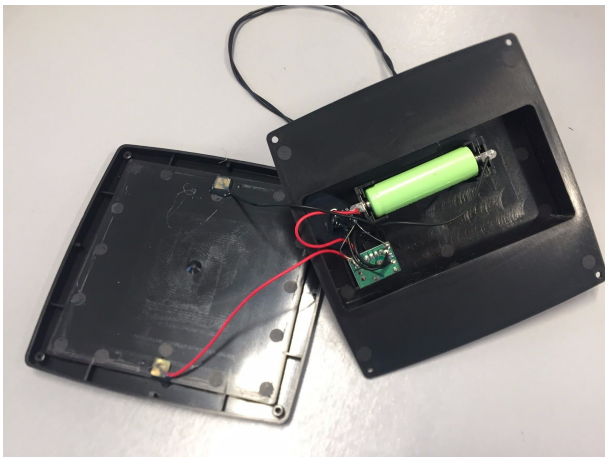
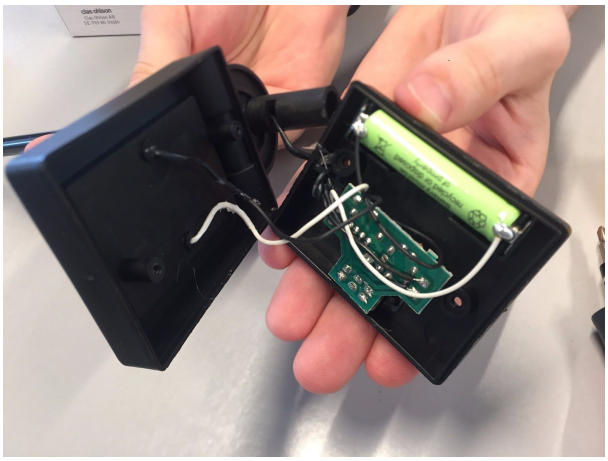
Name: Solar-Powered LED Lights

Technical name or model: Solar Garden Light 36-7001 (Clas Ohlson), Solar String Light 36-6974 (Clas Ohlson)

Pictures:


clas ohlson
36-7001 ZK7040
1x1.2V AAA/HR03
Ni-MH battery
300mAh
Made in China
© Clas Ohlson AB
S-793 85 Insjön
B/N:19041164218





Technical instructions:

For Solar Garden Light 36-7001:

To set it up as intended by the manufacturer, one needs to assemble the individual parts - the glass bulb, the rod with the light and the solar panel, the extension rod (optional), the rod with the pointy end for insertion in the ground. The rods and the bulb can be assembled by "screwing" them into each other. The end with the LED light goes inside the glass bulb. To secure it and make it stand upright, the assembled

construction can be partly pushed to the ground with the pointy part first, opposite to the end that has the LED light.

To turn the device on, one needs to shift the button located on the underside of the solar panel part from "OFF" to either "RGB" for colourful lights or "W" for warm white light. This can be done by moving the switch to the sides. The device will then begin the solar charging process in case of a sufficient amount of light.

When there is not enough light for additional charging and if the device's solar battery already has some power in it, the light will turn on.

For Solar String Light 36-6974:

To set it up as intended by the manufacturer, one needs to make sure the solar panel is connected to the string of lights. This can be done by connecting the plugs of the string and the panel. To turn the device on, one needs to shift the button on the underside of the solar panel part from "OFF" to "ON".

If the solar battery is sufficiently charged (it has received light beforehand) and the environment is dark, the string of lights will turn on.

If it is bright, the device will begin charging using the solar panel.

The solar panel can be attached to a stationary object using the screws provided with the item. The string of lights can be hung up as desired.

Exploration:

We explored the lights in a variety of ways:

- Covering the solar panel with a hand to turn on the lights in a bright environment where they would be turned off otherwise;
- Pushing the solar panel against the body to cover it to turn on the lights;
- Shining light on the solar panel to turn off the lights in a dark environment where they would be turned on otherwise;
- Decorating the glass bulb and spinning it on a rod to create visual effects;

- Taking the plastic bulb covers off, shaping the coils manually, plucking and twisting and jiggling the coil -> very fun and playful vibrating effect
- Look through the coloured bulbs to see the world with a distorted vision (bulb eyes)
- Leaving the lights on in a completely dark room to empty out the battery (it took about 10 hours)

The goal of the project was to find a unique way of interacting with solar powered lights. We realized that the lights, which were only supposed to turn on in the dark according to the manufacturer's use case, could also be artificially triggered by covering up the solar panel in a bright environment. This became the base idea for the rest of our project.

Next we discussed in what way a solar panel could be covered. The most obvious solution was to cover the panel with someone's hand. Other ideas were covering the panel with some sort of opaque material. Focusing on the 'interactive' goal of this project, we settled on the idea that the panel could be covered by hugging either a comfortable padding (e.g. a pillow), or another person wearing a specialized piece of clothing.

With our idea fleshed out, we decided to repurpose an old shirt. First, we sewed a small pocket in the middle of the shirt to hold the solar panel on the stomach region. Then we poked holes in the backside of the shirt to push the light coils from the string lights through. Since we wanted the prototype to be soft and cuddly, we removed the metal bulb sockets from the coils. We attached the coils to the shirt using hot glue.

Things to take into account:

It's a bit tricky to unassemble the light string to its elementary particles without breaking the wires. The bulb sockets are attached to the electrical wiring very tightly with hot glue. After breaking one, we opted for using a heat gun to melt the glue and pull the coil out or the socket.

The LEDs themselves were also attached to the metal coil with glue. Therefore, occasionally, pulling the light coil out of the bulb socket also caused the LEDs to get removed, too. By extending the coil as much as possible before aiming the heat gun at it, we were able to keep the LED glue from melting and could avoid this problem.

They are connected serially, so if you break one, you break all the following. The ones before the broken one still seem to work, though. Fortunately, some basic soldering usually fixes the mistake.

This is very important: **the solar battery needs to be sufficiently full** for the LEDs to light up (at least when tampered with, so that they are not in their original manufactured state anymore)!! 0.5V is not enough to power the LEDs. We thought we had broken the lights when they did not turn on, but in fact, the battery just did not have enough power in it. This was due to a previous experiment that we conducted to see how long it would take for the battery to become completely empty. Also, natural solar light charges the battery better than artificial light.

Inspirational projects (links):

Bike light:
https://www.treehugger.com/slideshows/gadgets/make-solar-powered-bike-light-deodorant-stick/page/6/#slide-top

Light jar:
https://lifehacker.com/create-your-own-sun-jar-lifehacker-edition-5315357

Lantern:
https://insteading.com/blog/easy-upcycling-turn-old-chandelier-solar-lantern/

Charger:
https://www.instructables.com/id/DIY-Solar-Phone-Charger-5-Portable-100-Batter/

Night light:
https://www.treehugger.com/slideshows/clean-technology/make-steampunk-solar-night-light-10-steps/page/11/#slide-top

Survival light:
https://www.instructables.com/id/Indestructible-Solar-Light/

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