Shadow light sound generator

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Interface Design

Werkmodul :
Printed Electronics Inkjet: Button Up!

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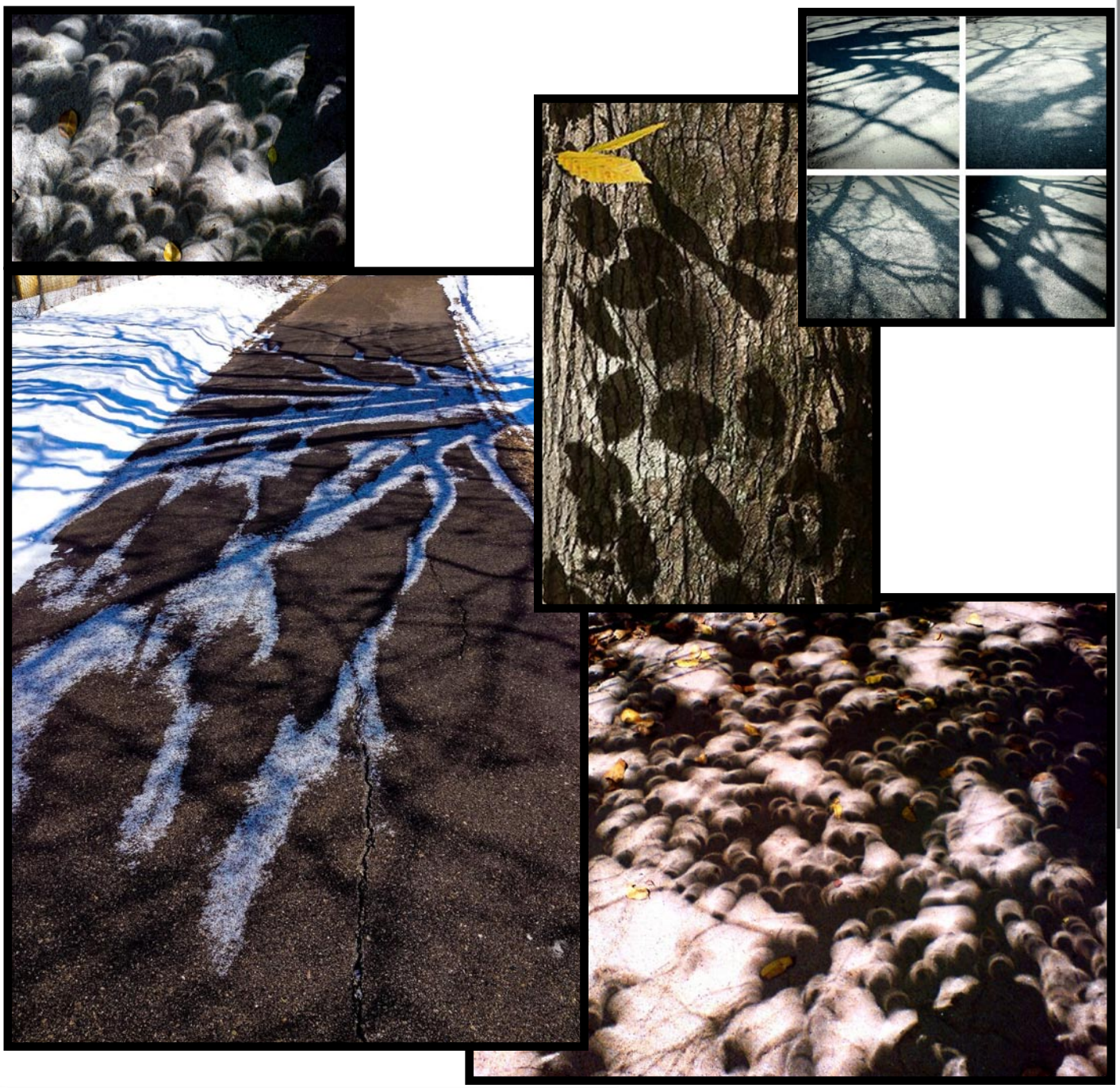
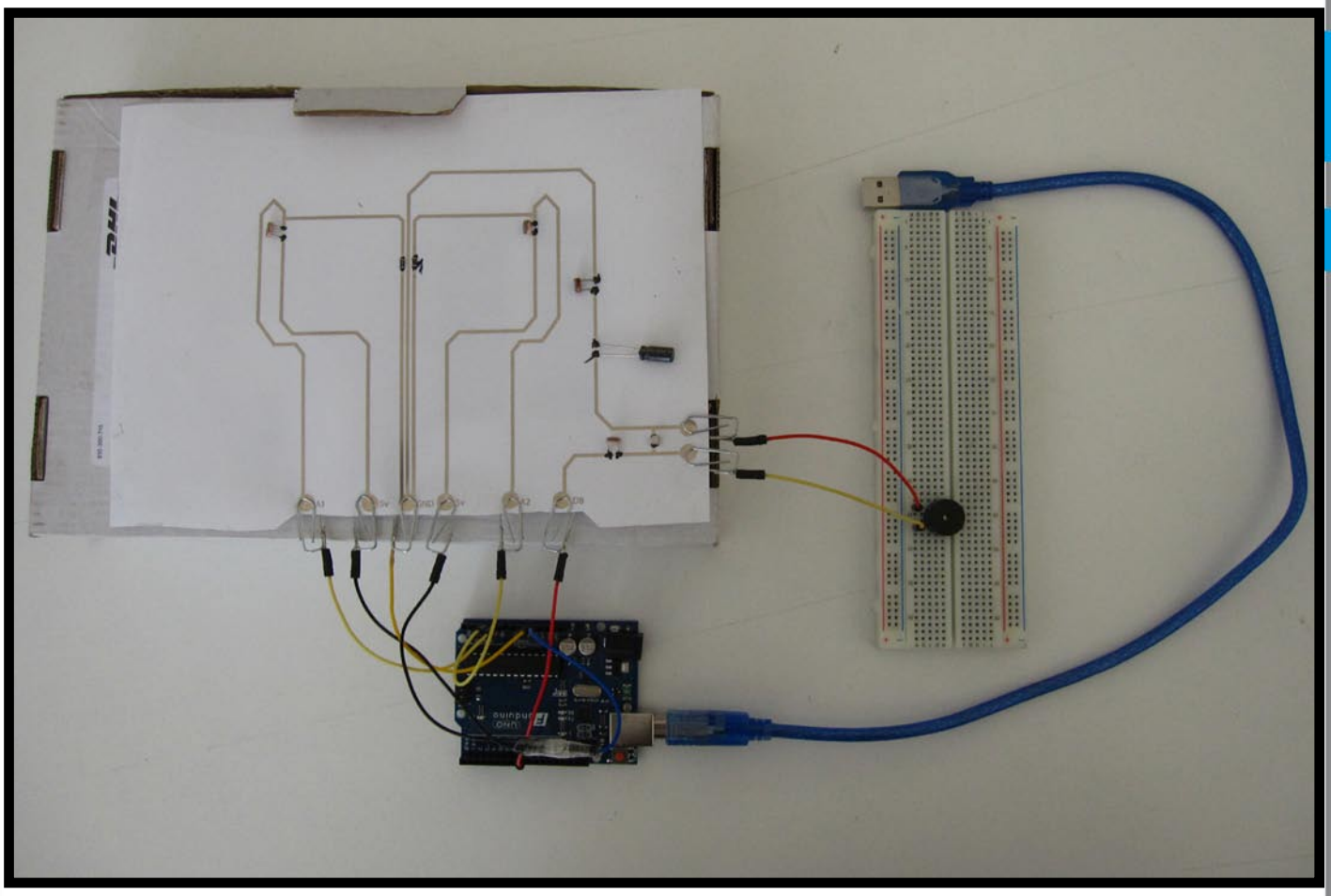
Approach

-organic pattern
-generated through nature
-wind and sun, light and shadow, plants and trees,
leafs and sticks
-translate the oranig visual pattern in a synthetic audio pattern
-use organic data like sun to controll a digital process



The Shadow-light-sound-generator



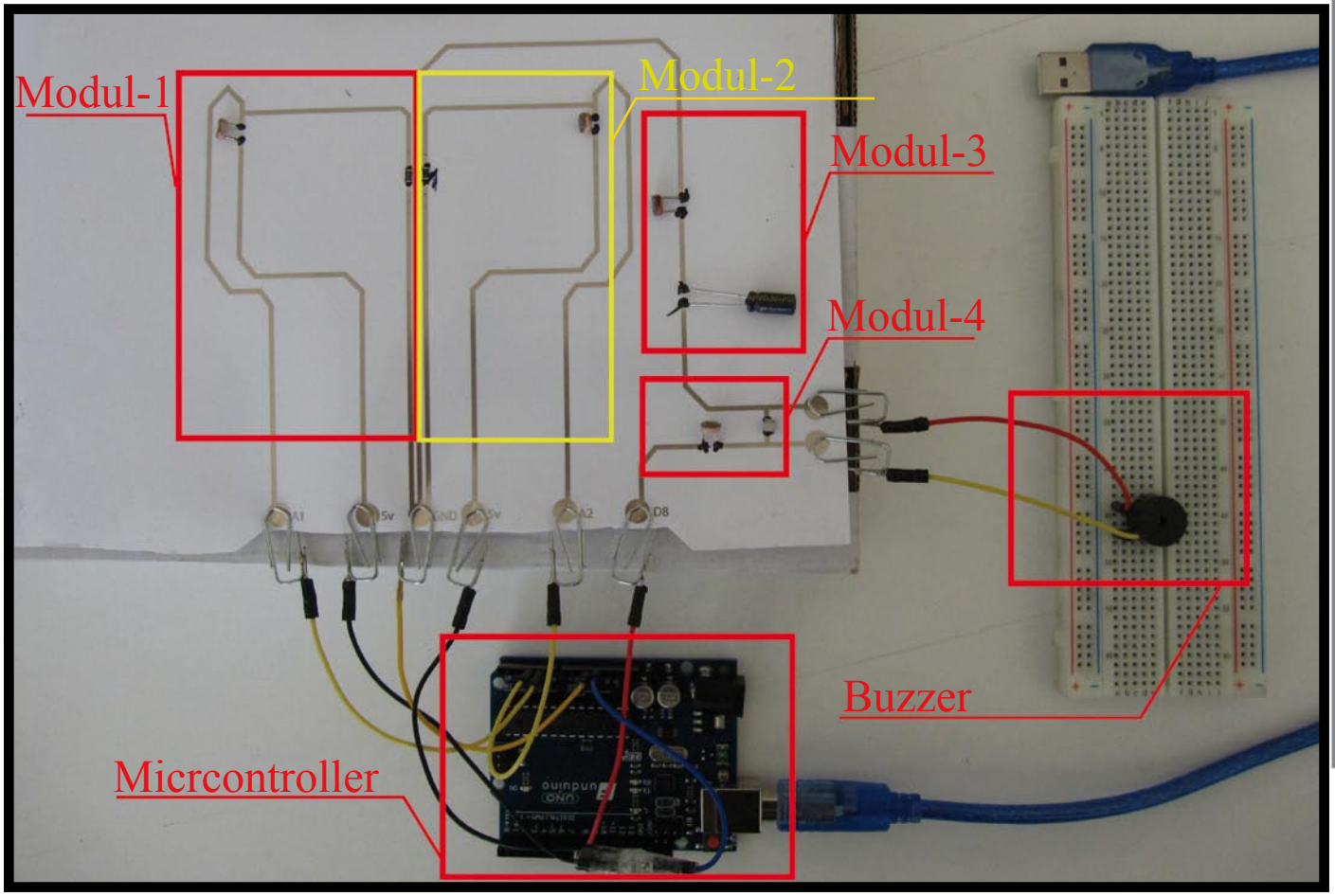
What is this?

- its a printet circuit with electronic components and
  a microcontroller
- use organic influences to controll digital dada
- the SLSG can work with sun to change some parameter in sound
- like pitch, volume, frequency of overtone and arpeggiator
- its a instrument for natur like trees, bees or water

Funktion

- the SLSG has 4 moduls to change sound
  through shadow and light

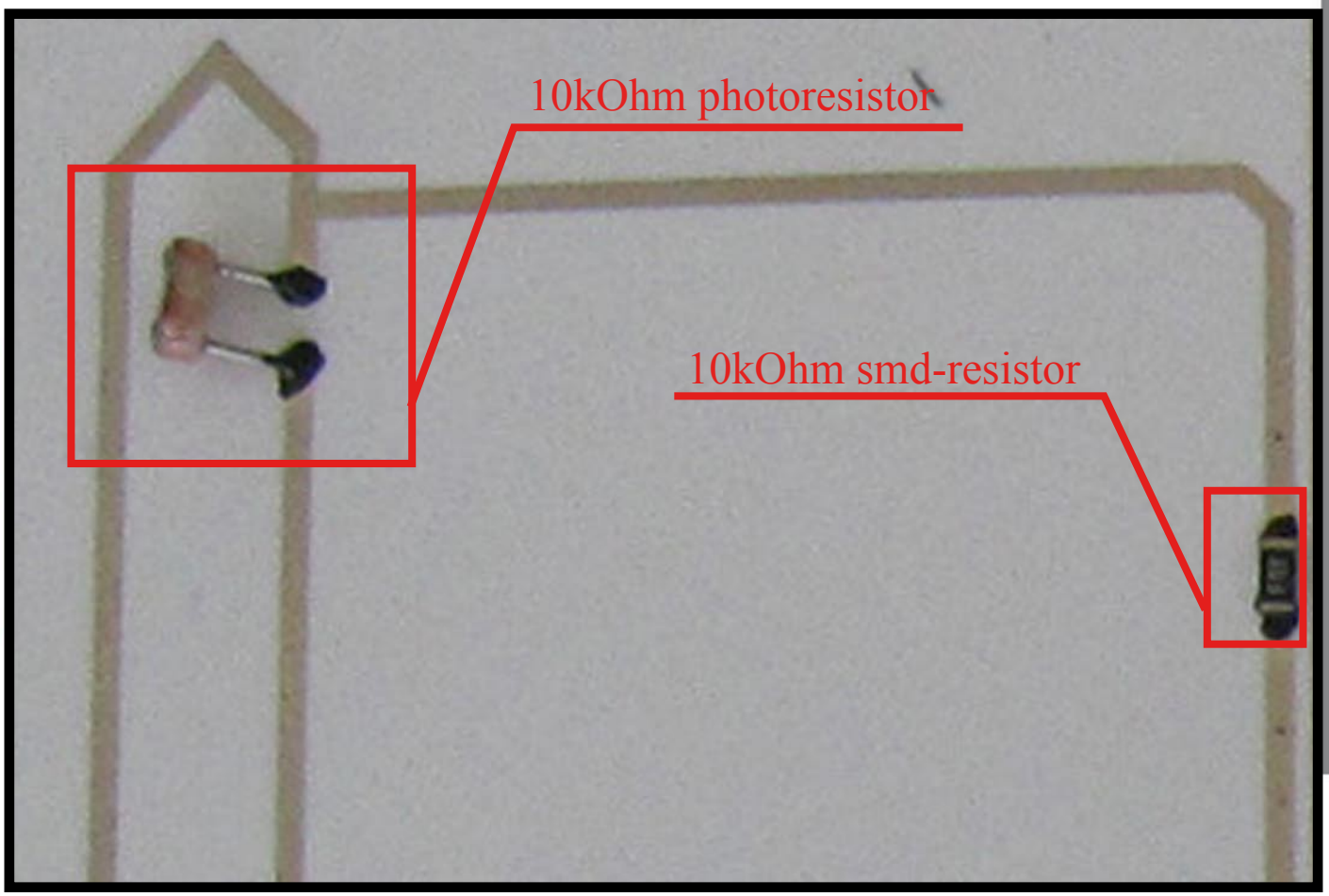
- modul 1 pitch controll
- modul 2 controll the length of arpeggiator
- modul 3 volume controll
- modul 4 passiv RC-filter, filtering the frequency of overtone



Modu-l
pitch controll

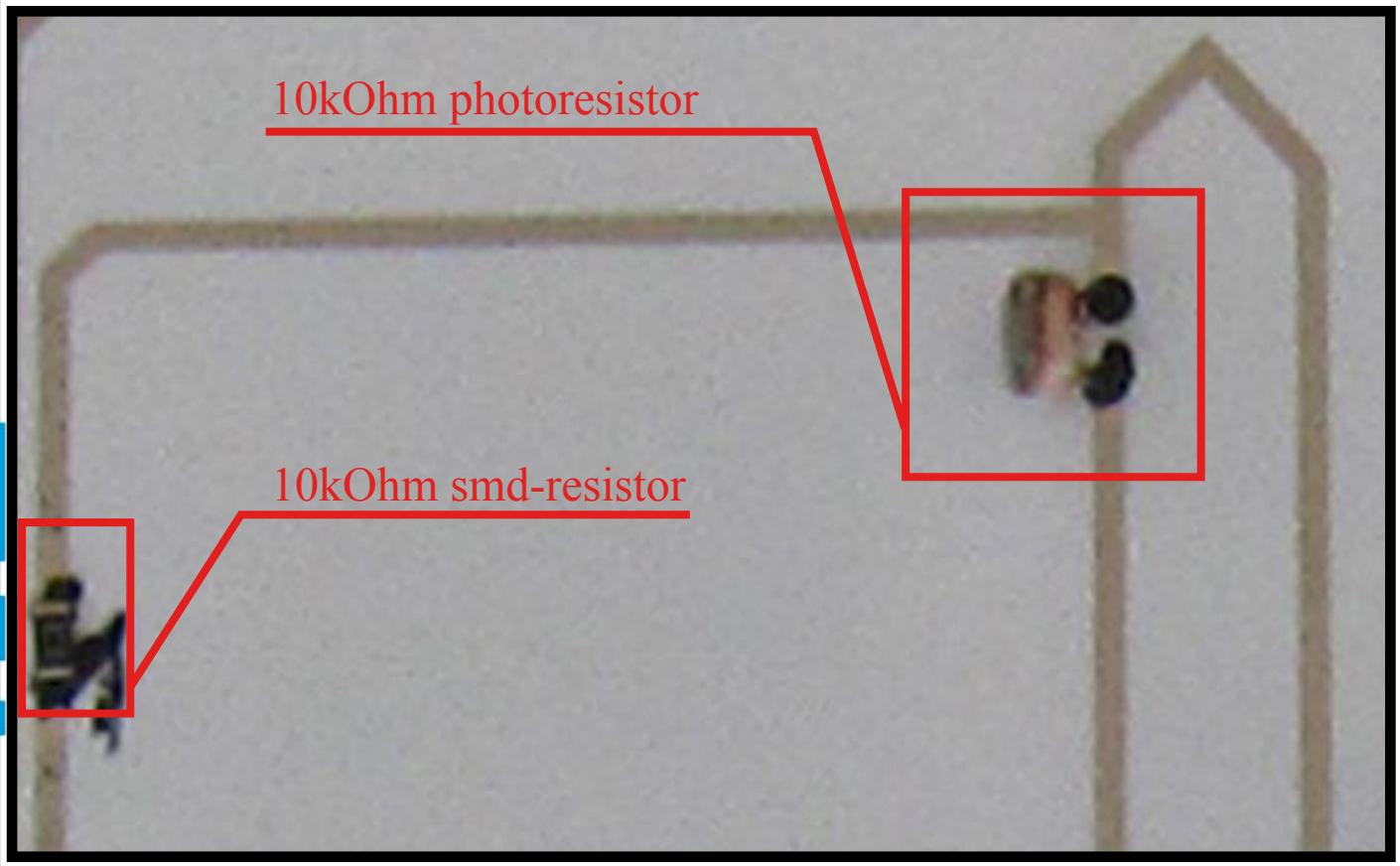
- use a 10kOhm photoresistor and a 10kOhm smd-resistor
  to genertae a digital data

- the micrcontroller read this data and change the pitch of the sound
- map the digital data (0 -1023 / ca. 10 bits) to the
  audio-range (0-16k hz)



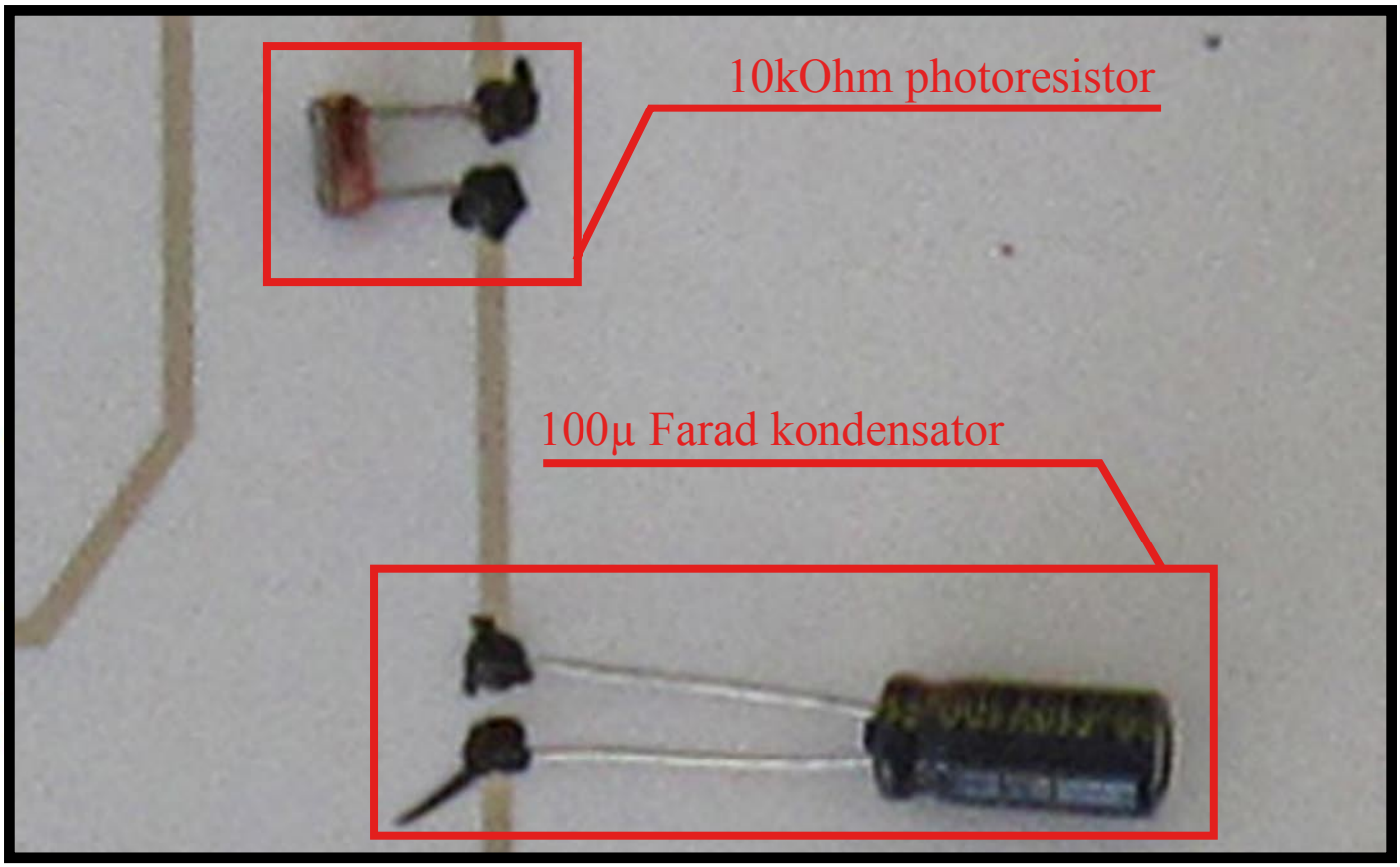
Modul-2
controll the length of arpeggiator

- it works on the same way like the pitch controll
- the data change the length of the arpeggiator
- by very short length (50 ms) till a long length (10000 ms)



Modul-3
volume controll

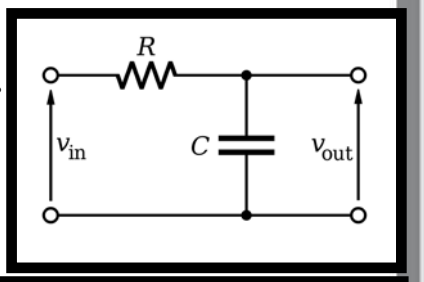
- this circuit is a 100µ Farad kondensator and a 10kOhm photoresistor
- the resistance of the photoresistor change the loutness of the sound
- its a pure analog circuit without digital data

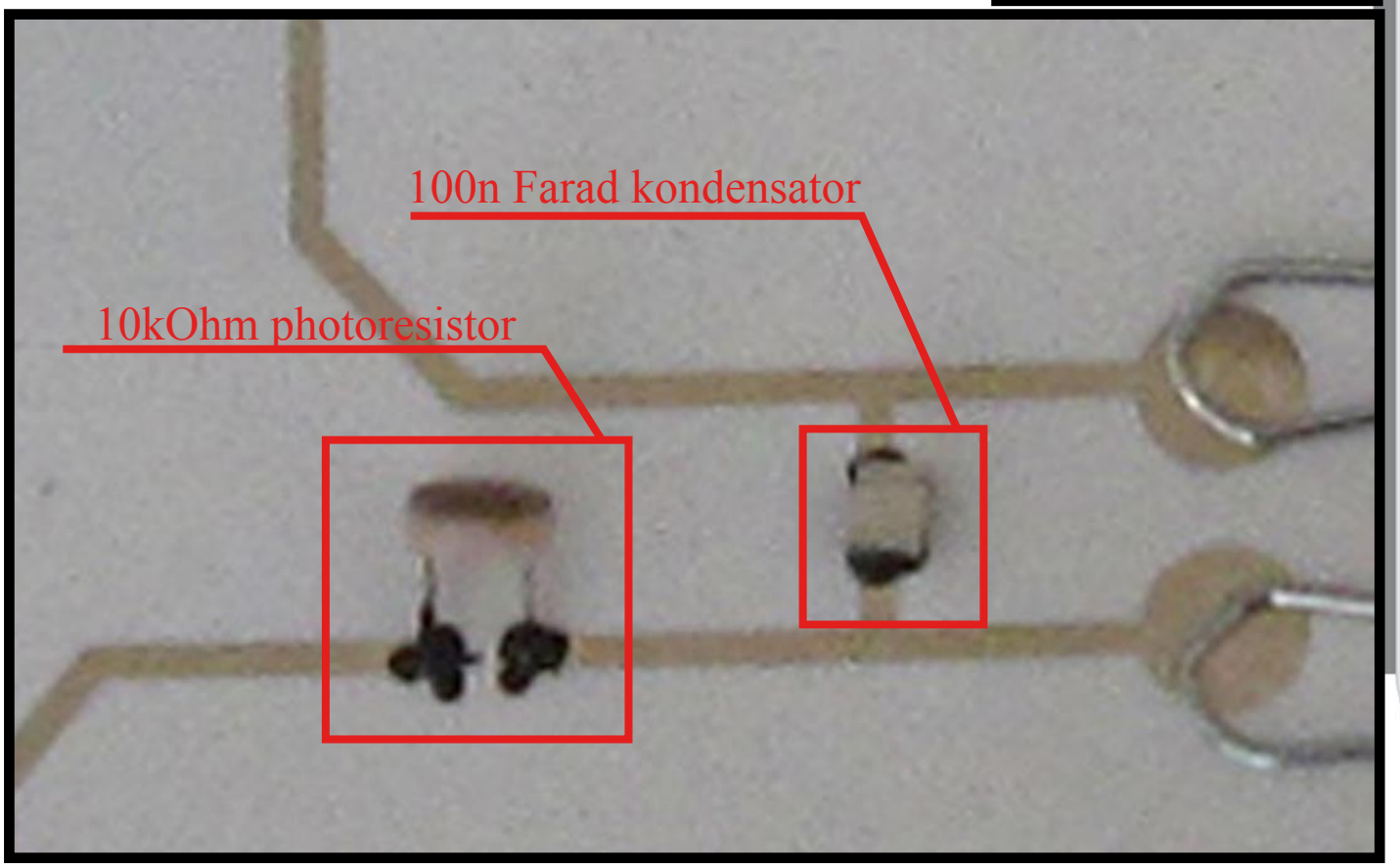


Modul-4
passive RC-filter, filtering the frequency of overtone

- the RC-filter is a analoge passive low-pass filter
- RC stands for „resistor-capacitor“
- he is filtering the low frequency of overtone by changing the light
  >>> not the frequency of pitch!!!!!!
- the filter works with a 100n Farad kondensator and a 10kOhm photoresistor

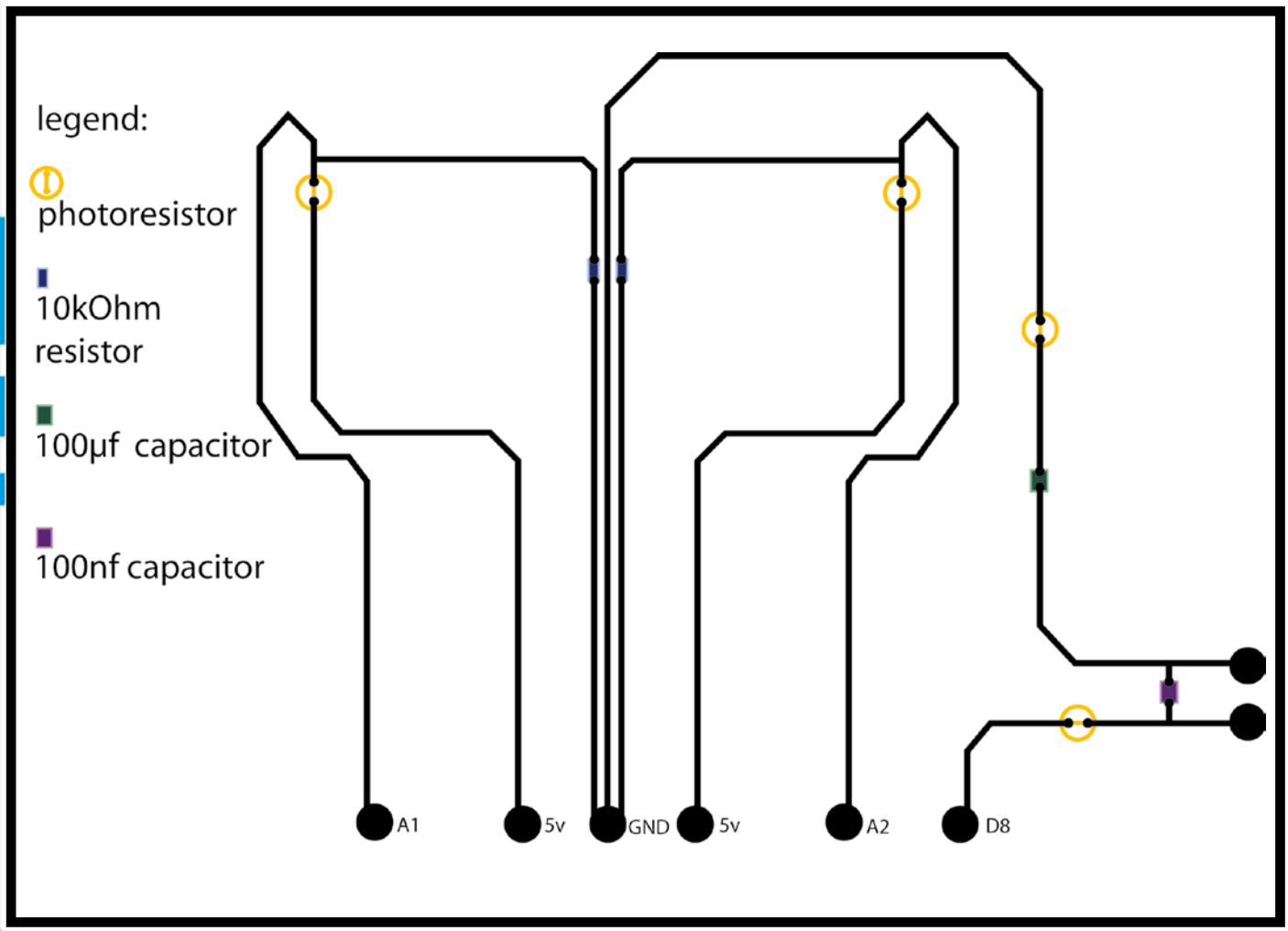
circuit of RC-filter:





Mode of operation

- the SLSG produce sound on-line time
- the modul 1 and 2 interpret the strength of light
  and controll the microcontroller
- the microcontroller change the sound of the buzzer,
  frequency of the pitch and the length of the arpeggiator
- modul 3 is changing volume controll in realtime
- modul 4 filtering the frequency of overtone on-line time
- the SLSG generated a dynamic sound play, by triggering
  through the nature



Resource and table of Contents

Resource

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Thank You