

# Experimentation 實驗

For the capacitors C1, C2, C3, you can experiment with different values to change the sounds.  
Also different power sources and voltages will give other sounds and rhythms.  
Feel free to randomly connect other components to various legs of the IC-chip, such as LEDs, capacitors, resistors, or whatever you find lying around.  
...and start a conversation with the sun!

對於電容器 C1、C2、C3，可以嘗試使用不同的值來改變聲音。不同的電源和電壓也會產生不同的聲音和節奏。可以隨意將其他組件連接到 IC 晶片的各個支路，例如 LED、電容器、電阻器或 找到的任何東西。

……開始與太陽對話！

# โซลาร์ซังค์

designed in Thailand  
by dusjagr b.e. 2568

MARC DUSSAILLER

## Credits 致謝

This circuit is a modified version of the StarvationSynth originally developed by Ralf Schreiber and Uwe Schüler. The current version was specifically developed by Marc Dusseiller (dusjagr) to support the exhibition "1,540,000nm DSSC" by Shih Wei-Chieh at FabCafe Tokyo. Later redesigned for easy beginner DIY electronics workshops in Chiang Mai and Taipei. Layout, design and translation of this brochure was codesigned with Zooey Hsieh. This version was developed for a workshop at digilog.tw Feb 2025.

This project is open hardware - feel free to modify and share!

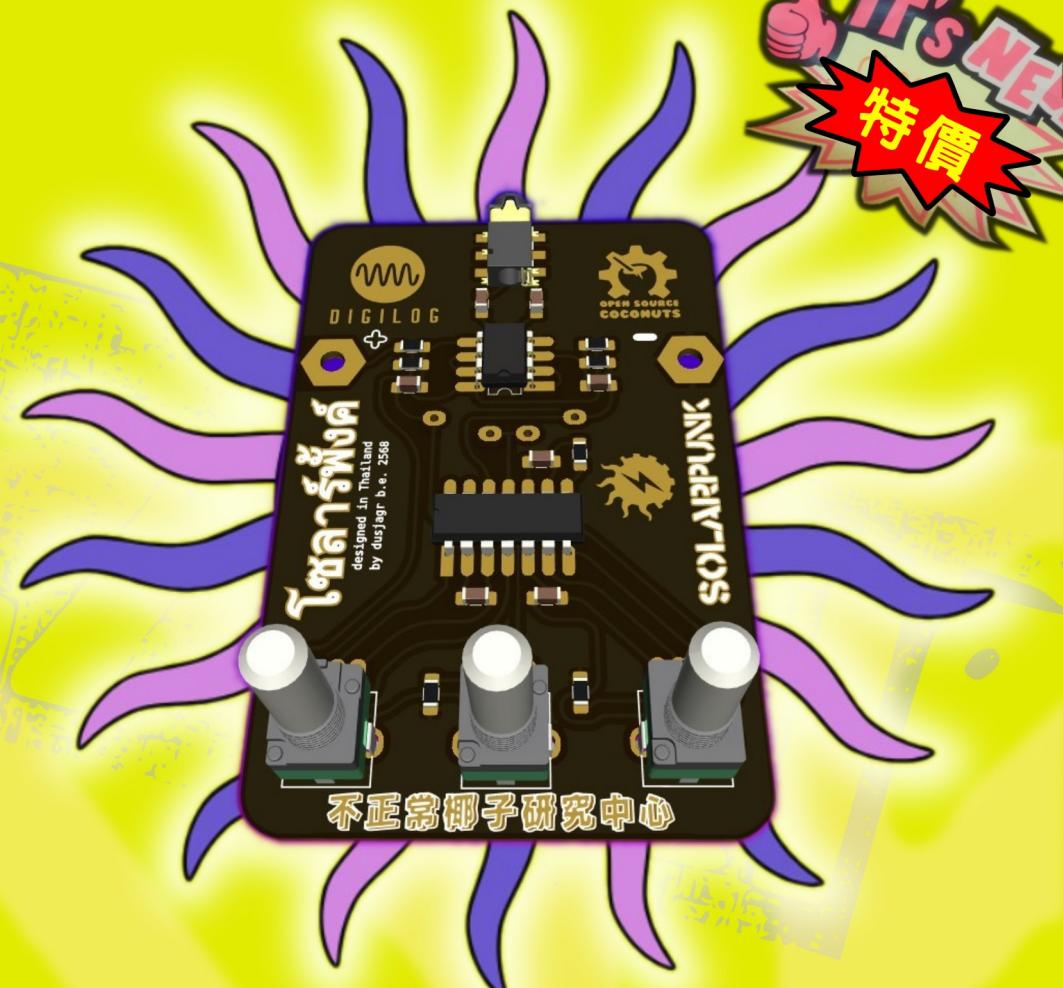
<https://www.hackteria.org/wiki/SolarpunkSynth>  
<https://github.com/dusjagr/SolarpunkSynth>



@dusjagr



# DIY SOLARPUNKSYNTH



# SOLARPUNK

# 太陽能合成器工作坊

## Component list 組件列表

Best to solder the components in the following order.  
Small components first, big ones last.

最好按照以下順序焊接元件。  
先處理小部件,最後處理大部件。

- 0 2 x R1, R6, R7: 10kOhm (103)
- 0 4 x R2 - R5: 1 MOhm (105)
- 0 3 x C1 - C3: 1-10 uF
- 0 2 x C4, C5: 10 uF
- 0 2 x C6, C7: 100 nF
- 0 3 x Pot-RV: 100k
- 0 1 x U1: 74HC14 (with socket)
- 0 1 x U2: MCP6002 (with socket)
- 0 1 x 3.5mm Audio-Jack
- 0 2 x Piezo for extra weird  
(add with cables)

A solar-powered synthesizer that creates experimental sounds, rhythmic patterns, and beats using minimal energy from the sun! This project embodies the spirit of solarpunk by combining sustainable energy with creative expression.

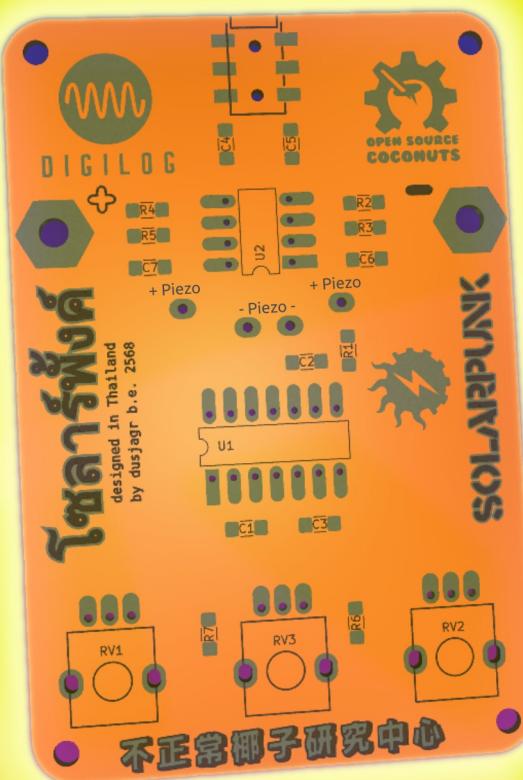
太陽能合成器利用來自太陽的最少能量產生實驗性聲音、節奏模式和節拍!該項目將永續能源與創造性表達相結合,體現了太陽朋克精神。

The SolarpunkSynth is an ultra-low power consumption synthesizer that can be powered by:

- \* Silicon solar cells
- \* DIY DSSC (Dye-sensitized solar cells)
- \* Alternative power sources (mud batteries, potato power, coconut energy)
- \* Nearly depleted batteries (due to extremely low power requirements)

SolarpunkSynth 是一款超低功耗合成器,可由以下設備供電:

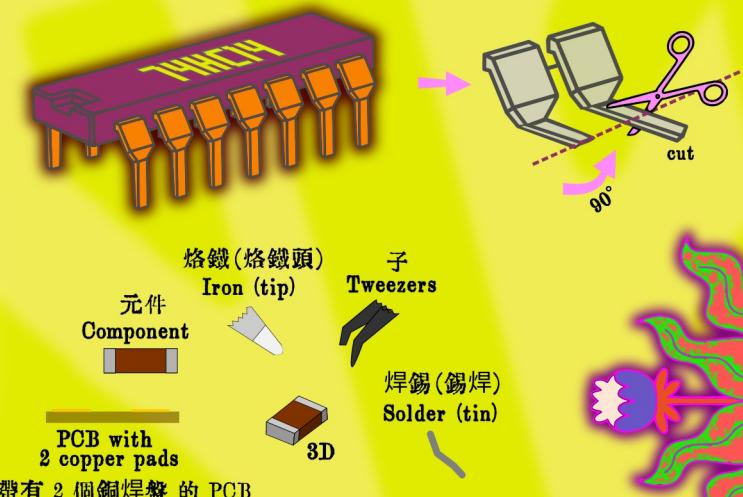
- \* 矽太陽能電池
- \* DIY DSSC(染料敏化太陽能電池)
- \* 替代能源(泥漿電池、馬鈴薯能源、椰子能源)
- \* 電池幾乎耗盡(由於功率需求極低)



## Soldering the IC-chip

Bend the legs 90° and cut to ca 2mm. Put solder on one corner first only. IC-Chip as DIRECTION, check the little notch at the end. Check position of IC-chip, heat and move if needed. Now solder all the other legs. Always touch the copper AND the pin with the tip of the soldering iron, so all is heated.

將腿彎曲 90° 並切割至約 2 毫米。先將焊錫只放在一個角落。  
將IC晶片作為方向,檢查末端的小凹口檢查IC晶片的位置,  
如有必要,請加熱並移動。  
將現在焊接所有其他的腳。始終接觸銅和針用烙鐵頭加熱,  
使全部部分加熱。



## 如何焊接SMD元件

在空的焊點上放一滴焊錫,  
並持續讓焊頭接觸銅箔。  
可以把元件放在旁邊準備好。

用 子 住元件,輕輕將它移動到  
靠近焊點的位置,同時加熱焊錫。  
用讓焊錫熔化並流向元件邊緣。

持續固定元件,接著移開烙鐵頭,  
等待焊錫凝固。我 需要確認元  
件在正確的位置上,如果失敗了,  
可以繼續加熱焊錫來調整位置。

現在元件已經固定好了,將烙鐵頭  
放到另一側,開始加熱焊盤和元件  
側面,然後添加焊錫。檢查焊錫是  
否順利流動並覆蓋焊盤和元件的  
側邊。

完成,太棒了!  
成功焊接了SMD元件。仔細檢  
查所有元件是否正常,若有需要,  
可以再做調整。

## How to solder SMD

1. Put a drop solder on one on the empty pads.  
Always touch the copper with the tip.  
(u can leave the component on the side somewhere)



2. Grab the component with the tweezers, slide on the board  
towards the pad. While heating the solder.  
Check how the liquid solder melts and  
flows to the side of component



3. Still hold the component in place and remove the tip.  
Wait and see how the solder solidifies. Check position of  
component.  
You can always hold and heat this one side again to move  
until good.  
Check if the solder nicely covers the pad and the component.



4. Now the component already holds in place.  
Come to other side with tip.  
Heat the pad AND the side of component and add solder.  
Check that the liquid solder nicely flows  
over the pad and the side.



5. You are done!  
Great work soldering SMD component.  
Check by eye if everything looks ok.  
Fix stuff if needed.

