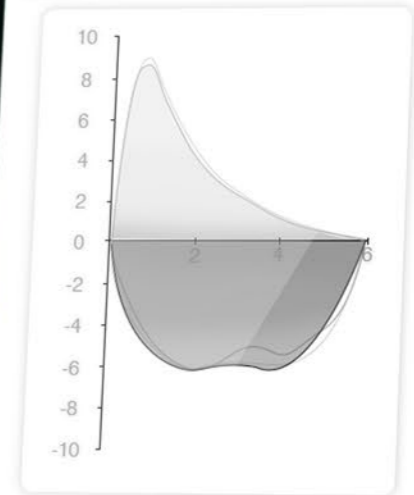
44

A woman with long dark hair is sitting on a bed, looking at a laptop. In the foreground, a golden retriever is lying down on a grey blanket. The scene is softly lit, suggesting an indoor setting.

How can we **facilitate** as many **remote clinic appointments** as possible?

AUSPIRO

Personal, portable
spirometry device



TRIAL	FVC	FEV1	PRED%
1	3.98	2.85	78%
2	4.08	2.98	81%
3	4.01	2.90	79%

✕ ✓ ↻
Delete & Exit Accept Restart test



aus • spi • ro

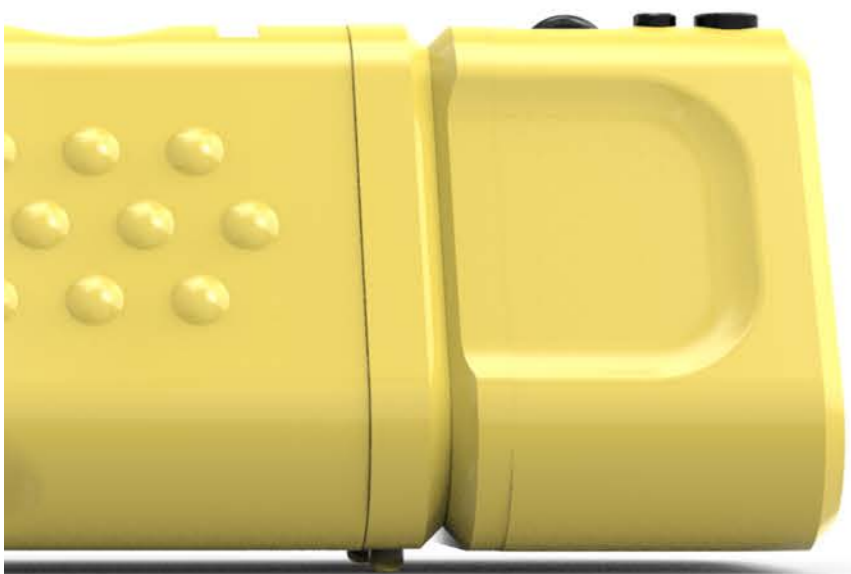
auscultation

*the action of listening to
sounds from the lungs
via a stethoscope*

spirometer

*an instrument for
measuring lung capacity*

Customizable colours
Unique aesthetic
Tactile interactions
Personal



Portable

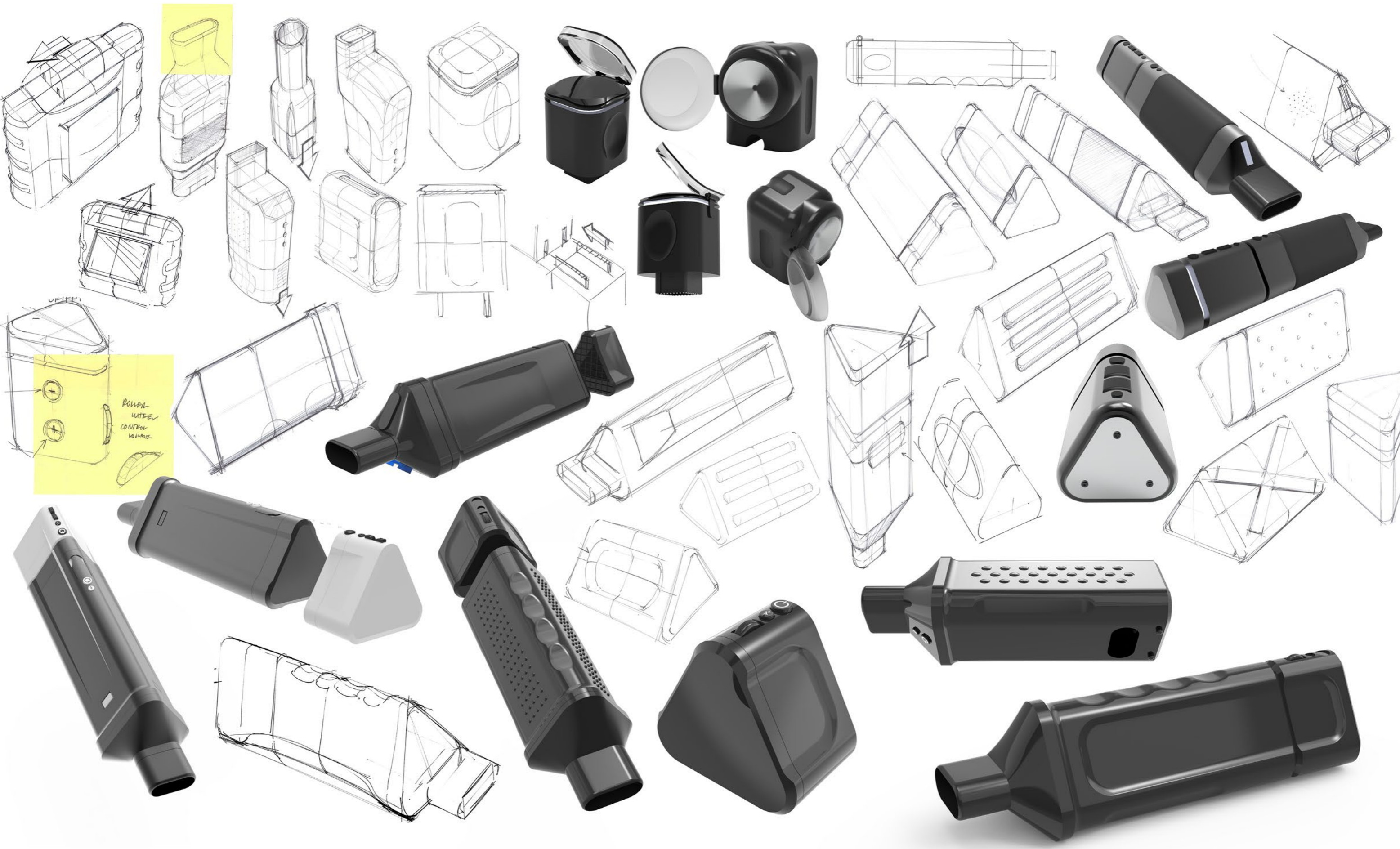
Small form factor
Lightweight construction
Travel case

Reliable

Accurate technology
Strong triangular form
Durable construction



Form iteration





1.0

2.0

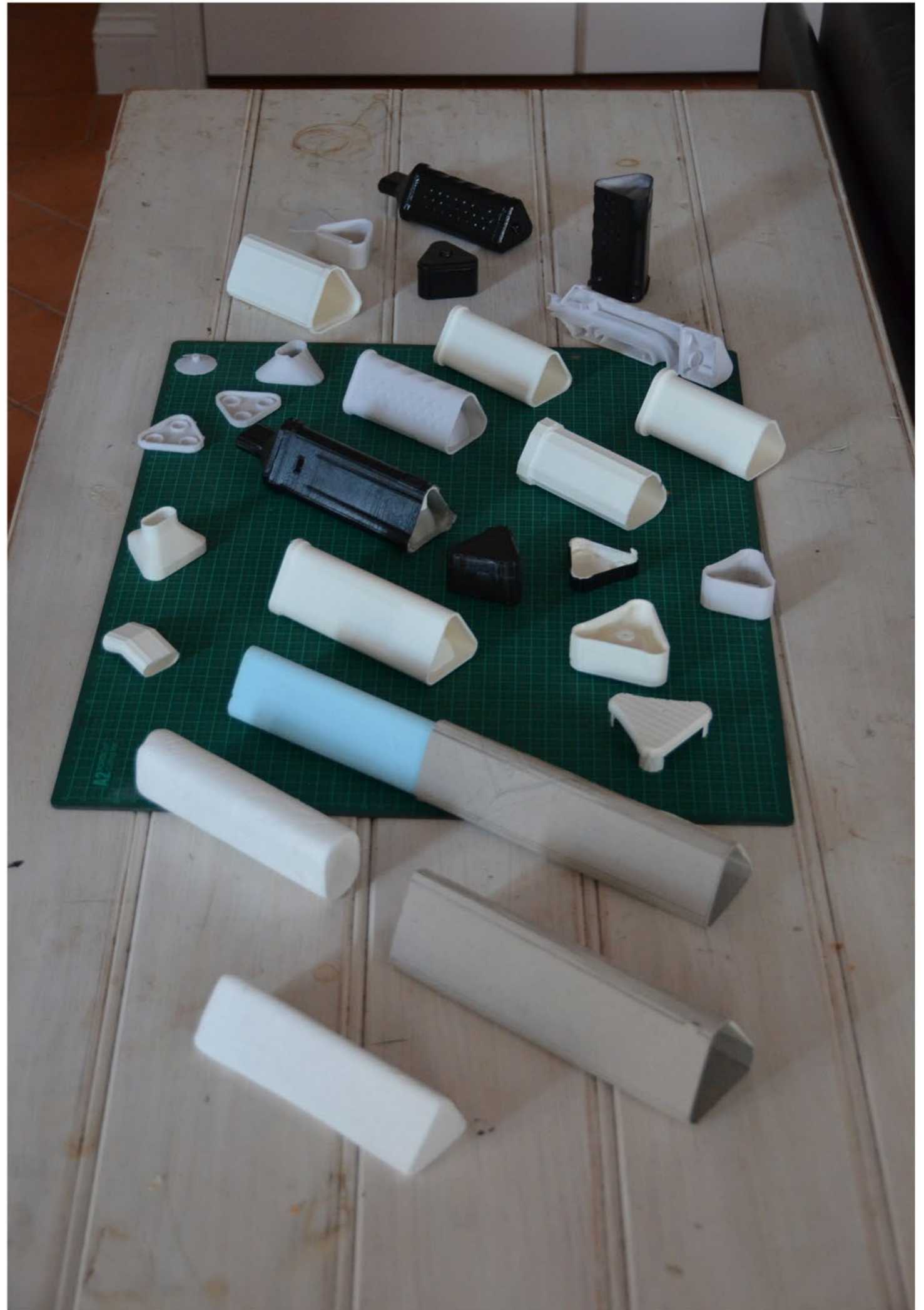
3.0

4.1

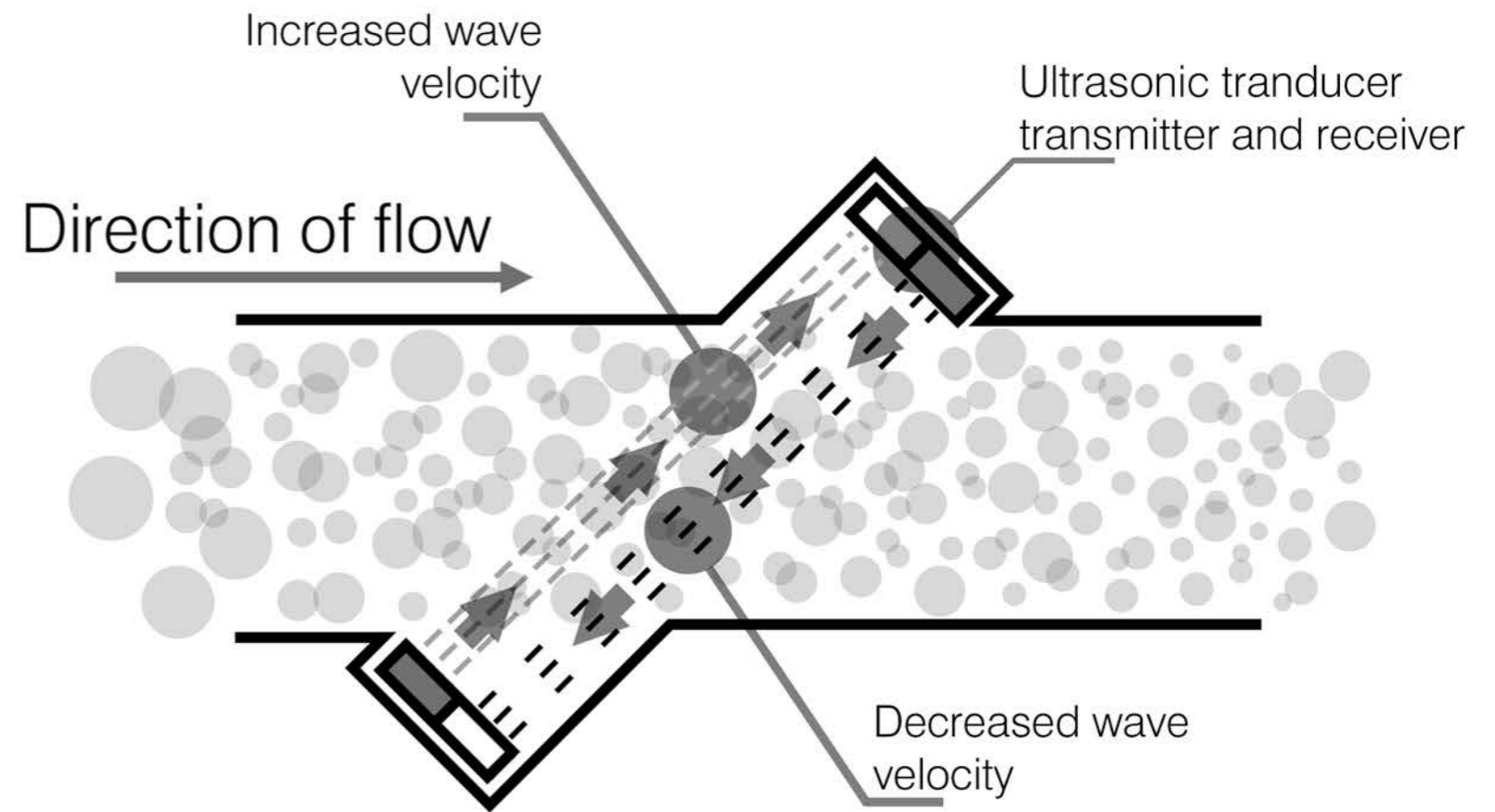
4.2

4.3





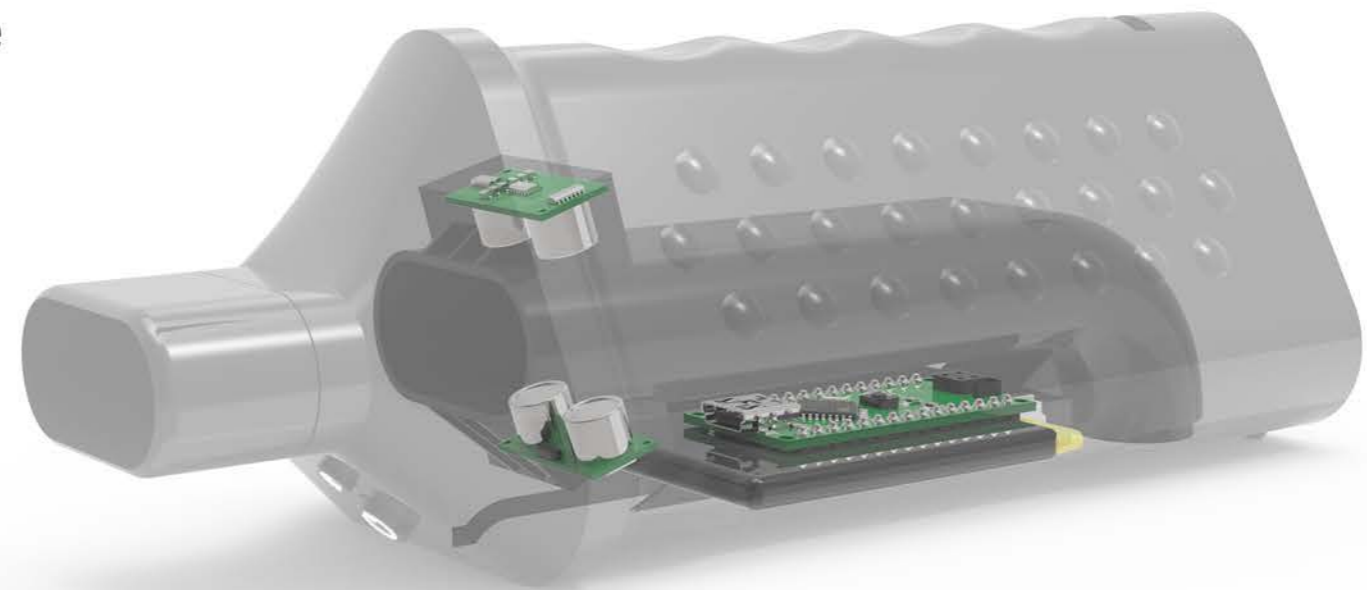
Ultrasonic flowmeter



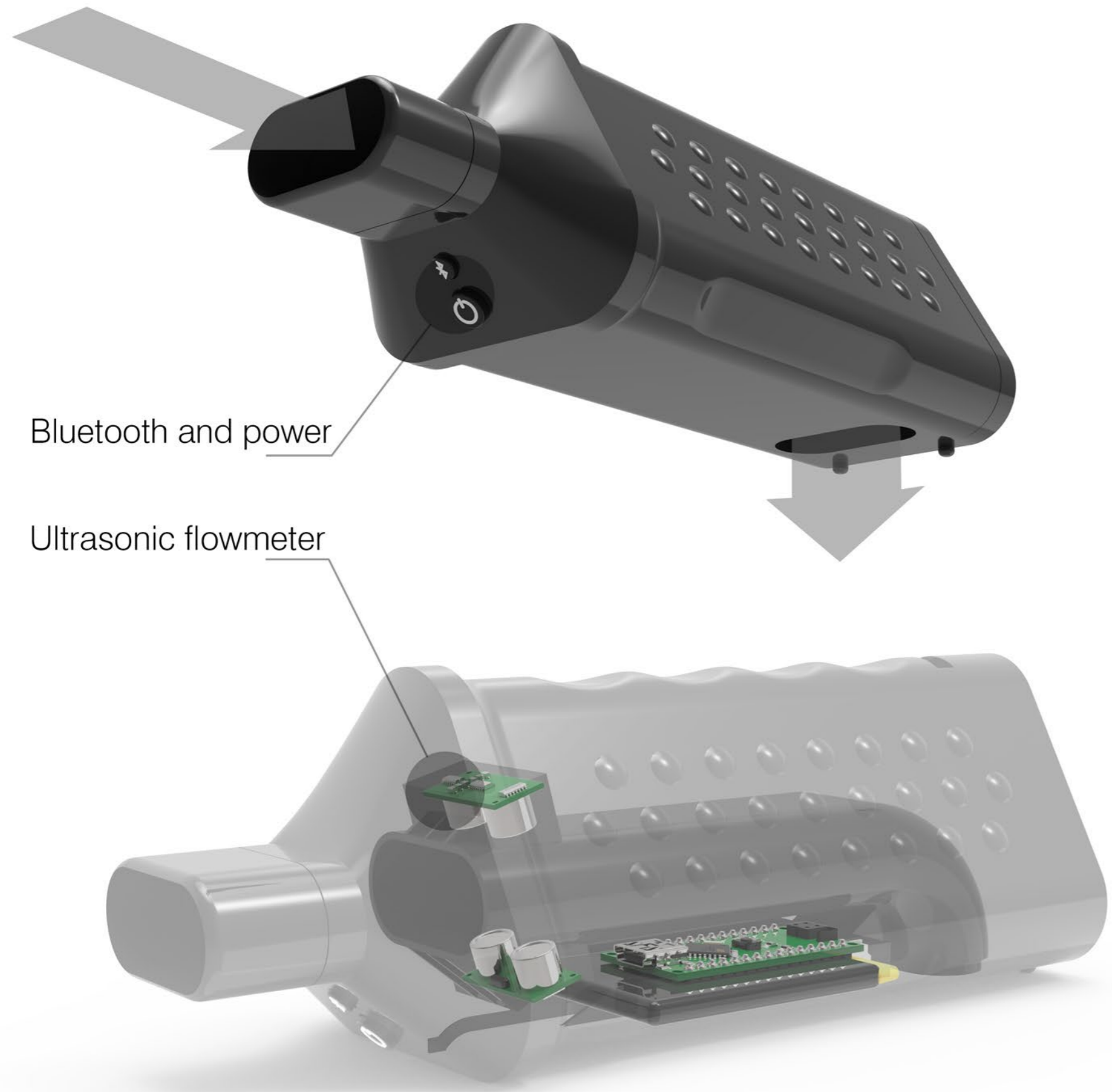
Lightweight, modern technology

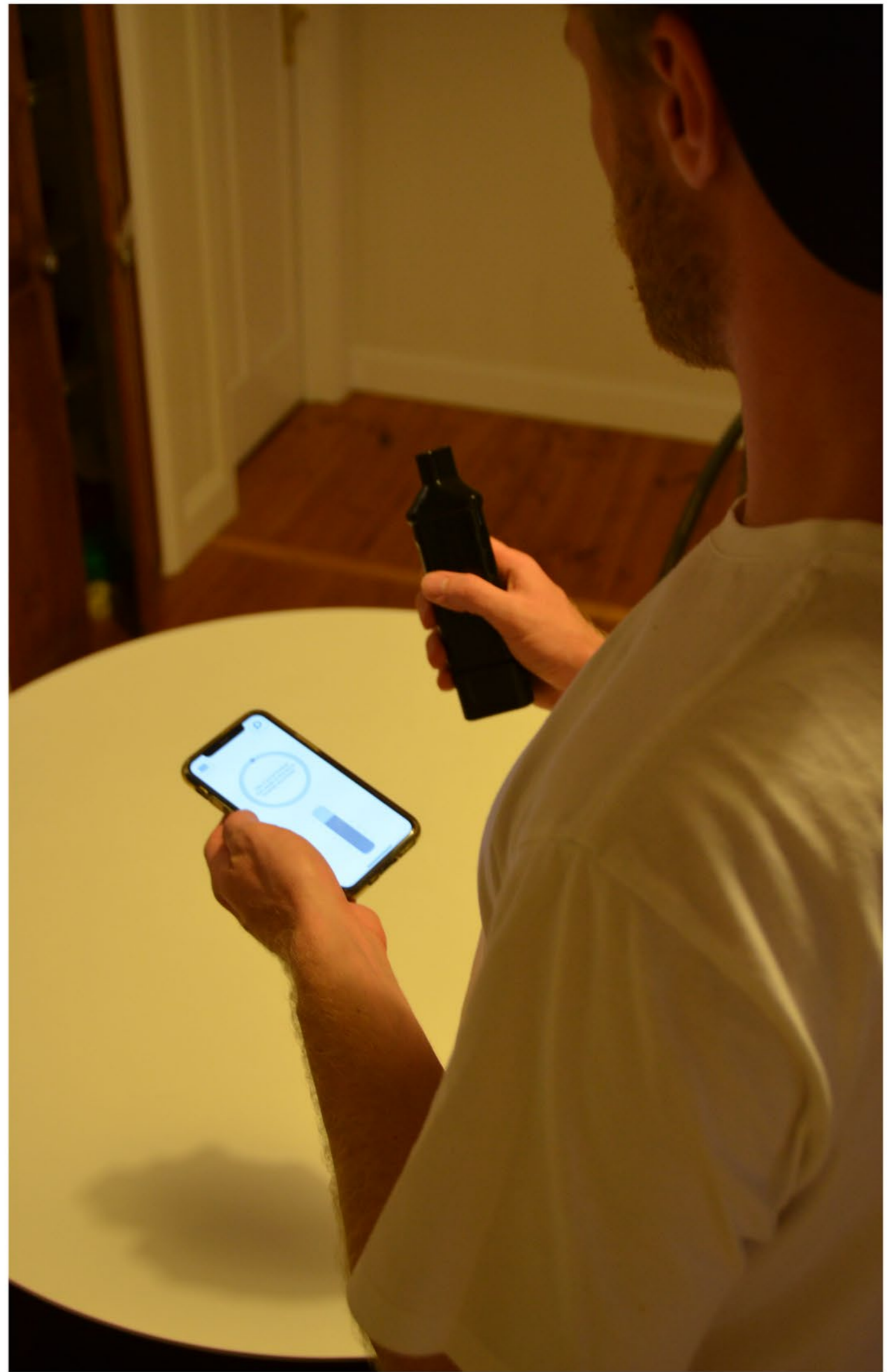
Accurate flow measure without path obstruction

No moving parts - less maintenance and no chance of mechanical failure

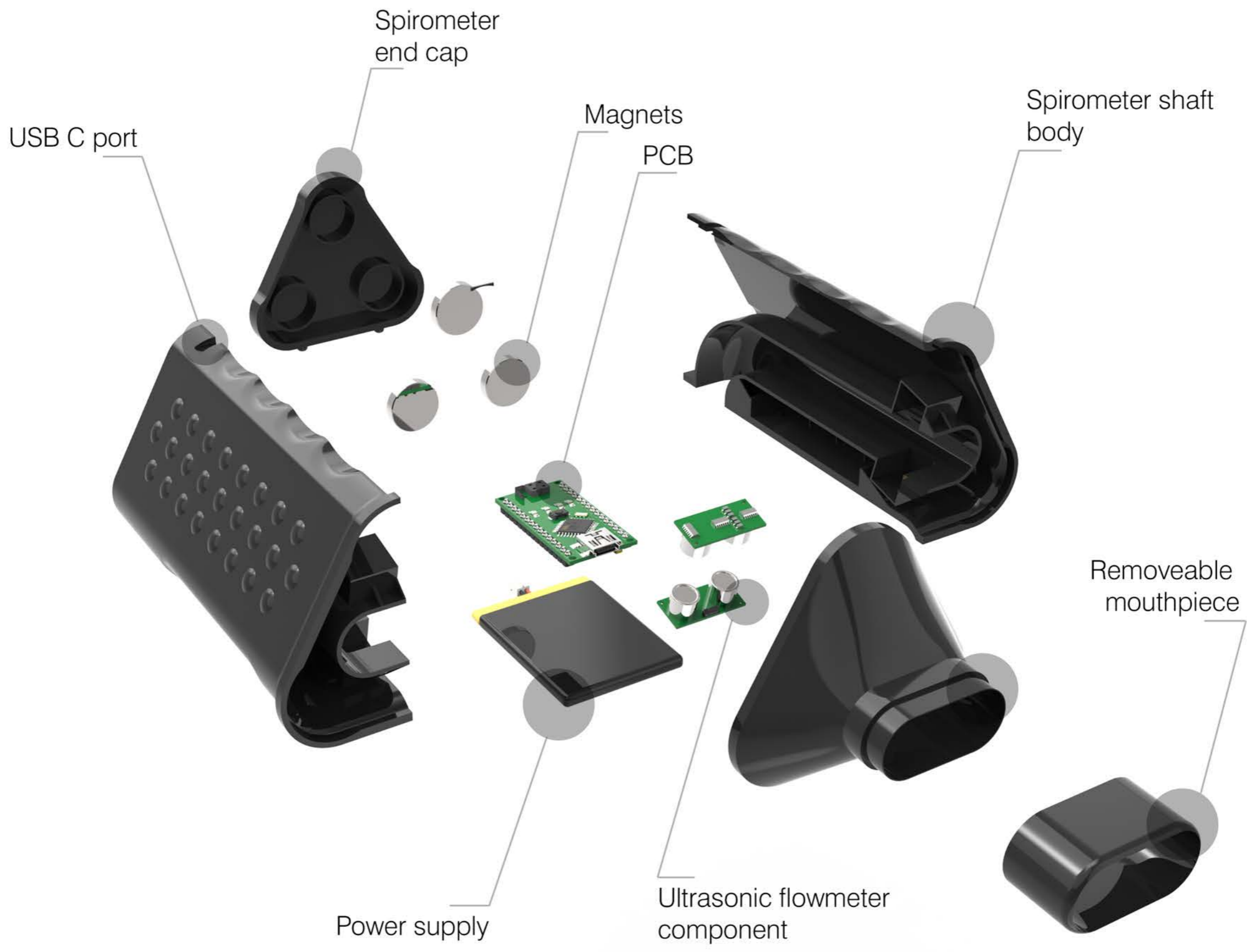


Spirometer functions

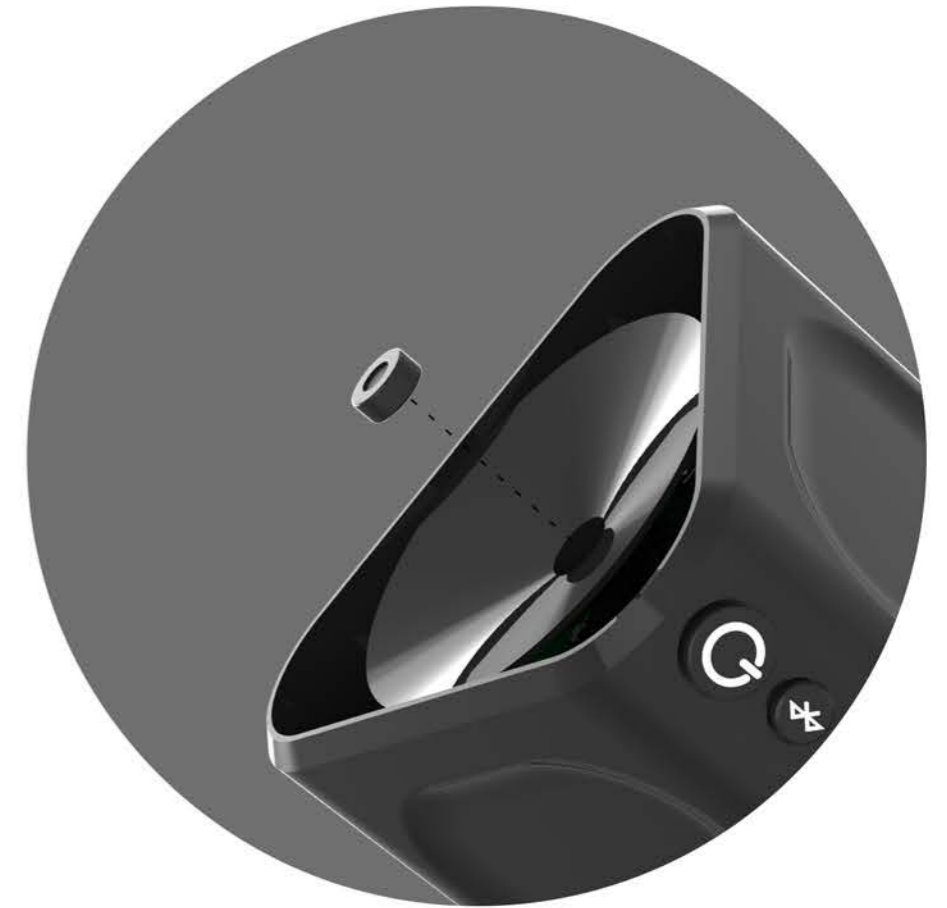




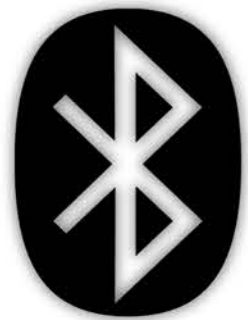
Spirometer exploded



AI audio technology



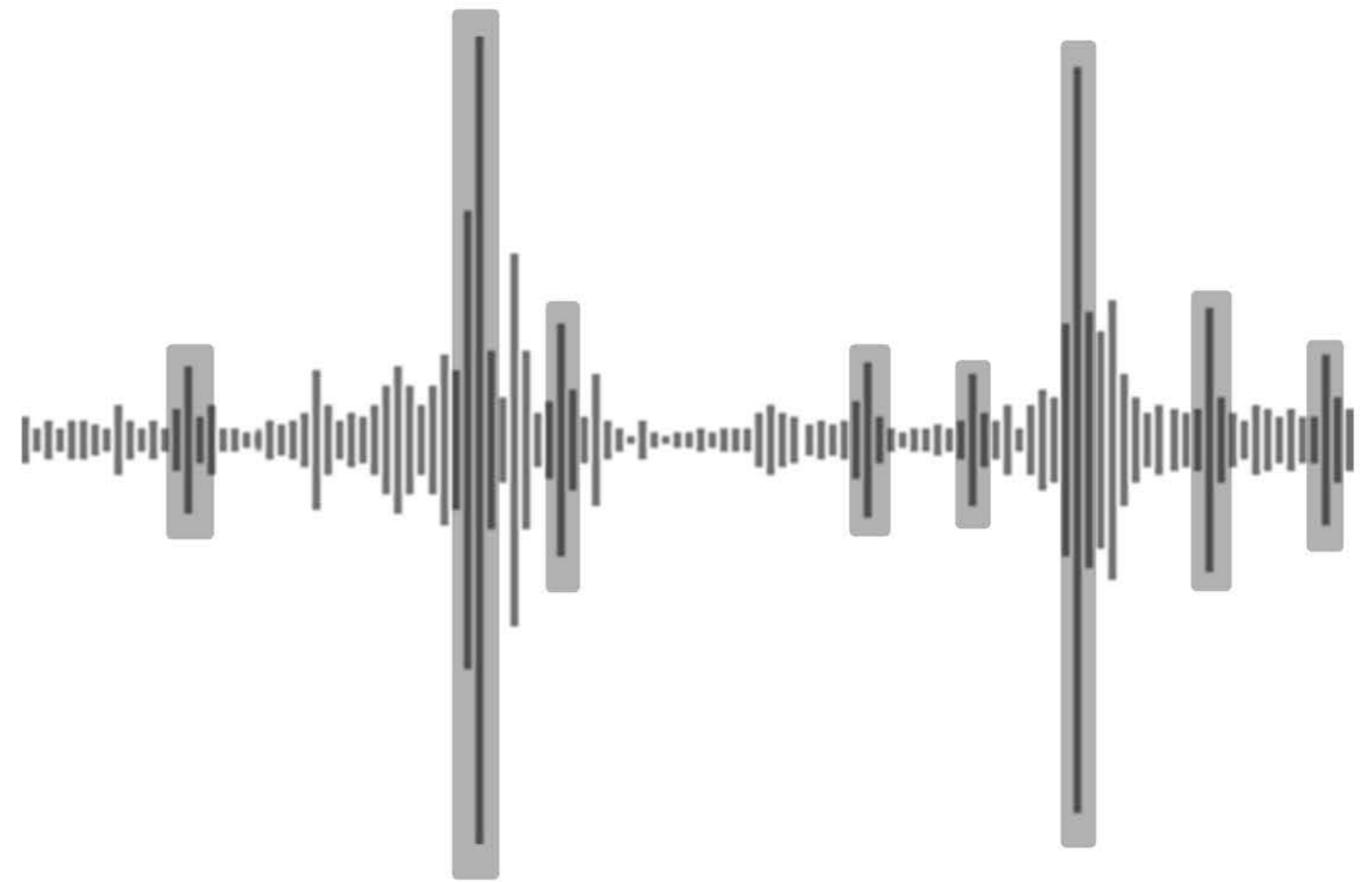
Bluetooth connectivity



AI technology analyses audio clip and flags airway blockages

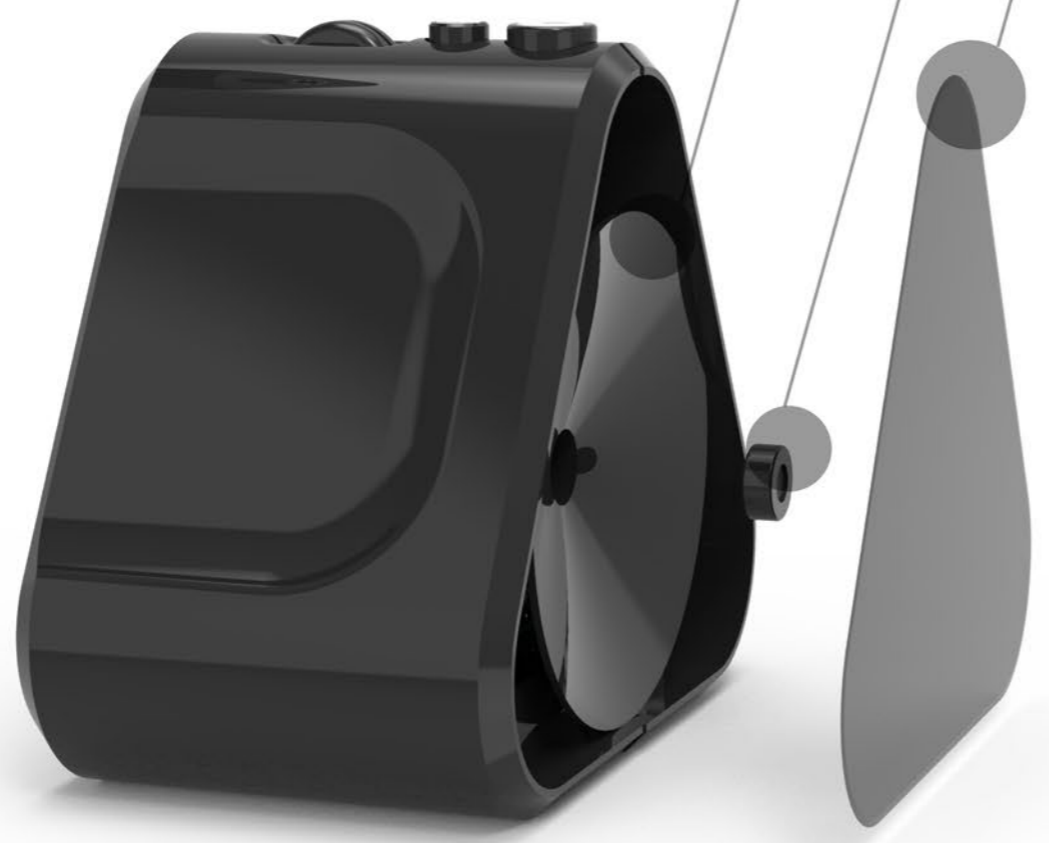
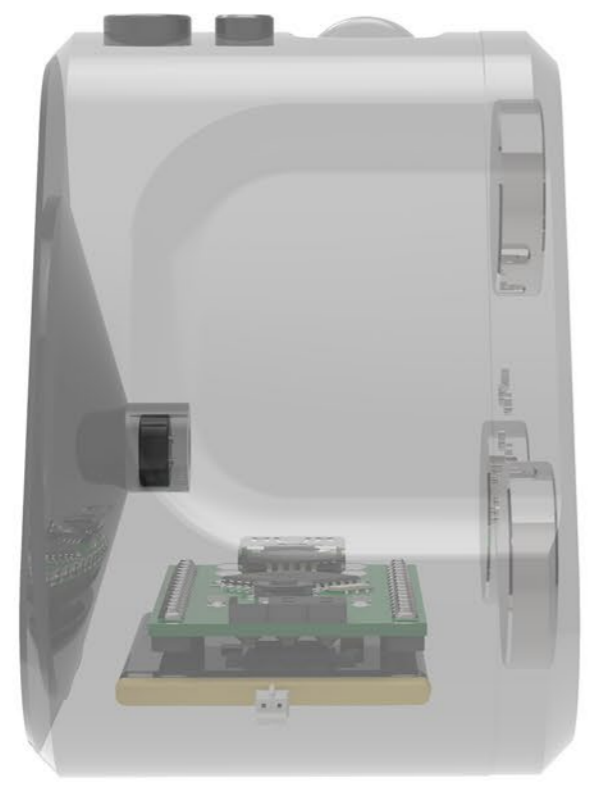
Report delivered directly to patient's specialist

Connect headphones to listen to audio clip or live recording



— = 'Pops and crackles' of a blocked airway passage

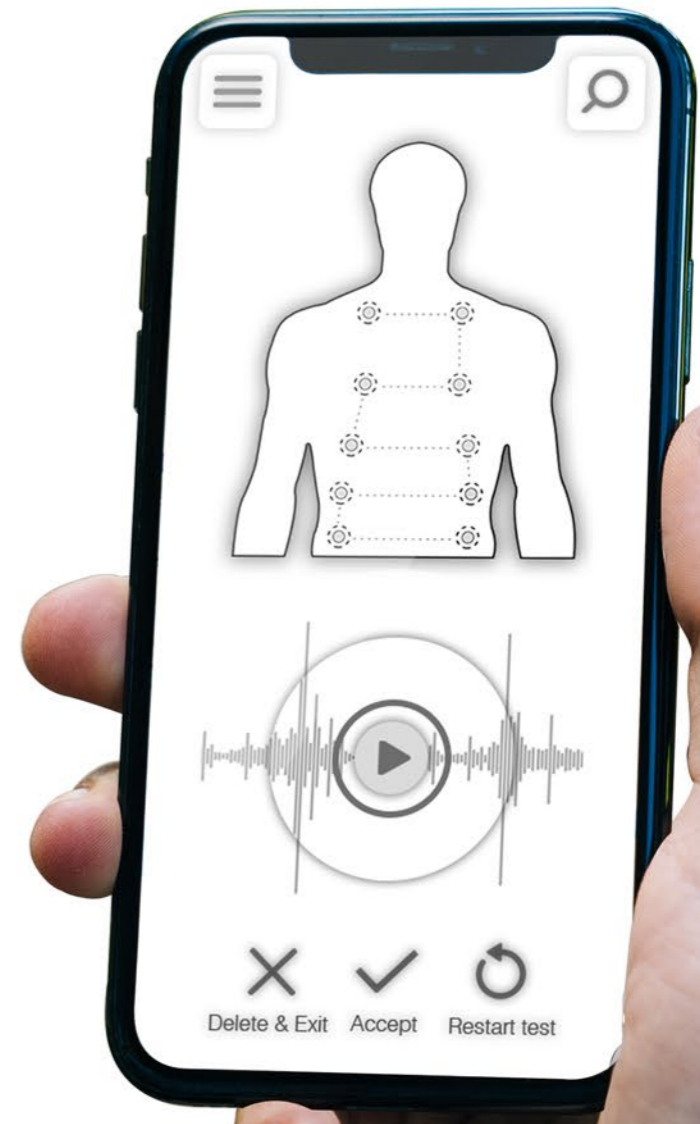
Stethoscope features



Stethoscope diaphragm

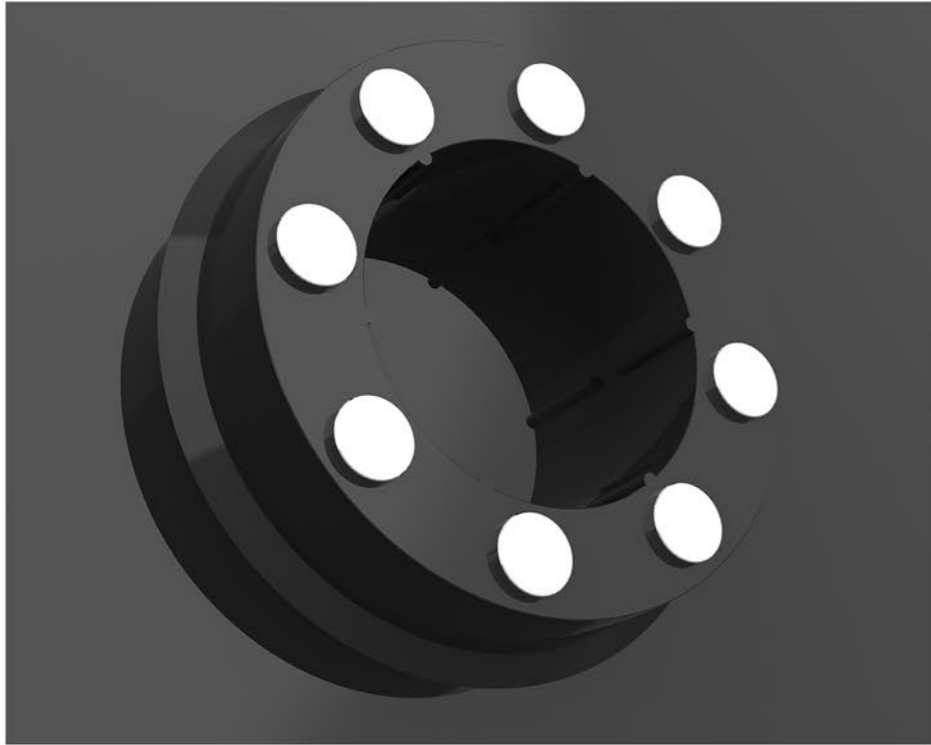
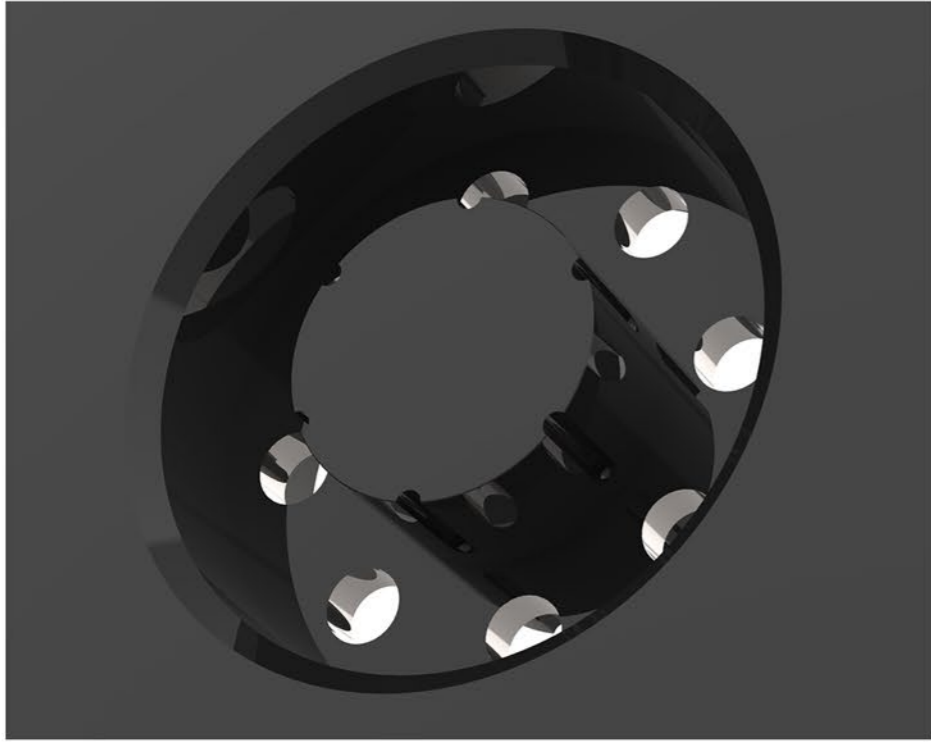
Condensor microphone

Thin plastic outer skin

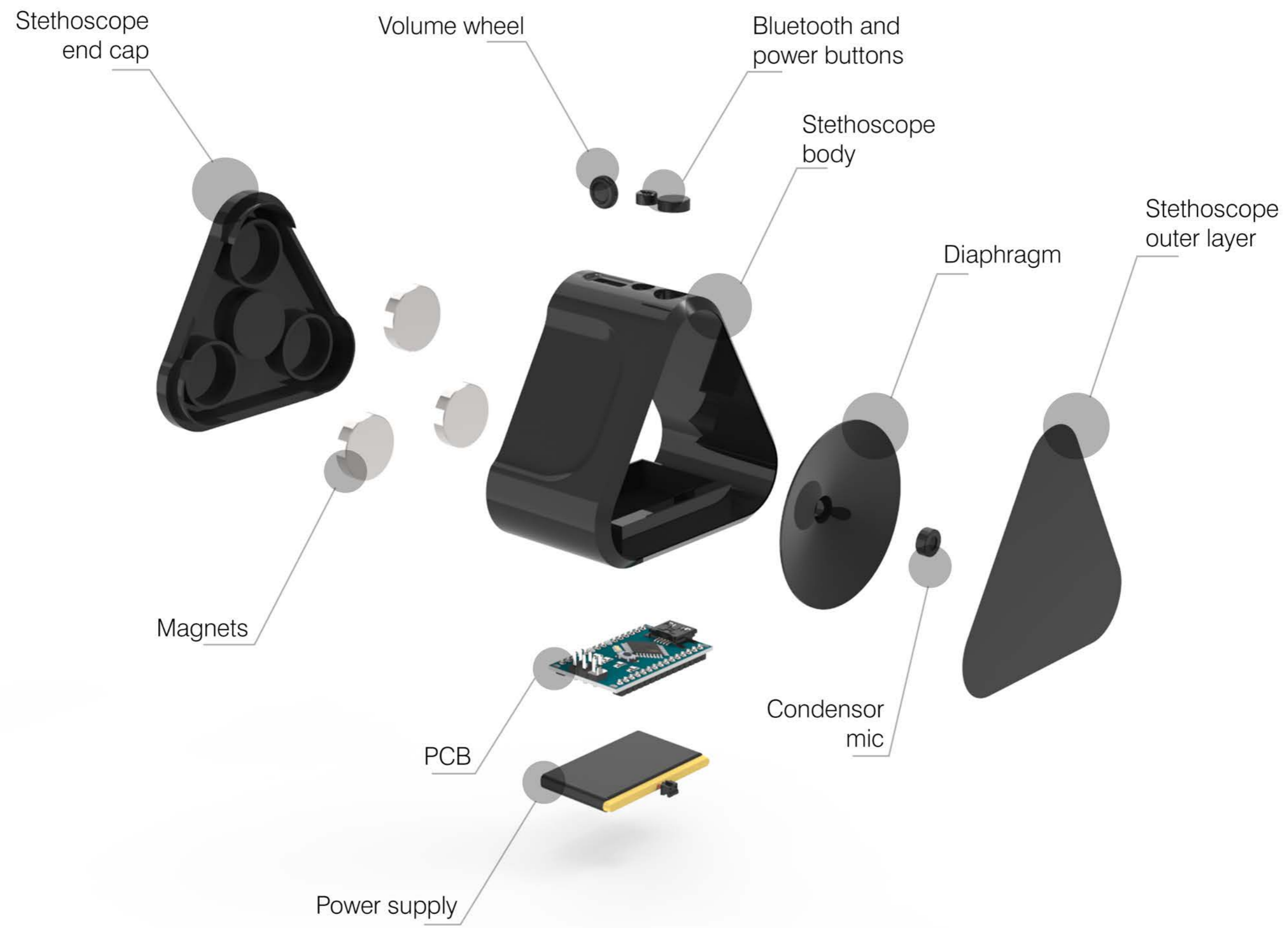




Stethoscope details



Stethoscope exploded



ABS injection moulded
custom parts

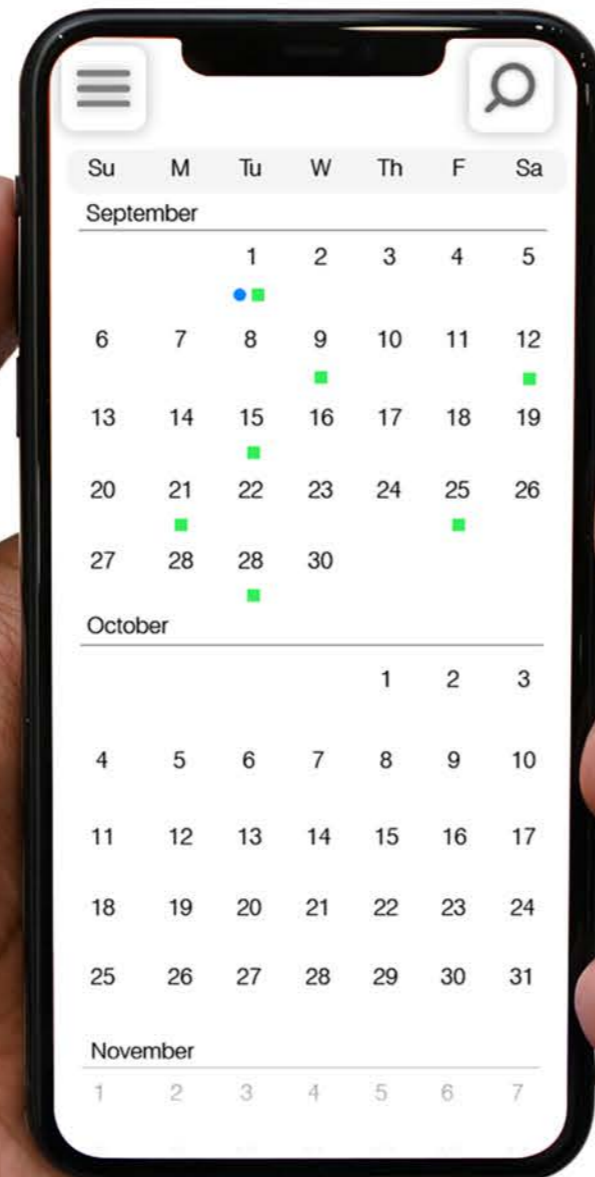
Magnets, buttons and
tech components OEM

iOS and Android
app support



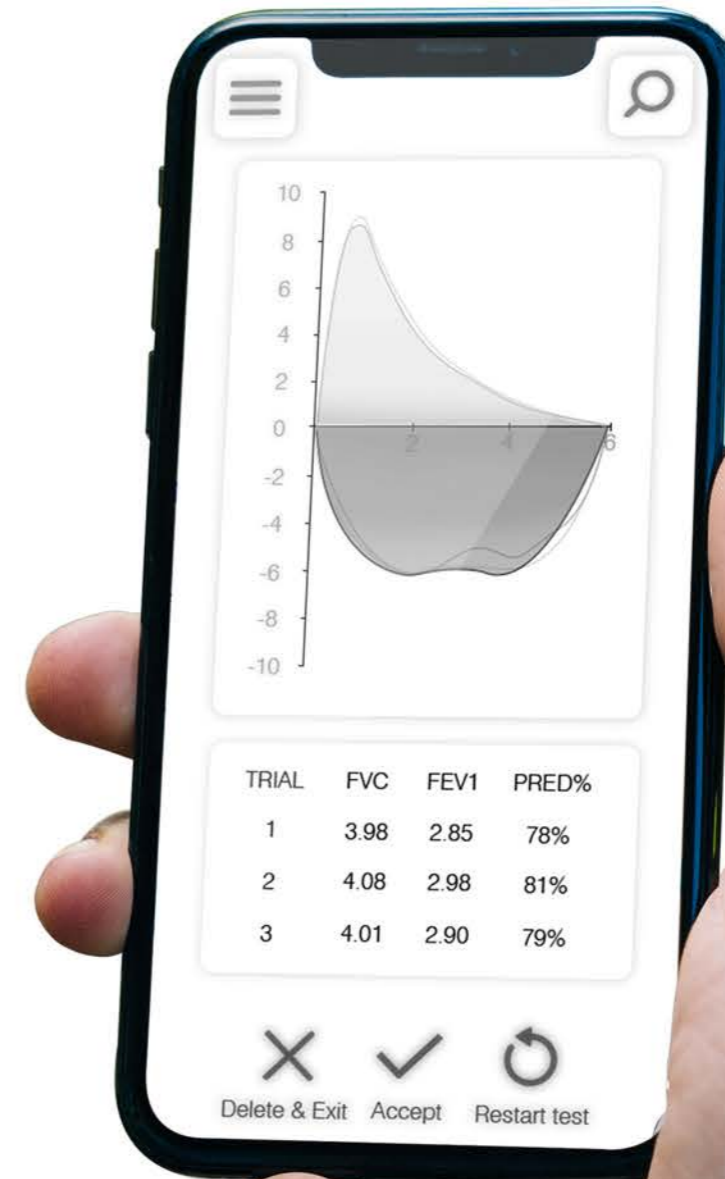
1

Treatment and appointment reminders



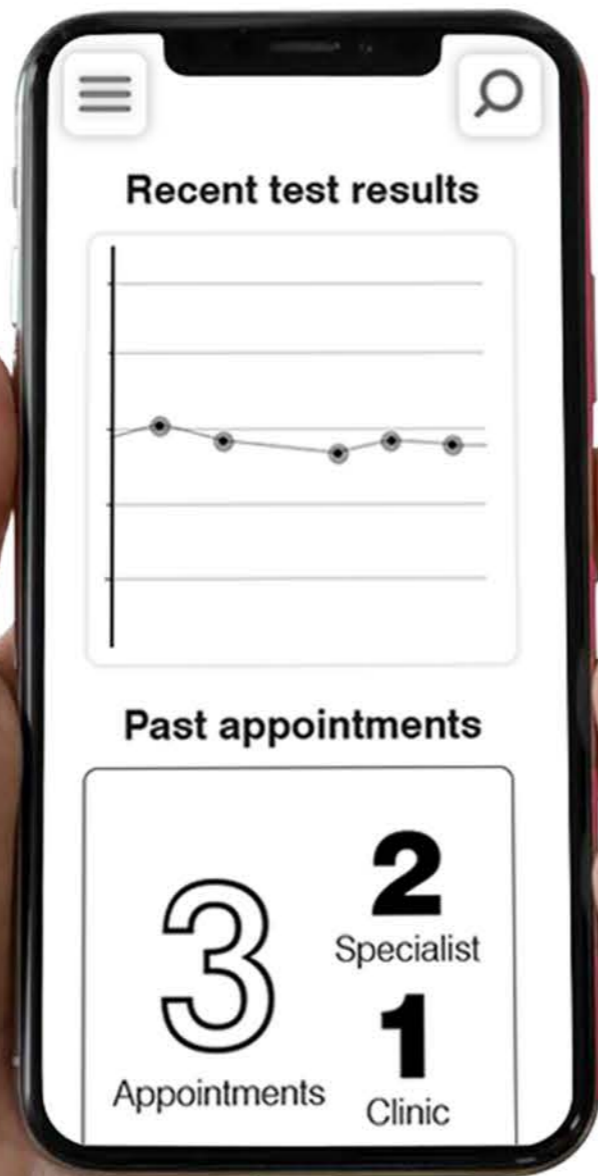
2

Respiratory monitoring



3

Monthly recaps

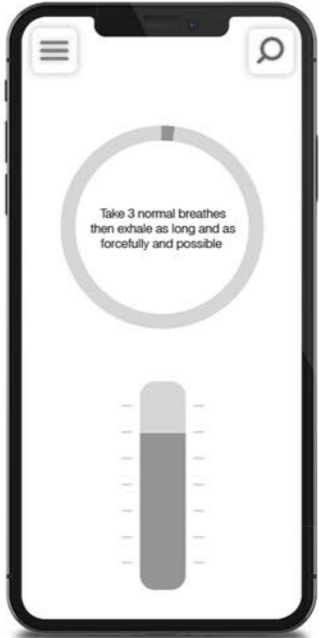
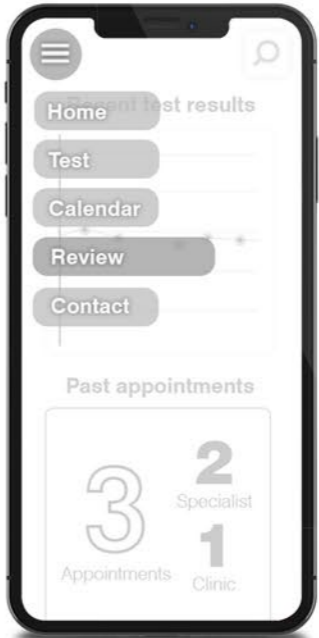
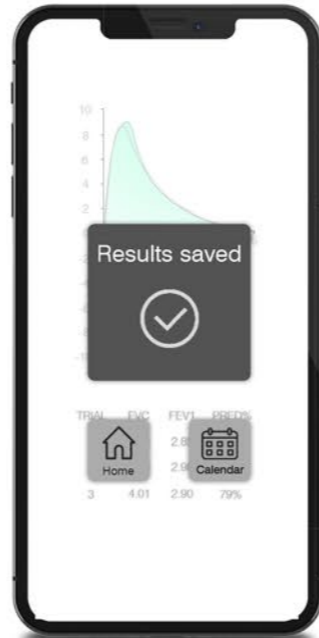
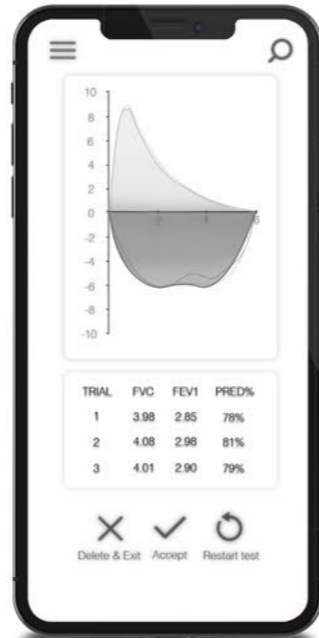
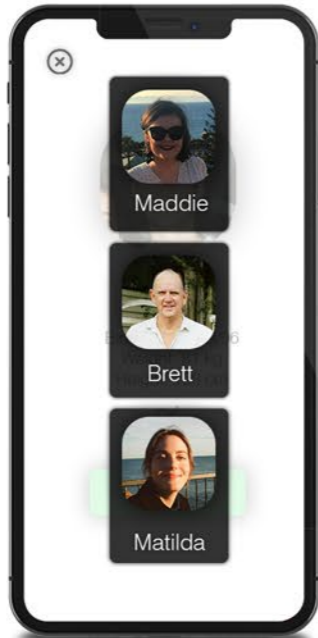
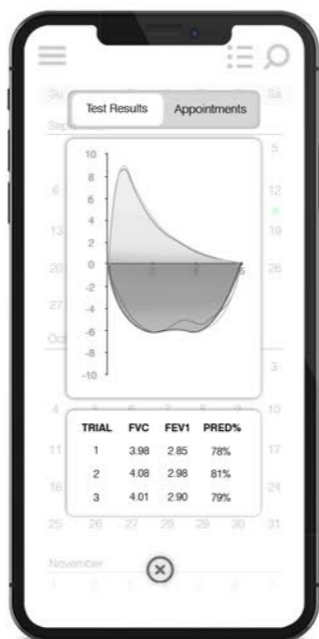


4

Communication channels



App pages





Provides ownership over Cystic Fibrosis

Accurate and consistent monitoring leads to a better understanding of one's condition

With knowledge comes power - data reassures patients that adherence to treatment is improving their health

Higher quality of life