

TIMEPULSE

DESIGNED BY
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This is the final project of Studio5 - PCB for Designers

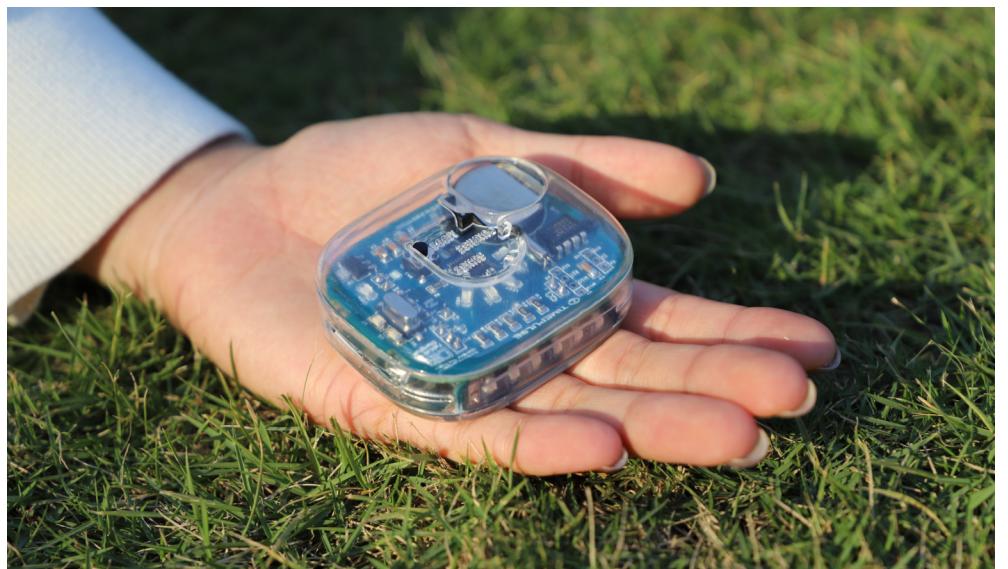
Directed by Saverio and Francesca, Completed at Fablab Shanghai, D&I, Tongji

And thanks to Zhu Ziyi and Lu Wentao for their help

设计说明 DESIGN DESCRIPTION

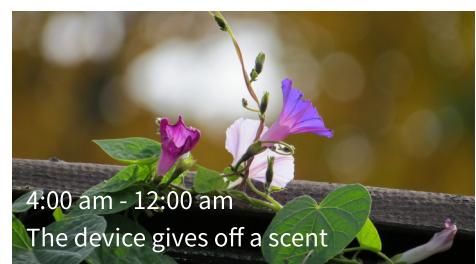
这是一个能够帮助人们以不同的视角感知时间的设备。通过模糊时间刻度，体验不同动物感知时间的方式及反应，建立人与自然昼夜更替的情感关联，思考其社会实用性以外的意义。

This is a device that can help people perceive time from some different perspectives. Through the fuzzy time scale, we can experience the ways and reactions of different animals to perceive time, establish the emotional connection between human and nature day and night, and think about its significance beyond social practicability.



不同生物对时间的感知&反应 PERCEPTION & RESPONSE TO TIME IN DIFFERENT ORGANISMS

对于很多自然界生物而言，每天只有特定的时间才有活动的意义，它们通过感知特定的环境信号来对时间作出判断，并表现出很多有意思的生物行为。



4:00 am - 12:00 am
The device gives off a scent

牵牛花在每年的6-10月，会在清晨4-5点左右开花，并持续到中午12点左右合拢

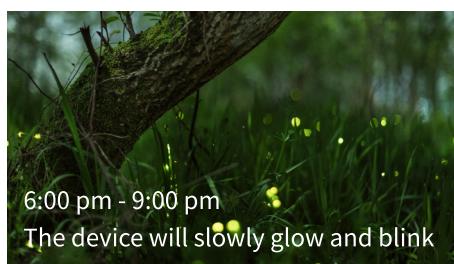
Morning glory flowers in June to October every year, will bloom around 4-5 in the morning, and continue to close around 12 noon



12:00pm - 2:00pm & 0:00am - 2:00am
The device simulates the vibrations of ocean waves crashing against rocks

招潮蟹会在涨潮的时候活动，在中午及午夜挥舞大螯，是渔民出海捕鱼的信号

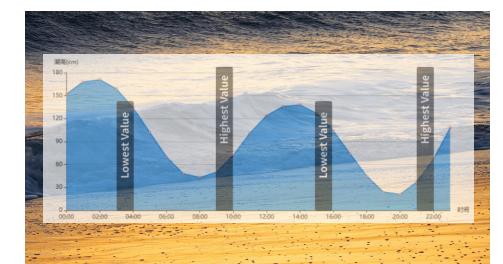
Fiddler crabs are active at high tide, waving their claws at noon and midnight, which is a signal for fishermen to go out to sea



6:00 pm - 9:00 pm
The device will slowly glow and blink

萤火虫会在日落后18时左右开始活动，大多在21时左右停止，闪烁黄绿色的光

Fireflies begin their activity around 18 after sunset, and most stop at around 21, flashing yellow-green light



气压和潮汐紧密相关，不少浅海生物都有通过气压、水流等感知潮汐的能力

Air pressure and tide are closely related, and many shallow sea creatures have the ability to sense tide through air pressure and current

PCB设计 — 控制板&输出模块

PCB DESIGN -
CONTROL BOARD & OUTPUT MODULE

控制设备运行

ATmega328 AU

Control equipment operation

断电时持续记录时间

DS1302 Clock Chip

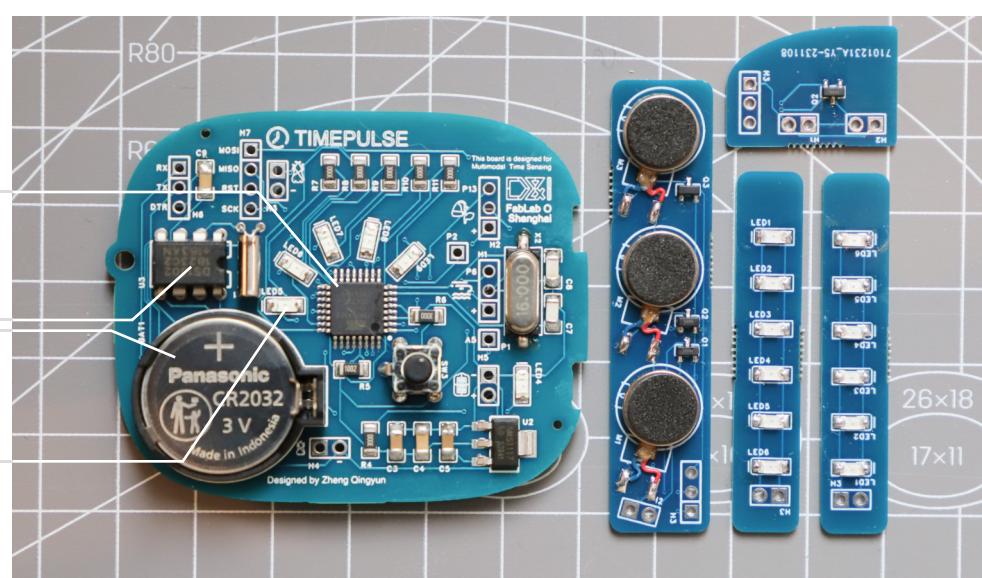
Continuous recording time when power is off

将上午6点到晚上6点

Time Signal Light

MAP到5个LED灯珠，模糊指示当前时间

It will be from 6 a.m. to 6 p.m. MAP to 5 LED light, vaguely indicating the current time



产品造型及功能设计

PRODUCT MODELING AND FUNCTIONAL DESIGN

Taking pebbles records the meaning of time washing and sharpening, integrating the product in a size that can be held in a single hand

按键切换两种模式，常规模式下五颗灯珠指示从日出到日落的时间，按下开关切换到多模式的时间感知，在特定的时间散发香味、发出震动，或是缓缓闪光

The key switches between two modes, the regular mode with five light beads indicating the time from sunrise to sunset, and the press of a switch to switch to a multimodal time perception that emits a scent, vibrates, or slowly flashes at a specific time



制作过程 MANUFACTURING

使用Arduino UNO完成测试后上传代码并装配

Upload code and assemble after testing with Arduino UNO



Vibration Module 像海蟹一样感知潮汐的到来，使用震动模块模拟海浪拍打岸边
Sense the arrival of tides like a sea crab, using a vibration module to simulate waves crashing against the shore

Heating Module 感受牵牛花开时的花香
使用加热模块使香片散发香味
Feel the fragrance of morning glory when it opens. Use the heating module to make the fragrance wafers fragrant

Light Module 太阳下山后萤火虫会发出短促的闪光，使用LED模拟这种现象
Fireflies give off short flashes when the sun set

