

# *Simon Says DIY kit*

*construction manual*

*by*

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Rev.	Date	Description
A	2014-01-18	First release

## *You need the following tools:*

*a regulated soldering iron  
(25..40W) with small tip*



*a wet sponge to clean the  
tip*



*thin solder wire*



a diagonal cutter for wires



Needle nose pliers



A basic multimeter is not required but recommend

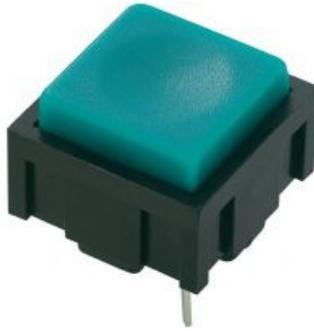


## Parts

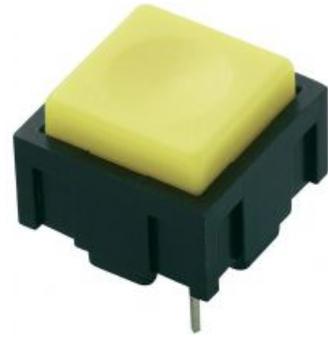
 <p>1x resistor 120 Ohm (R6)</p>	 <p>3x resistor 220 Ohm (R1, R2, R3)</p>	 <p>1x resistor 560 Ohm (R4)</p>
 <p>1x resistor 10 KOhm (R5)</p>	 <p>2x capacitor 100nF (C1, C2)</p>	 <p>cathode anode</p> <p>1x LED blue, 5mm (D4)</p>
 <p>cathode anode</p> <p>1x LED green, 5mm (D1)</p>	 <p>cathode anode</p> <p>1x LED yellow, 5mm (D3)</p>	 <p>cathode anode</p> <p>1x LED red, 5mm (D2)</p>



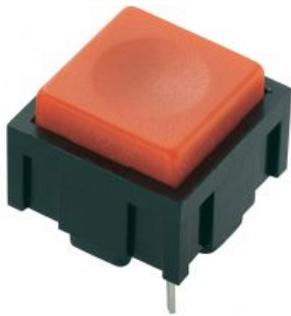
1x  
Button, blue  
(S4)



1x  
Button, green  
(S1)



1x  
Button, yellow  
(S3)



1x  
Button, red  
(S2)



1x  
Loudspeaker 100 Ohm  
(LS1)



1x  
battery holder  
(X1)



1x  
battery CR2025

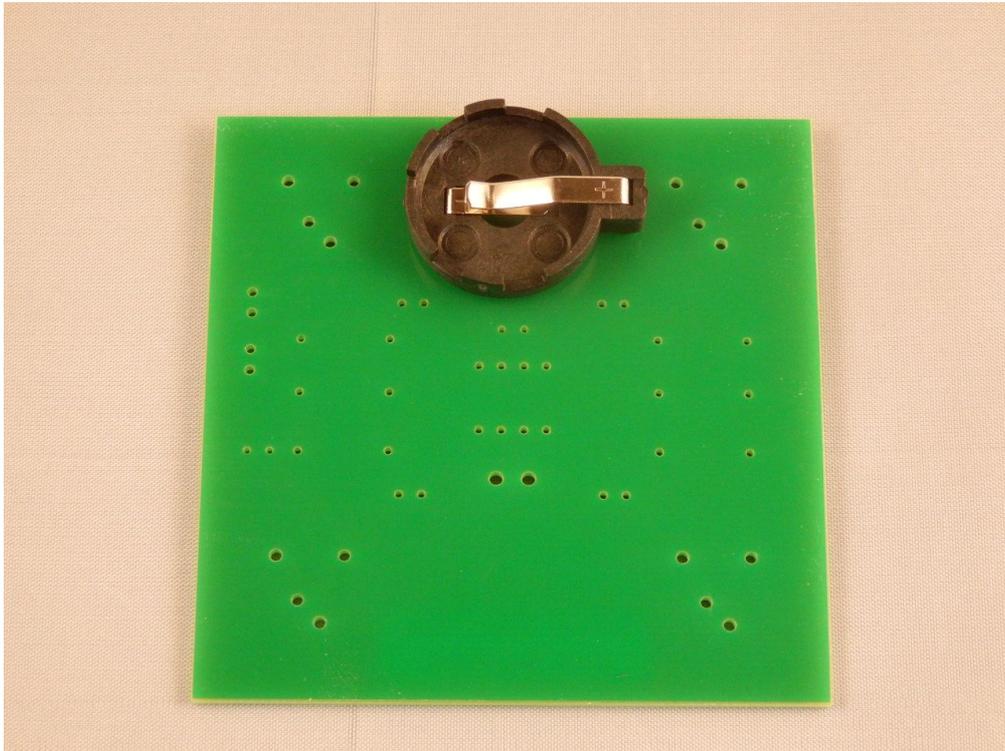


1x  
IC socket

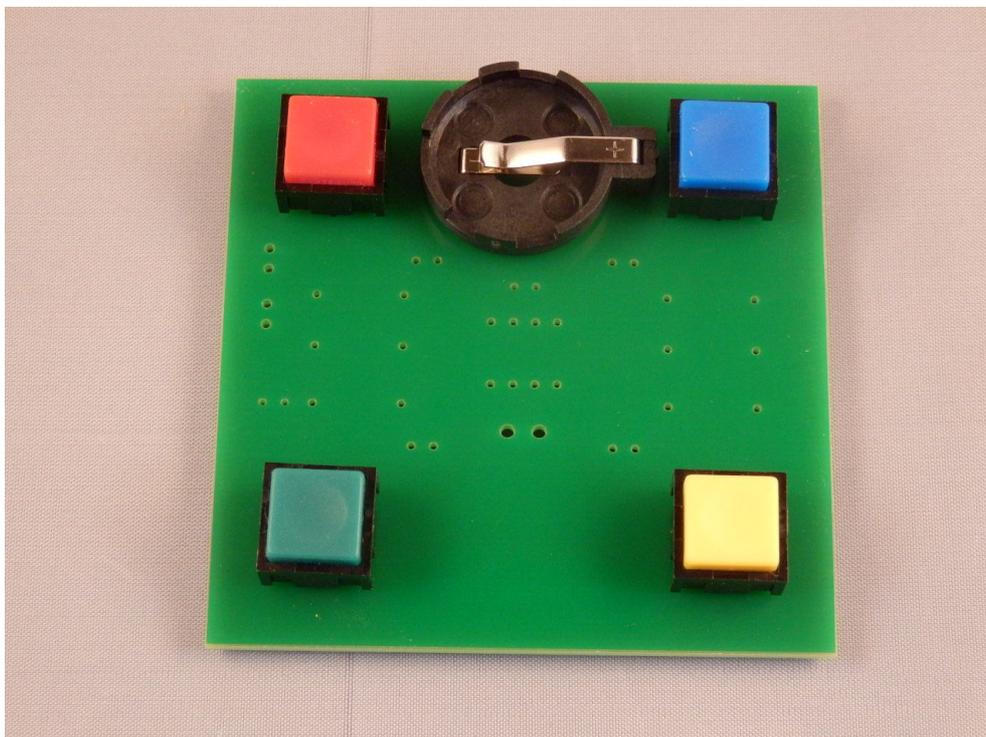


1x  
microcontroller LPC810  
(IC1)

1.) *Place the battery holder (X1)*



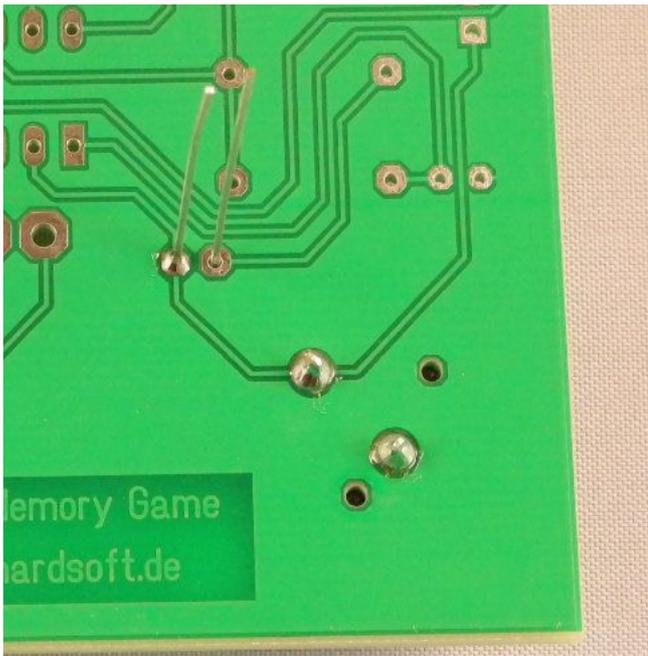
2.) *assemble the 4 coloured buttons (S1, S2, S3, S4)*



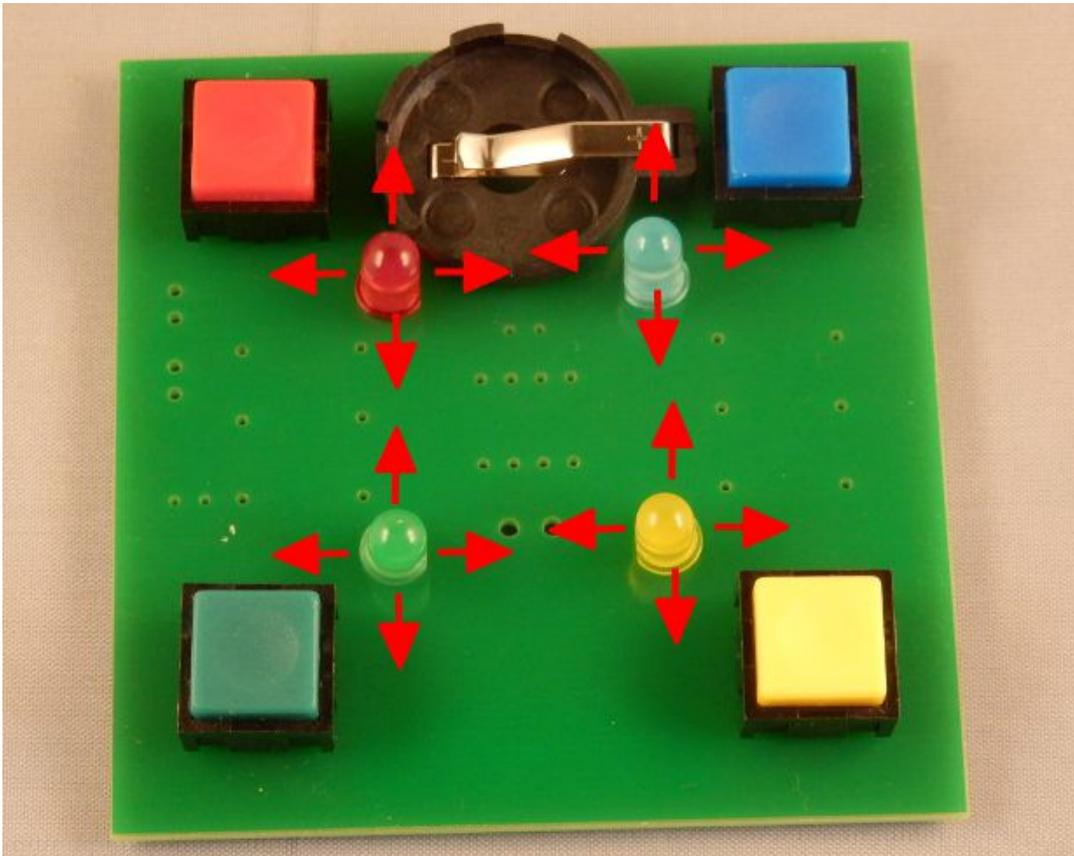
3.) *assemble the 4 leds (D1, D2, D3, D4)*



3.1 *solder only one pin of each LED first*



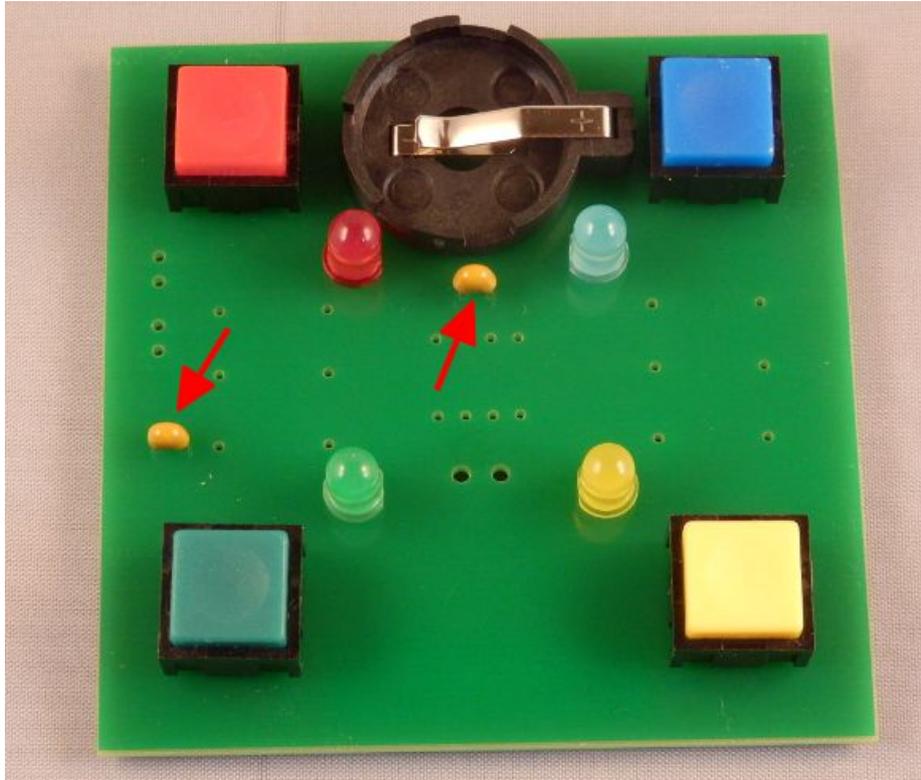
### 3.2 align all four LEDs



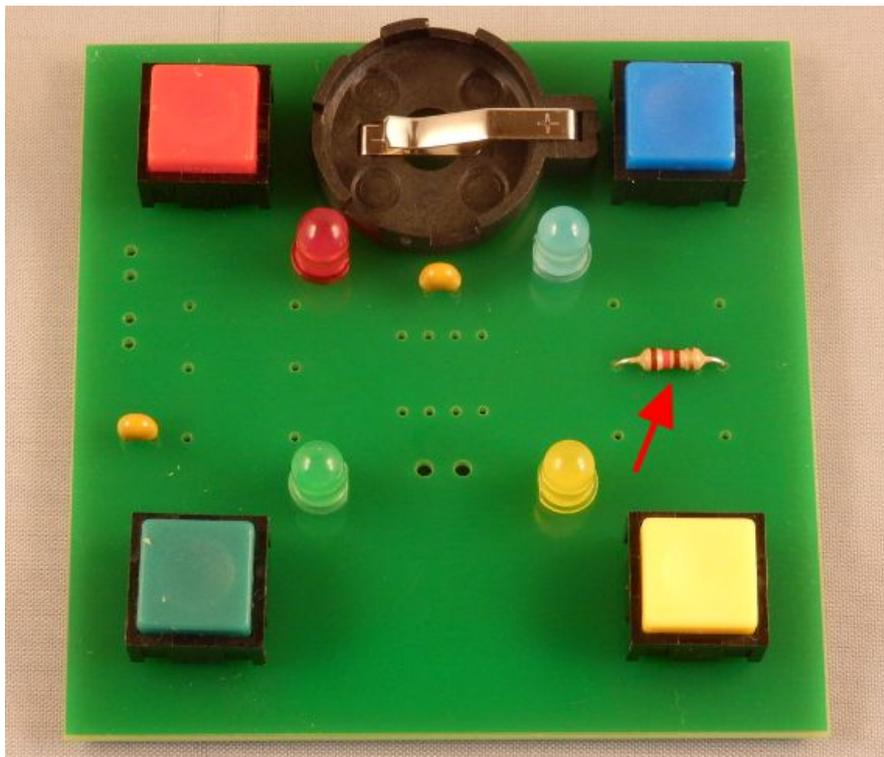
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### 3.3 solder the other pin of any LED

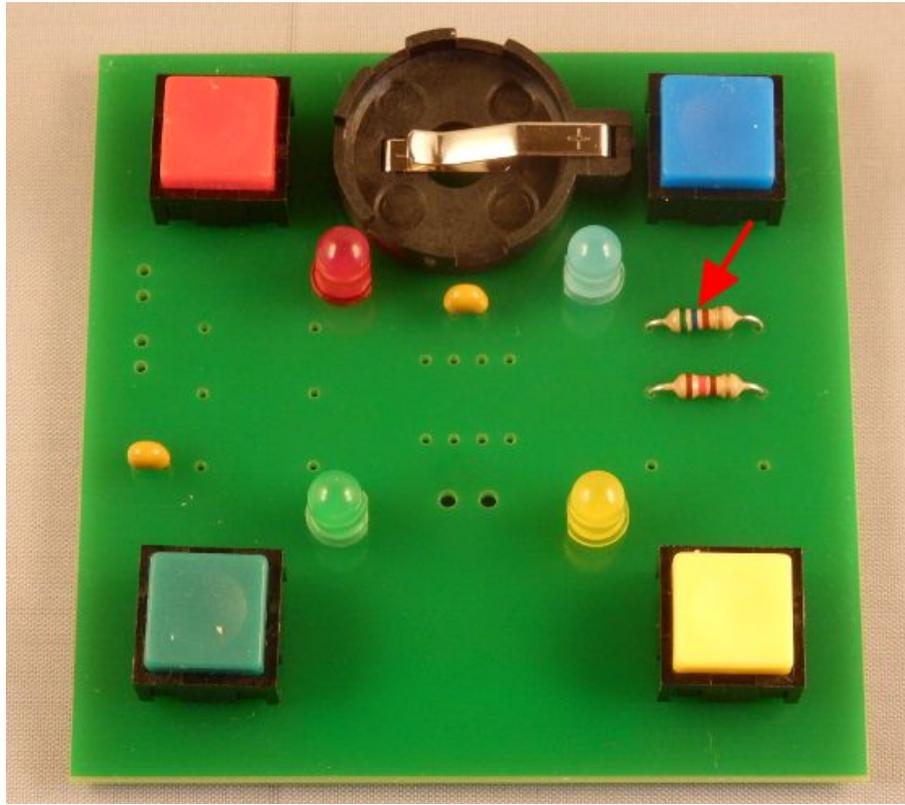
4.) *assemble the 100nF capacitors (C1, C2)*



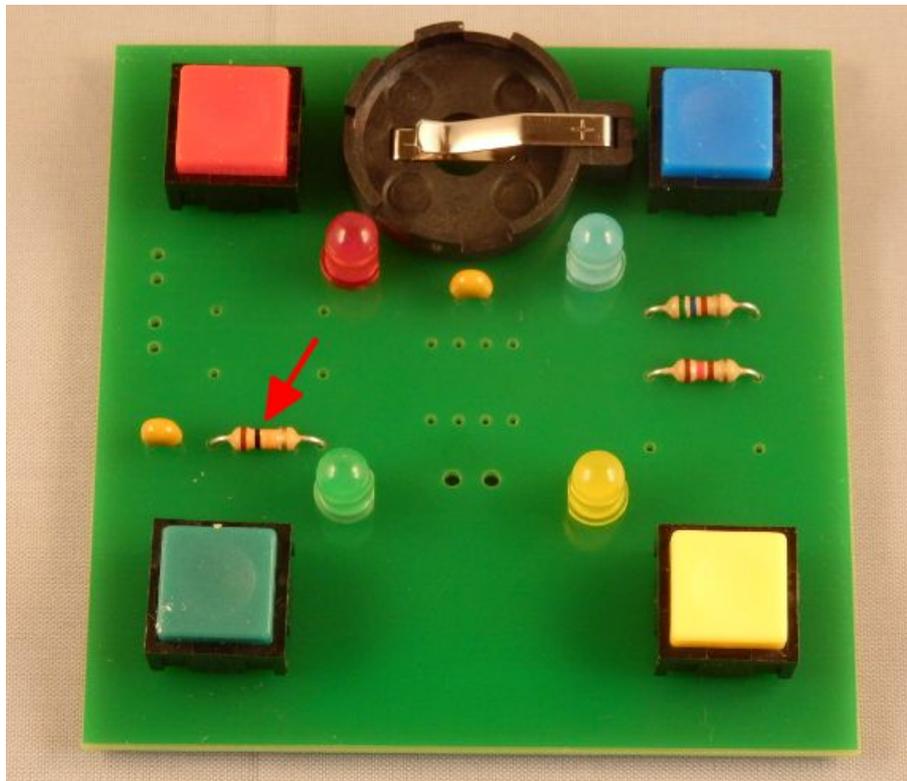
5.) *assemble the 120 Ohm resistor (R6)*



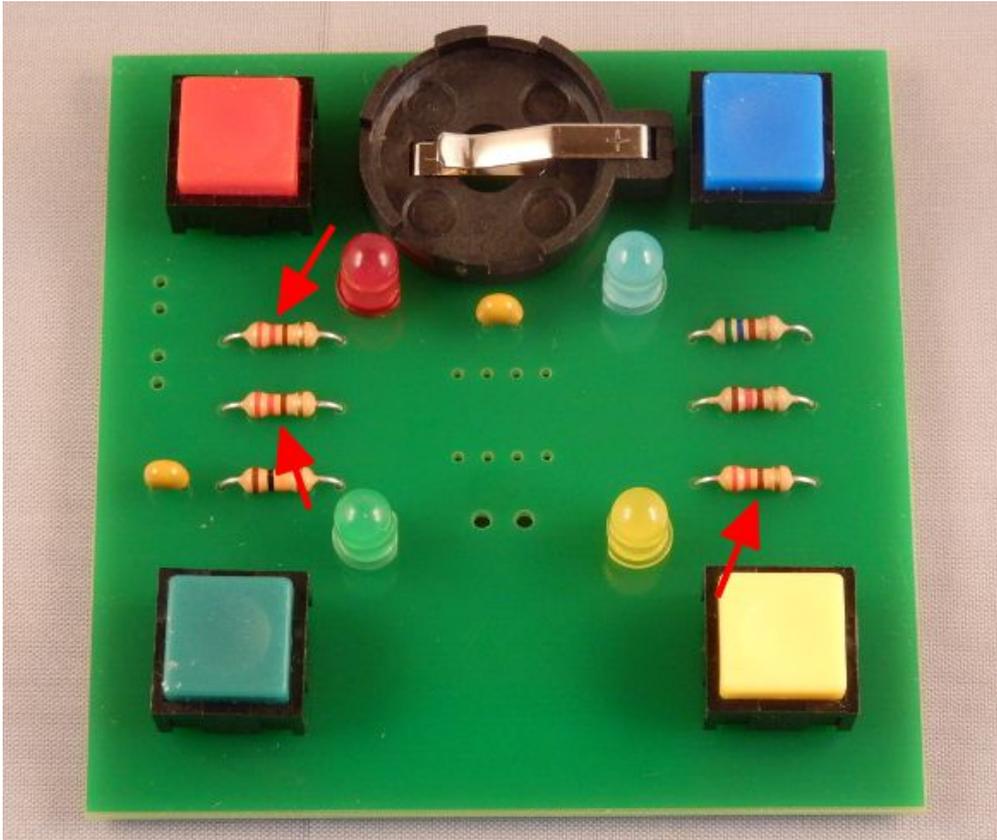
6.) *Assemble the 560 Ohm resistor (R4)*



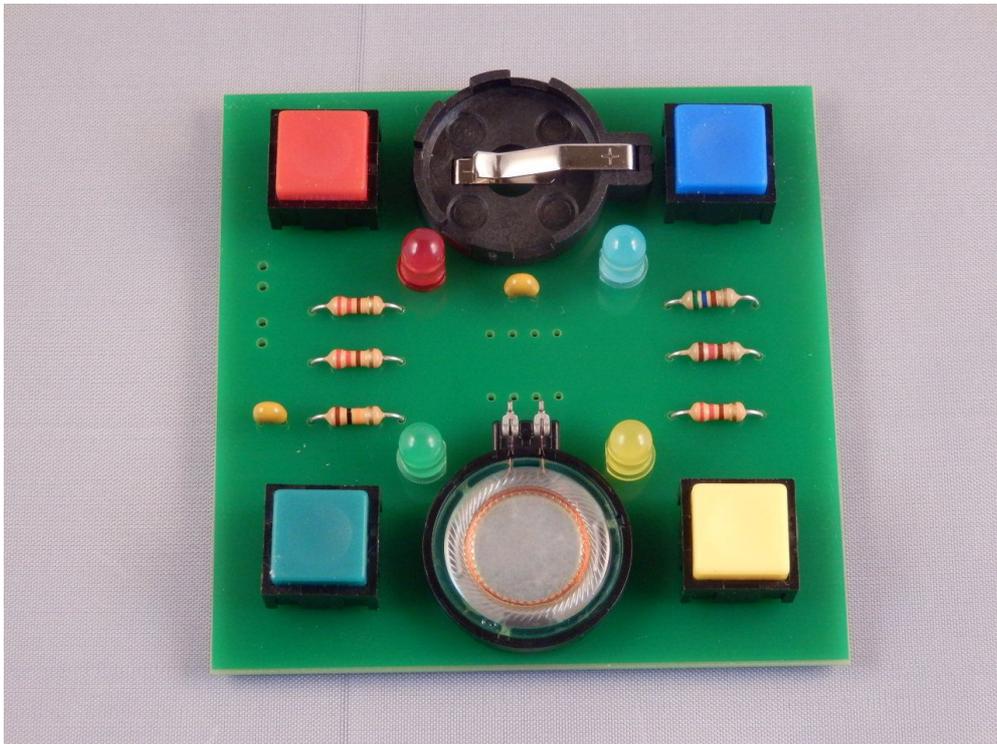
7.) *Assemble the 10K resistor (R5)*



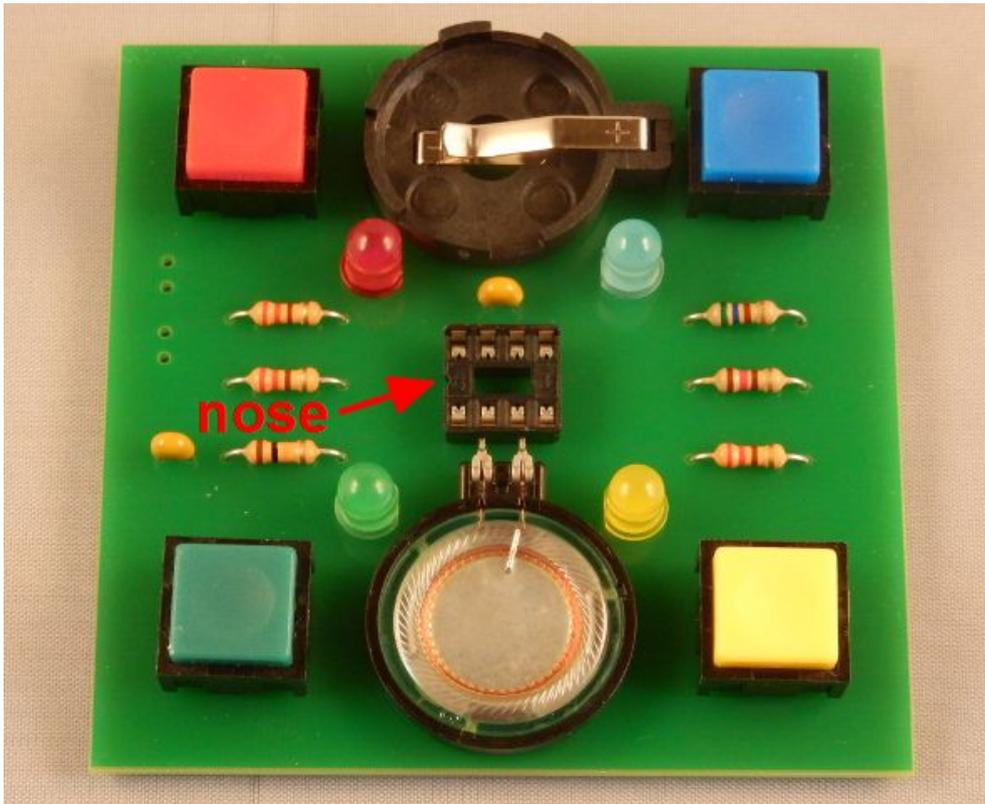
8.) *assemble the 220Ohm resistors (R1, R2, R3)*



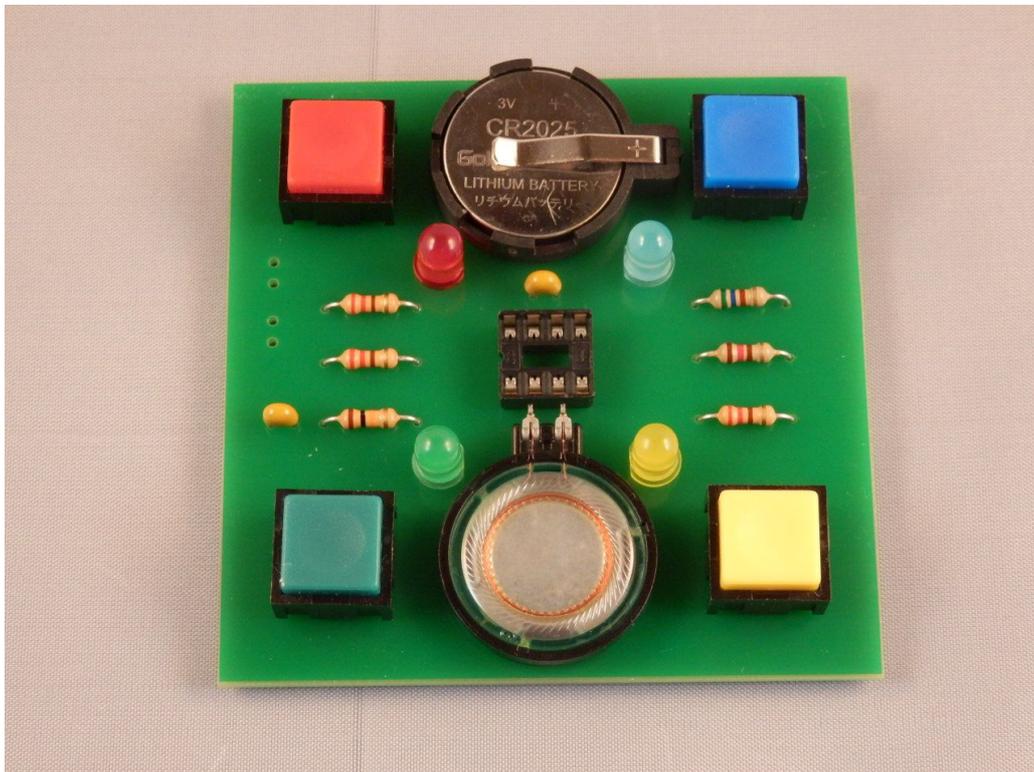
9.) *assemble the loudspeaker (LS1)*



10.) *assemble the IC socket*

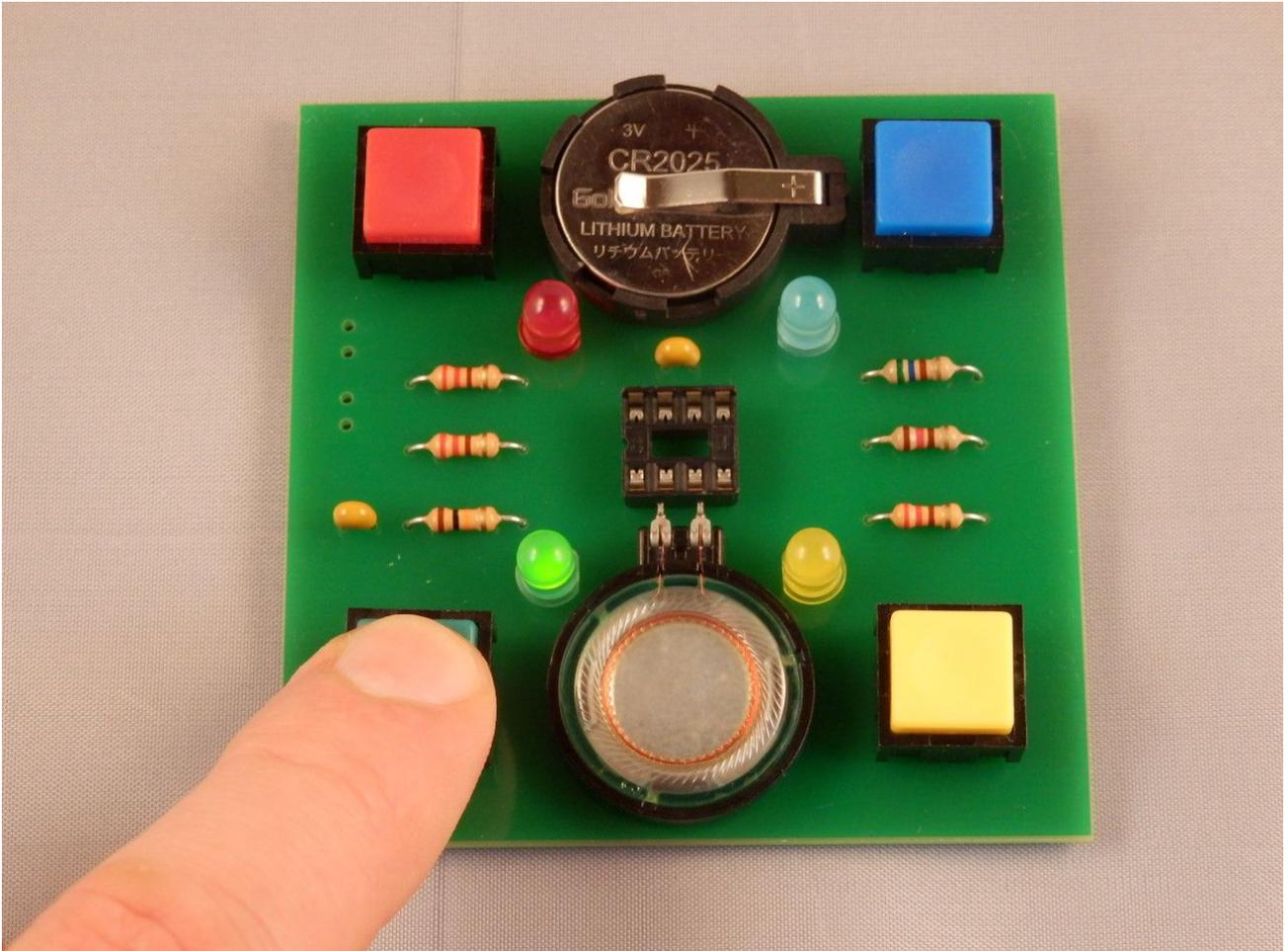


11.) *place the battery in the holder*



## 12.) test the electronic

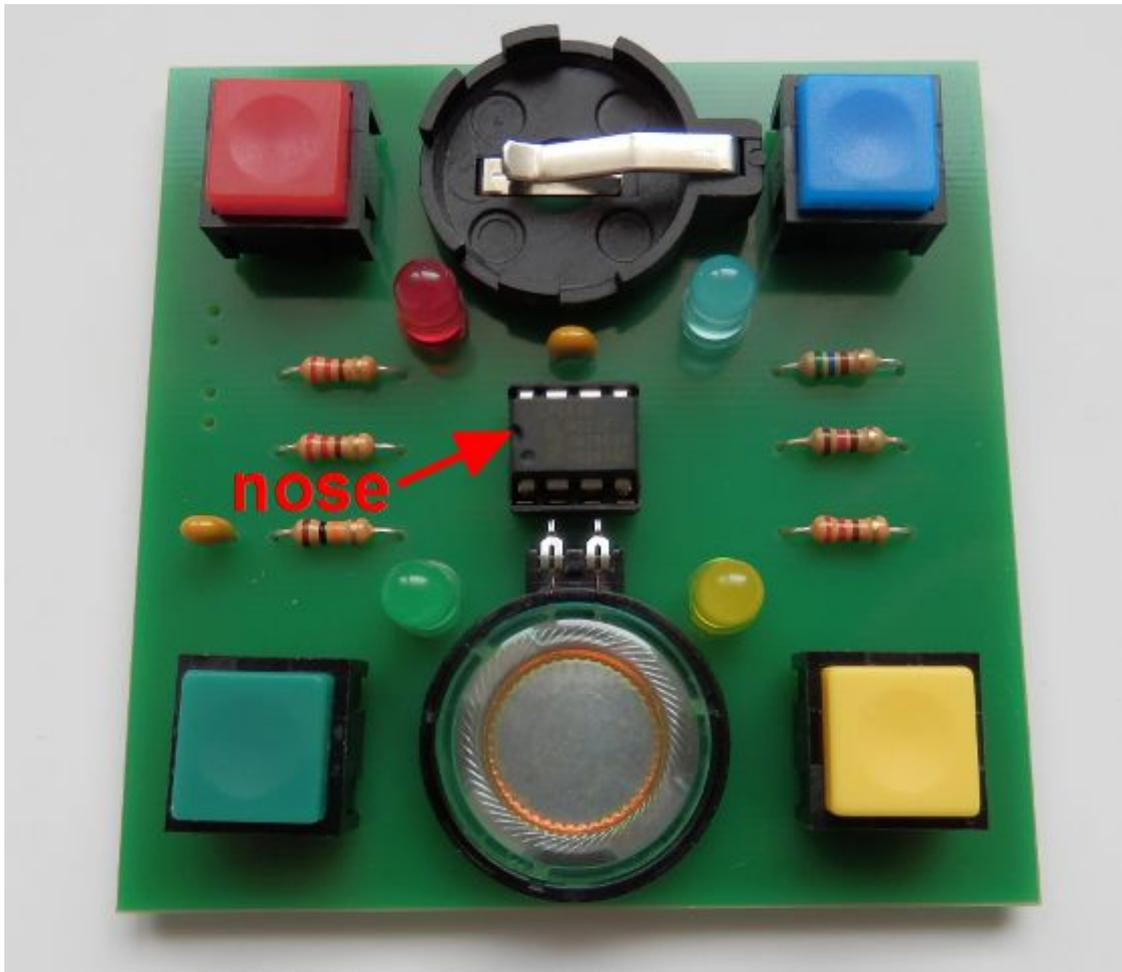
*It's time for a pre test of the assembled pcb. Press any button. The corresponding LED have to light during you press the button:*



*If one or more LEDs not shine, you have to check the assembly direction (cathode/anode) of these LEDs. Furthermore check the soldering of the LED, corresponding resistor and button.*

## 13.) Remove the battery now!

14.) *Place the microcontroller (IC1) in the IC socket*



15.) *Place the battery in the holder again*

***Finish!***

Press the green button for a new game!

*Trouble shooting:*

Problem	Solution
No function	<ul style="list-style-type: none"> <li>- check the direction of mounted battery (side with text have to point to the top)</li> <li>- check the voltage of the battery (3V DC)</li> <li>- check the direction of mounted IC1</li> <li>- check the soldering</li> <li>- remove the battery, wait some seconds and place the battery again</li> </ul>
Single Led don't shine	<ul style="list-style-type: none"> <li>- check the direction of mounted LED (cathode have to point to the center of pcb)</li> <li>- check the soldering of the corresponding resistor</li> <li>- check the soldering of the corresponding button</li> </ul>
I can't hear the sound	<ul style="list-style-type: none"> <li>- check the soldering of the loudspeaker LS1 and the resistor R6</li> </ul>