

Introducción a la teoría TRIZ

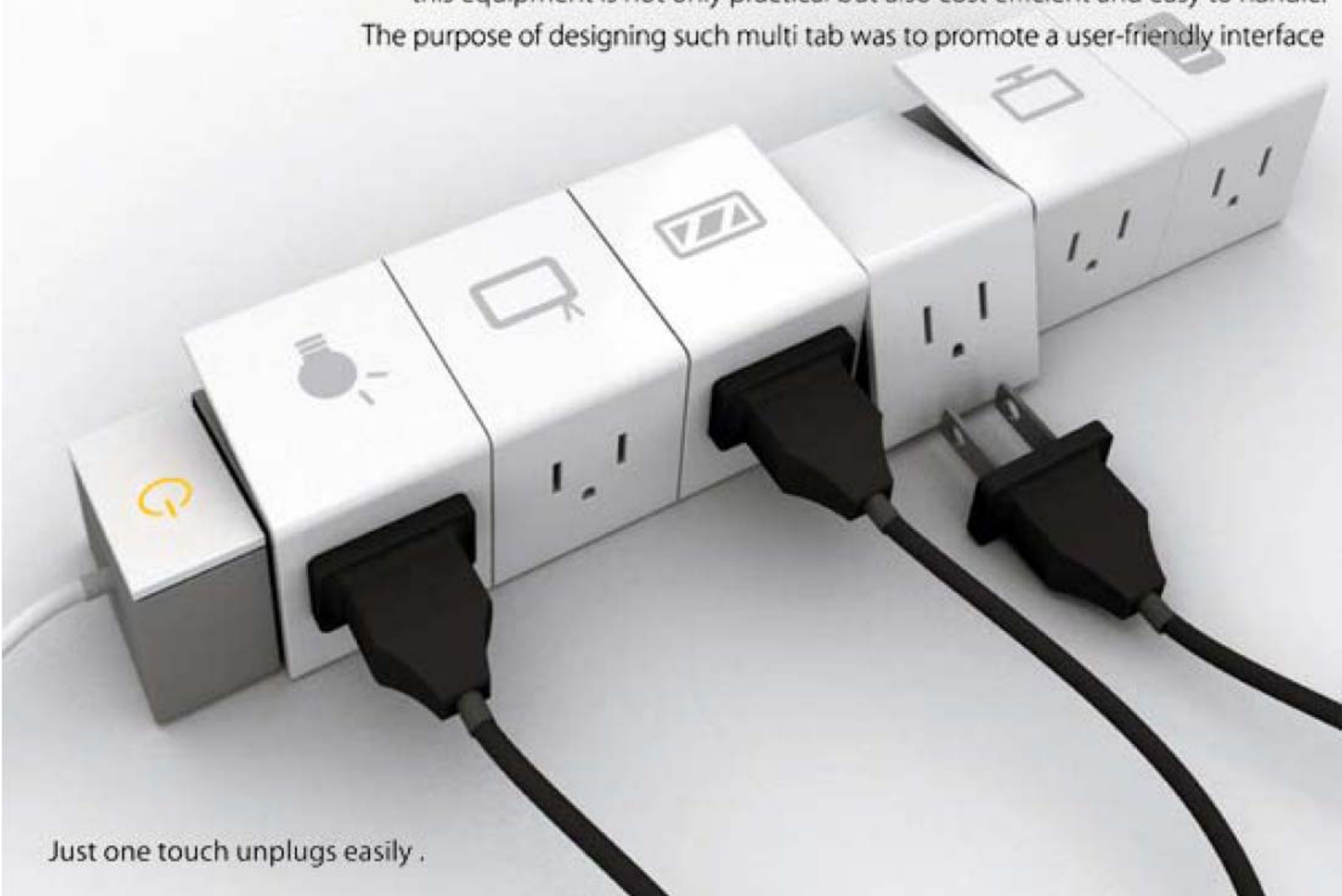
Patrones de evolución

Dr. Guillermo Cortes Robles
Instituto Tecnológico de Orizaba

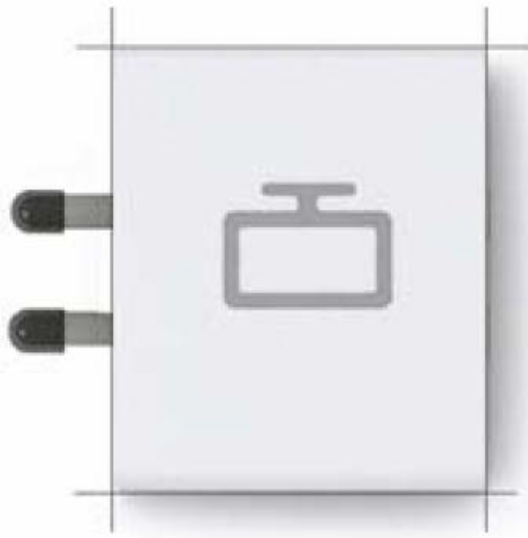
gc_robles@hotmail.com

Observe los siguientes productos

By only purchasing desired number of tabs, depending on user's needs, this equipment is not only practical but also cost efficient and easy to handle. The purpose of designing such multi tab was to promote a user-friendly interface



Just one touch unplugs easily .

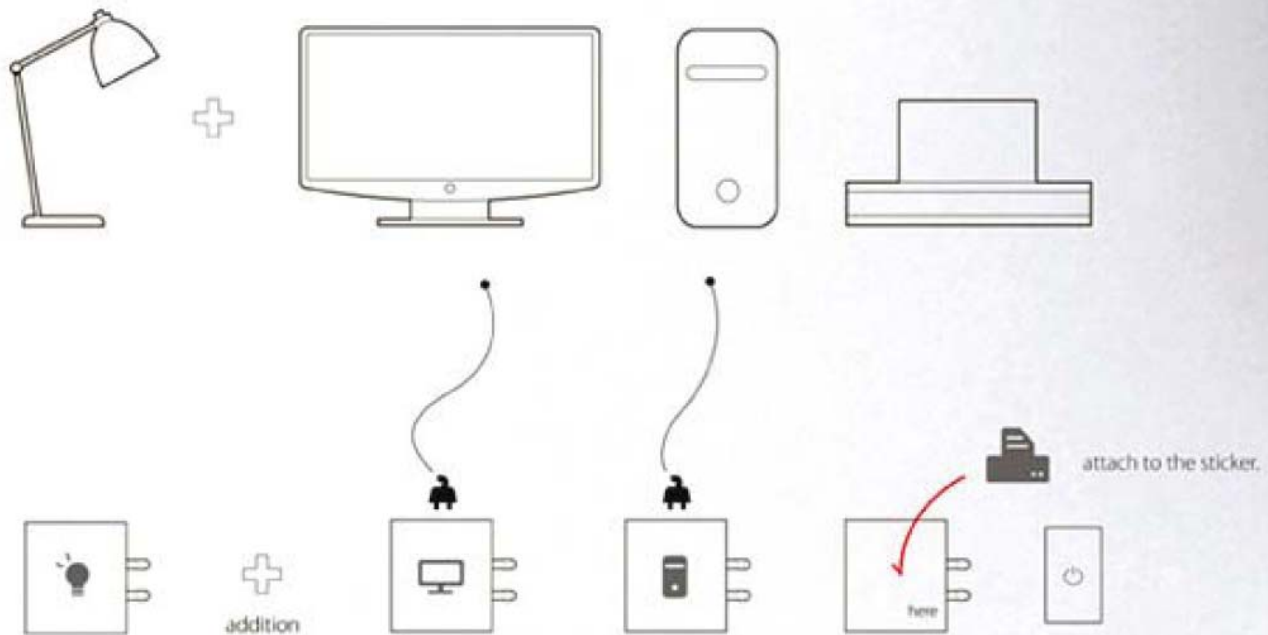


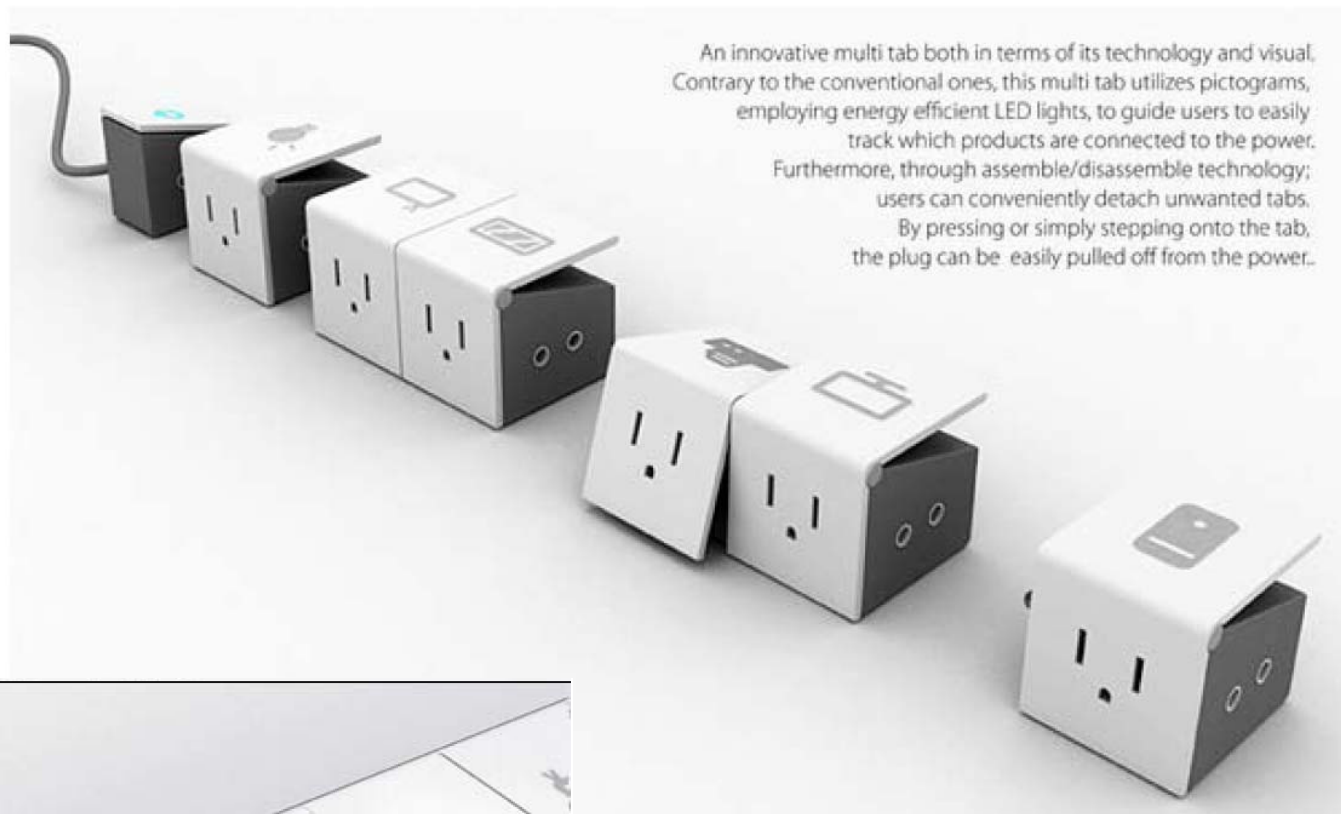
Sticker type



The multi tap is designed to have affection and understanding for the users. People could put a sticker on the taps and build the collection of multi taps according to their own need and taste.

Explanation





An innovative multi tab both in terms of its technology and visual. Contrary to the conventional ones, this multi tab utilizes pictograms, employing energy efficient LED lights, to guide users to easily track which products are connected to the power. Furthermore, through assemble/disassemble technology; users can conveniently detach unwanted tabs. By pressing or simply stepping onto the tab, the plug can be easily pulled off from the power.

attach to the Sticker.



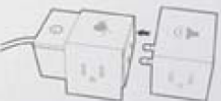
push



Put out



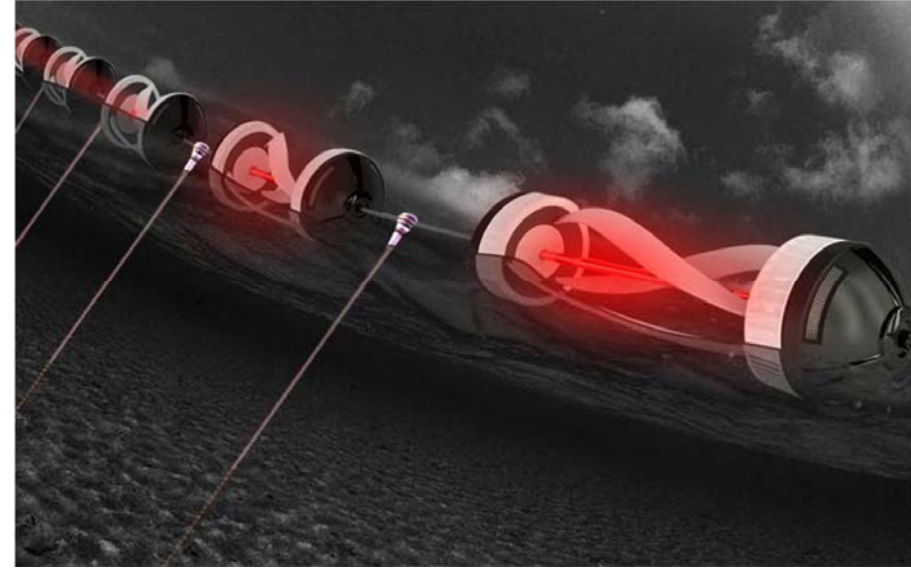
Assemble





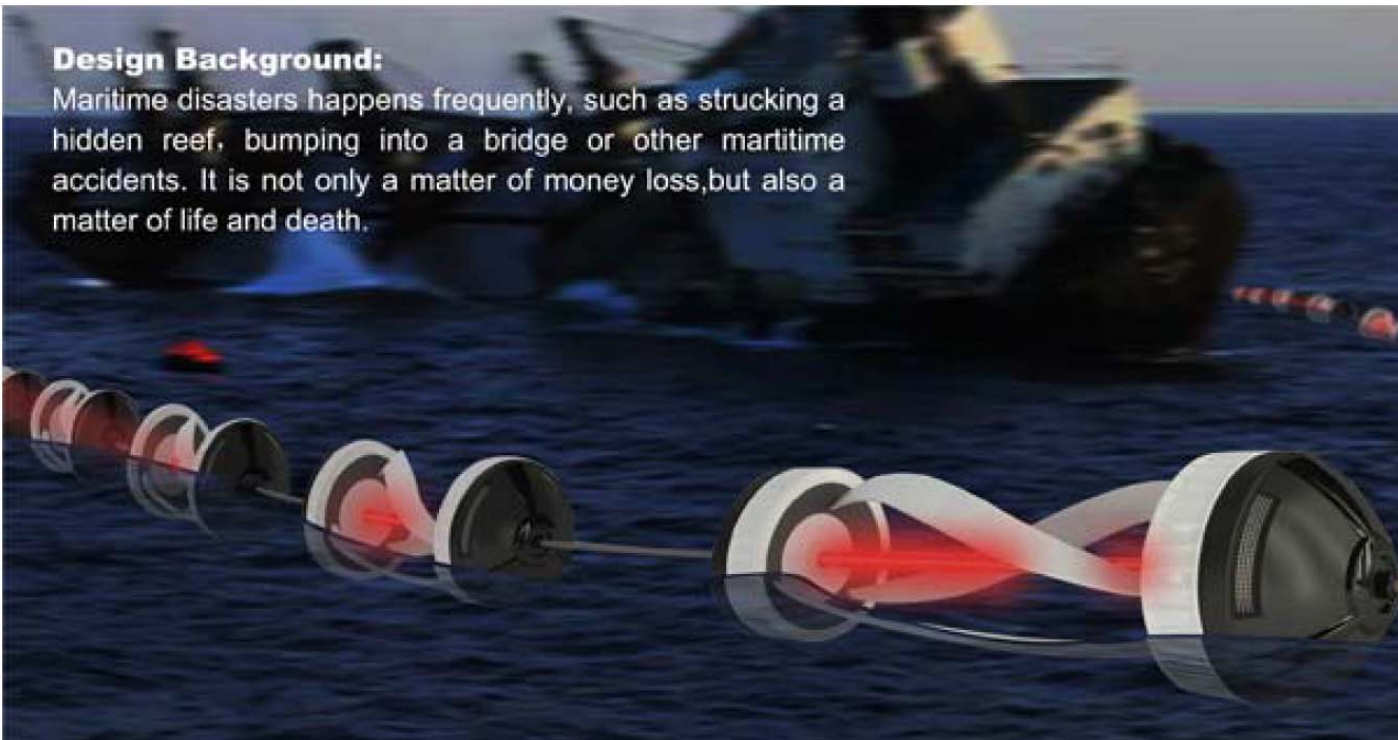
Wavelight

—Emergency Lighting Device



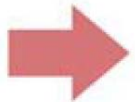
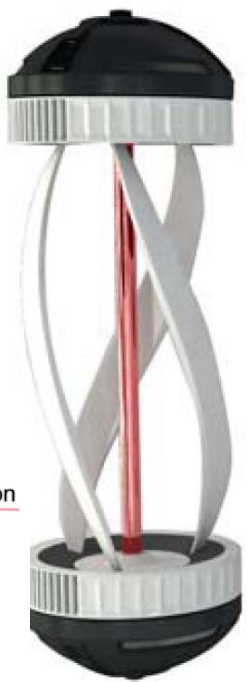
Design Background:

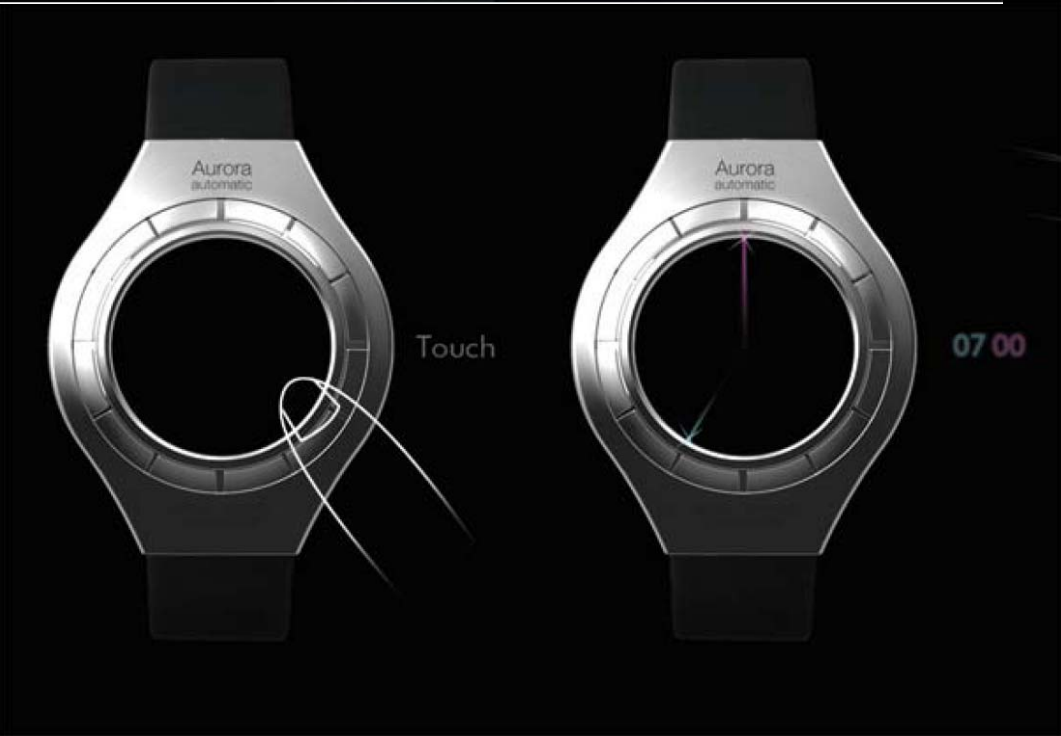
Maritime disasters happens frequently, such as striking a hidden reef, bumping into a bridge or other maritime accidents. It is not only a matter of money loss, but also a matter of life and death.



Assembly

Exploded view

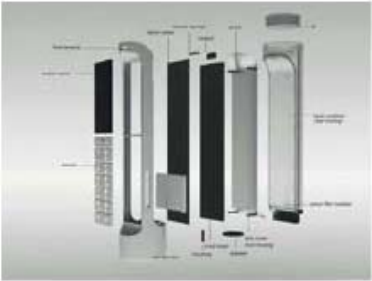






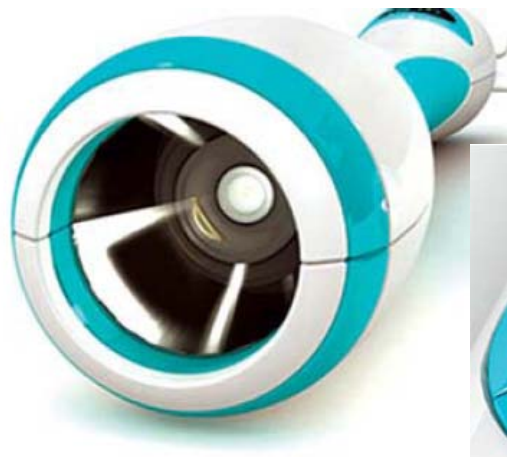
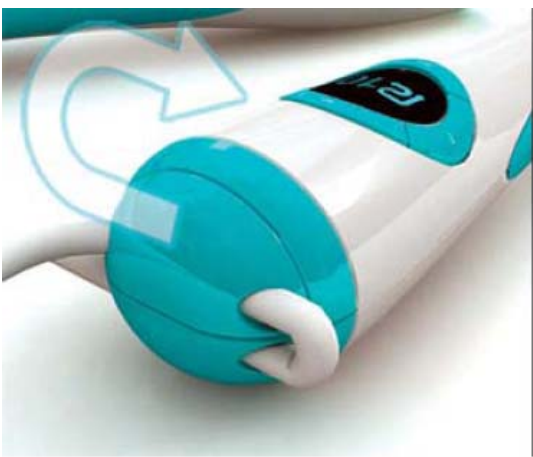
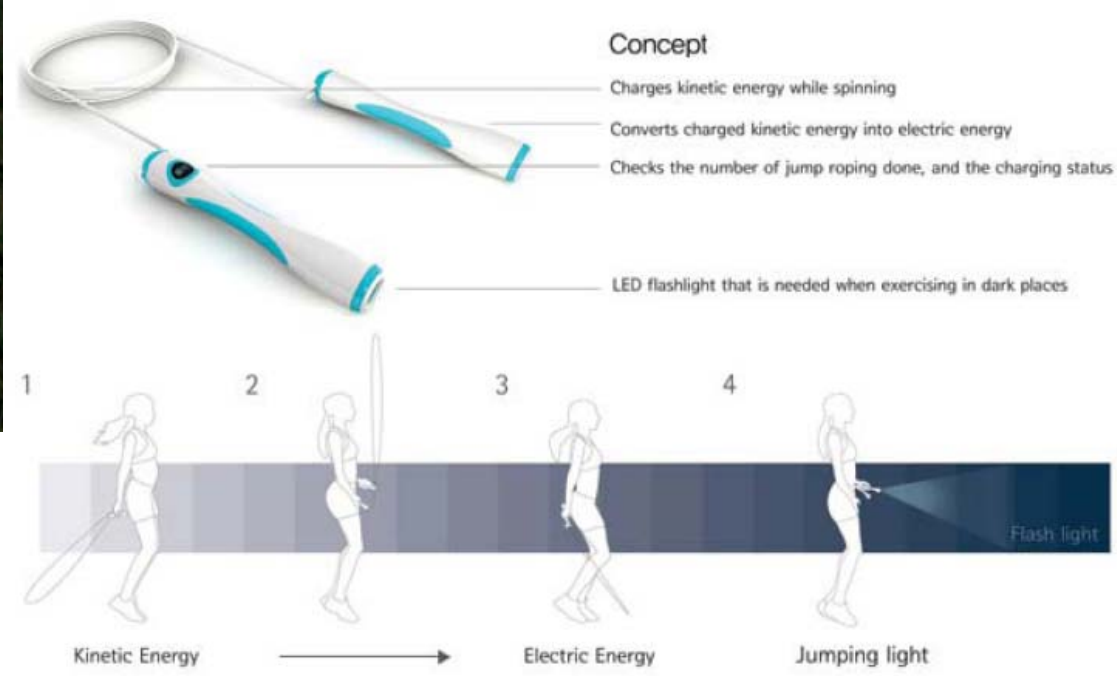


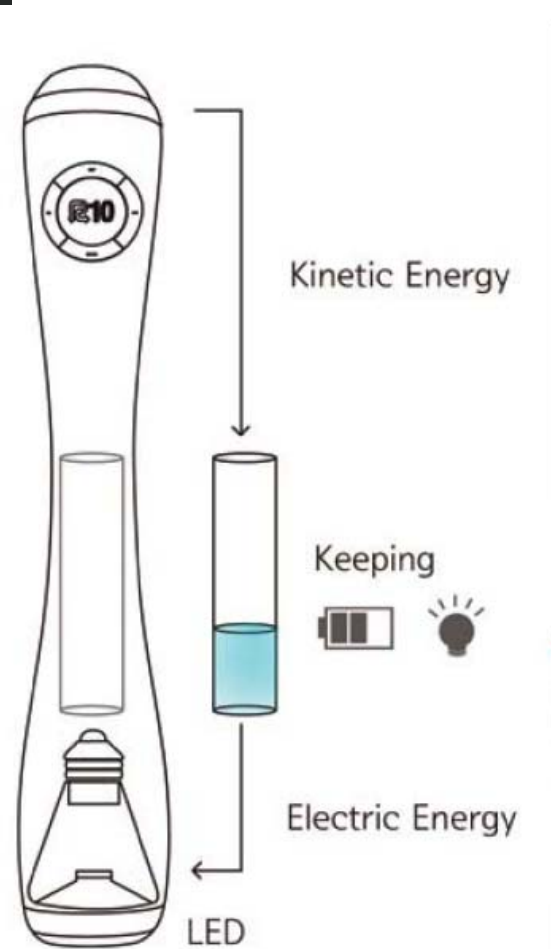
WHAT ARE YOU HAVING TODAY,
MY PHONE?





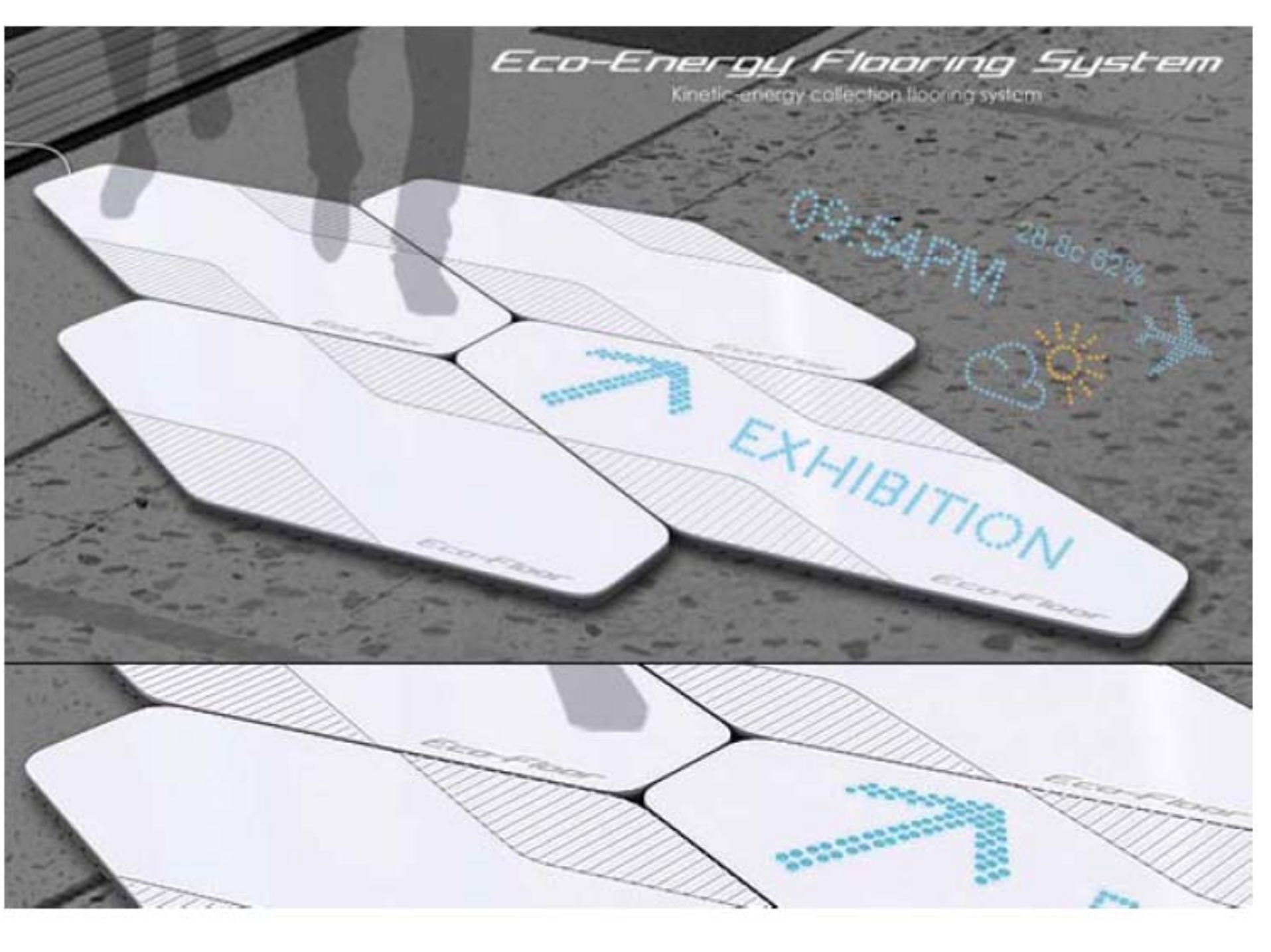
Recycle your energy! Don't throw it away!
 Joyful jumping that makes your body and the nature happy





Eco-Energy Flooring System

Kinetic energy collection flooring system



HOW?

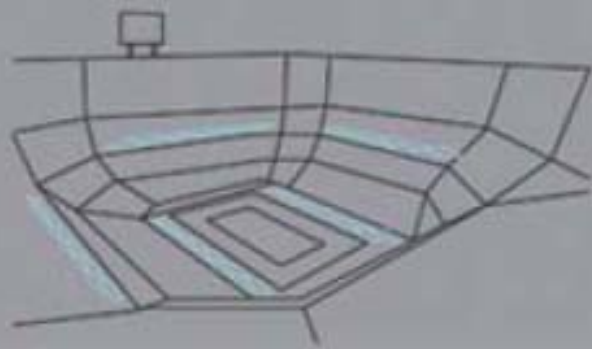
"Crystal blocks on being pressurized to produce small electrical current, a process known as piezoelectricity generation,"
by scientist, Carolus Linnaeus and Franz Aepinus in mid-18th century.



As bodies of people move up and down by walking, the piezoelectric blocks are squeezed, current is charged and stored in the paper battery system.

The batteries are constantly recharged by the movement pedestrians, and used to power parts of the LEDs illumination.

Eco-Energy Flooring System is employed to collect electricity powered from crowds in city. The piezoelectric technologies embedded in the design are for power conversion and storage of DC electricity. The low-energy consumption could be for instance lighting up LEDs illumination for displaying public/commercial information, signage or offering the interactive platform to people to achieve for any other purpose. Such flooring system could be for common areas and pathways in buildings, exhibition areas, shopping mall, etc.

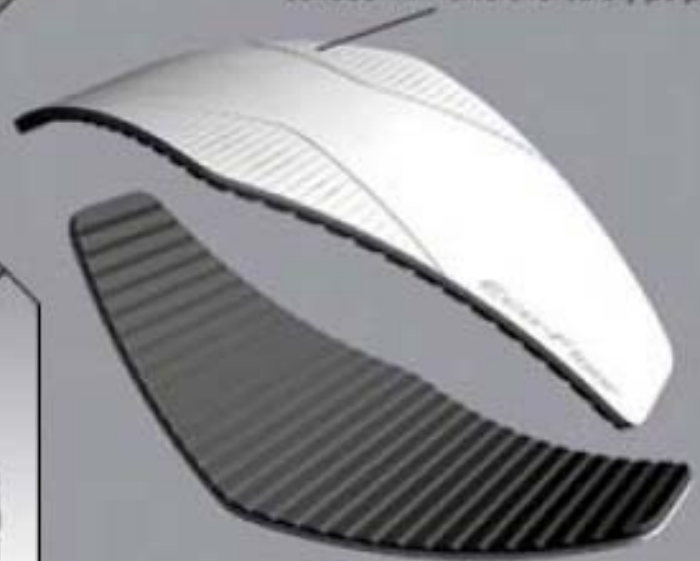


The escape way reminder when this is an emergency.

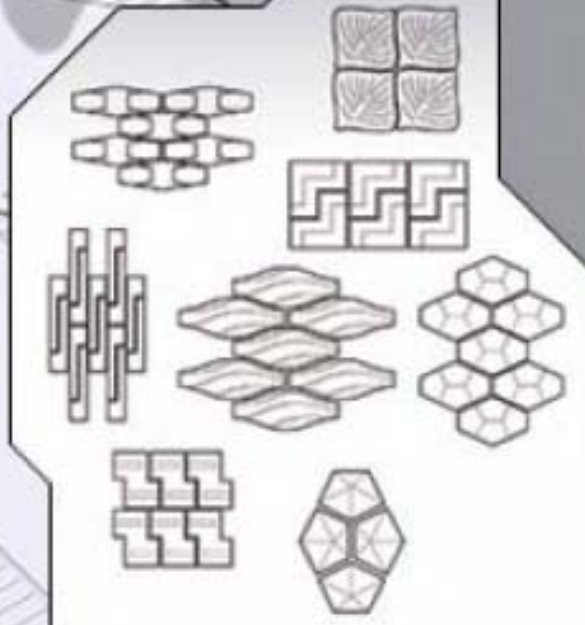


Saved DC electricity can contribute to display the venue of event, schedules and information by LED lighting. And, shared the energy consumption to achieve for any other purpose. (E.g. Lighting, safety light).

Surface with texture for safety purpose.



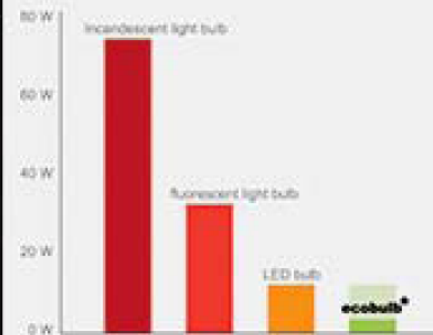
The softness should be able to accommodate the flatness and therefore the safety.



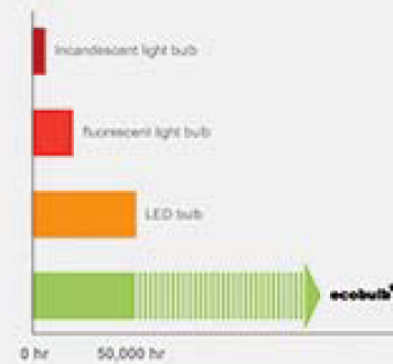
The floor board can develop into many shapes in future. Variation in patterns gave the flexibility to designers who may specify building materials.



"Night light" for safety. It may be for the decorative mood-light in theatre/cinema.



power consumption

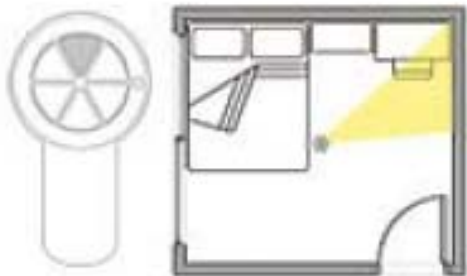


lamp life span

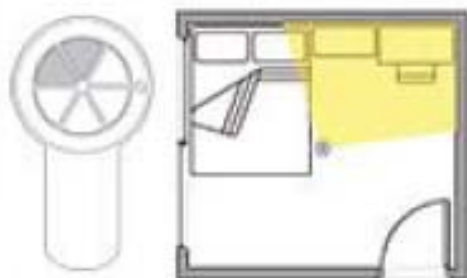


0. Set the Light direction & number
(w/o remote controller)

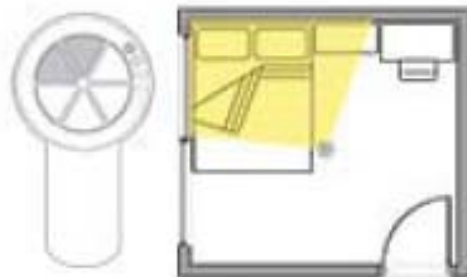




1. Turn on the light parts



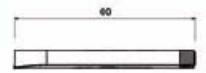
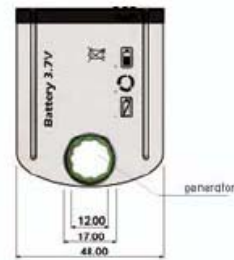
2. Expand the range of bright area



3. Set the right direction of the light







- 📶 standby status ▷ 25 minute
- 📞 cell phone used ▷ 2 minute

$$e = N = \frac{\Delta\Phi}{\Delta t} = 1 \times \frac{Bl\omega\Delta t}{\Delta t} = Bl\omega \text{ [V]}$$

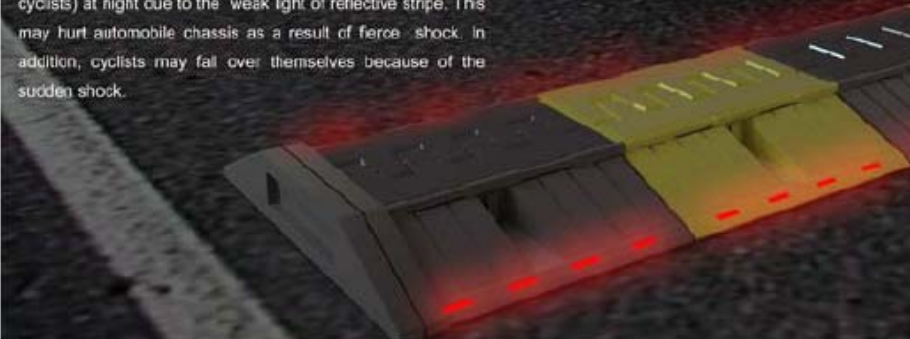
$$e = Bl\omega \sin\theta \text{ [V]}$$

- voltage ▷ 4.2V or 6.0V
- Electric current ▷ Max.1300+56mA

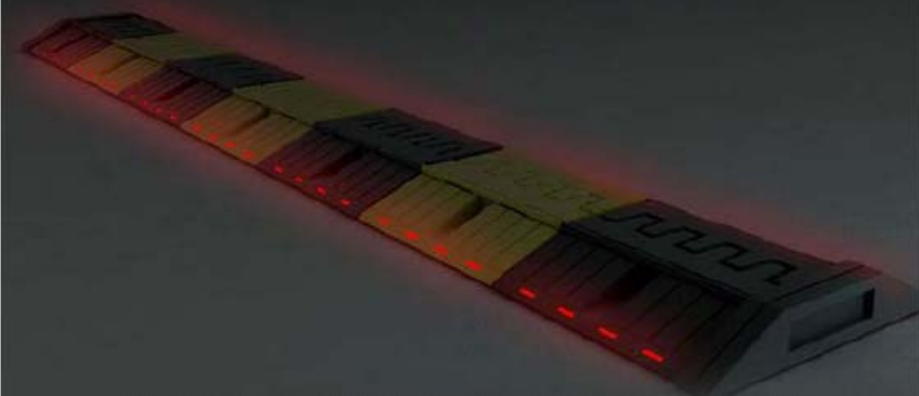
Safe Hump

"Safe hump" converts mechanical energy into electric energy, which enlightens the LED inside the hump. This warns drivers slow down and pay attention to road safety. Moreover, shock absorption of the structure is able to reduce concussion of automobile chassis.

Road humps can not be noticed easily by drivers (especially cyclists) at night due to the weak light of reflective stripe. This may hurt automobile chassis as a result of fierce shock. In addition, cyclists may fall over themselves because of the sudden shock.



NIGHT

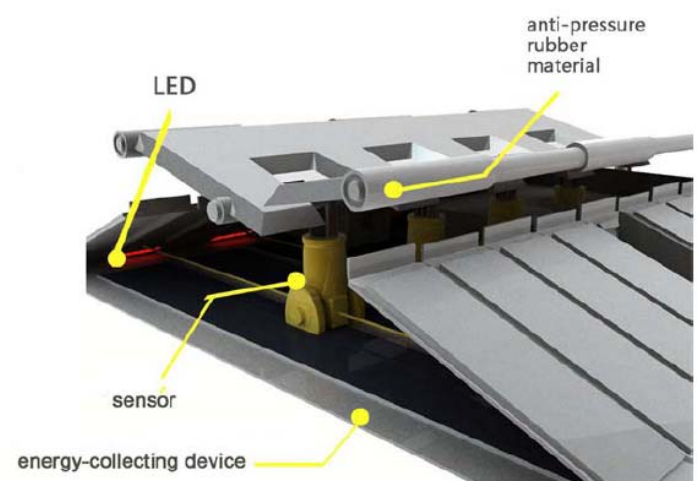


We are trying to utilize the huge energy that we always ignored, in order to reduce traffic accident and thus improve road safety.

DAY



Numerous vehicles run over road humps every day, every hour, every minute. Safe hump converts mechanical energy into electric energy, which enlightens the LED inside the hump at night.





SECRET OF LIGHT

The SECRET OF LIGHT is a lighting system, that mimicks the popular real-life action of blowing onto the dandelion flower. The ways of blowing to turn off and shaking to turn on remain us of the natural emotion, as well as new fresh use experience.



SHAKE TO TURN ON



BLOW TO TURN OFF





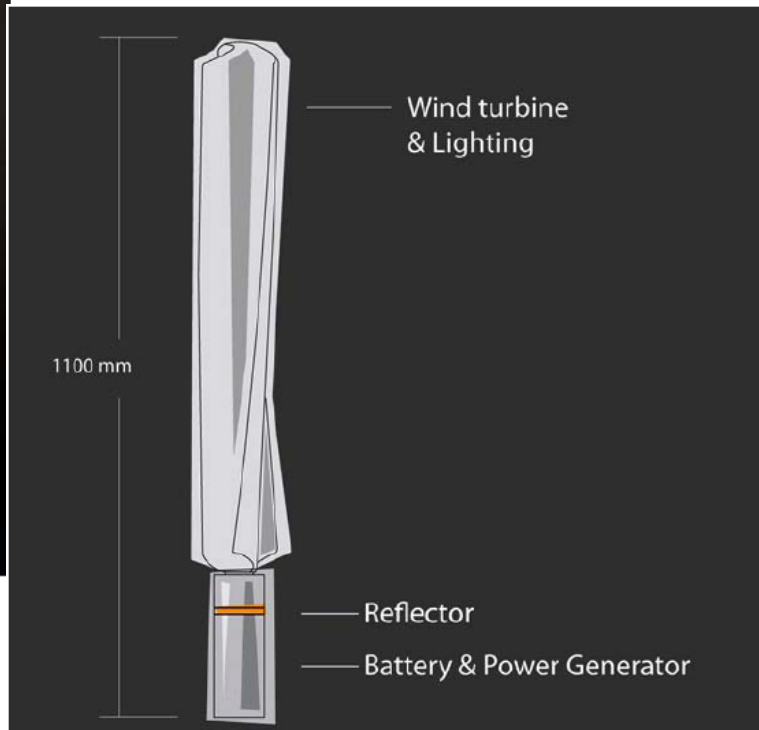
Benefit number one

Wind generated electricity created by auto traffic



Benefit number two

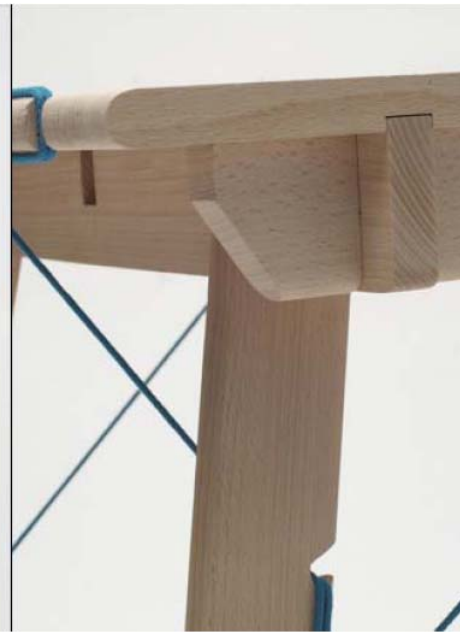
Road lighting that lights your path











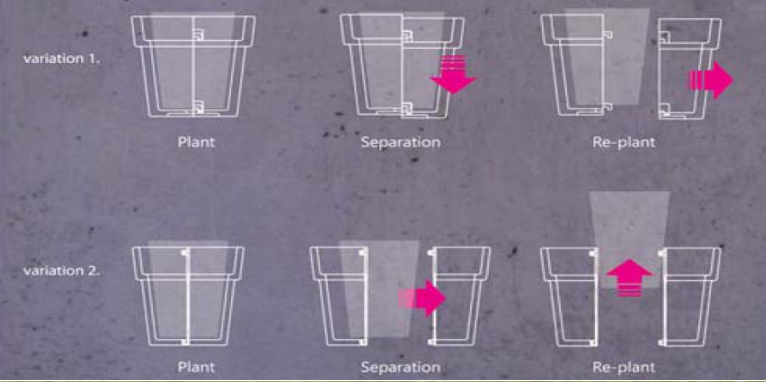




Re_Flowerpot

easy, fast

"transplantation of flower" means moving either potted plants or trees to another flowerpot. the principle of attachment and detachment make it easy to move the potted plants to the another .



- Entonces...
- De donde salen las ideas?
- Cómo se convierten en productos?
- Existen programas orientados a asistir este proceso?
- Cómo deben evolucionar estos programas para adaptarse a un ritmo de transformación muy acelerado?

Respuesta:

- Computer Aided Innovation
- Esta disciplina se deriva de la transformación del enfoque de la teoría TRIZ en herramientas informáticas.
- TRIZ es el acrónimo ruso de la teoría de resolución de problemas inventivos o de innovación [UV TRIZ 2.ppt](#)