Alcohol Detector

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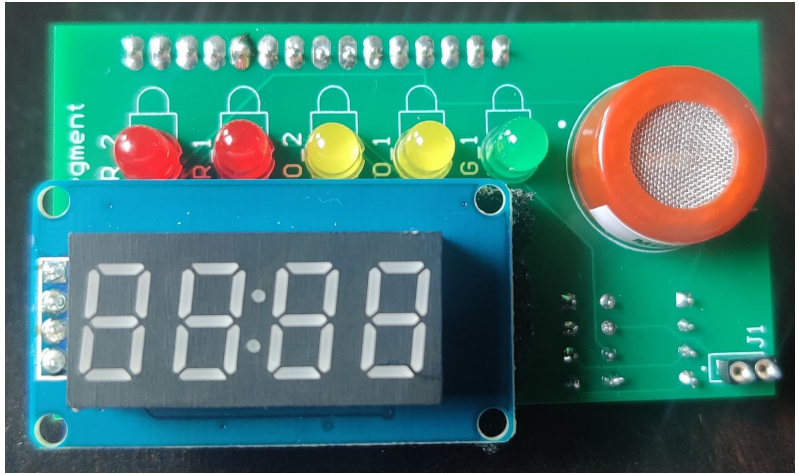
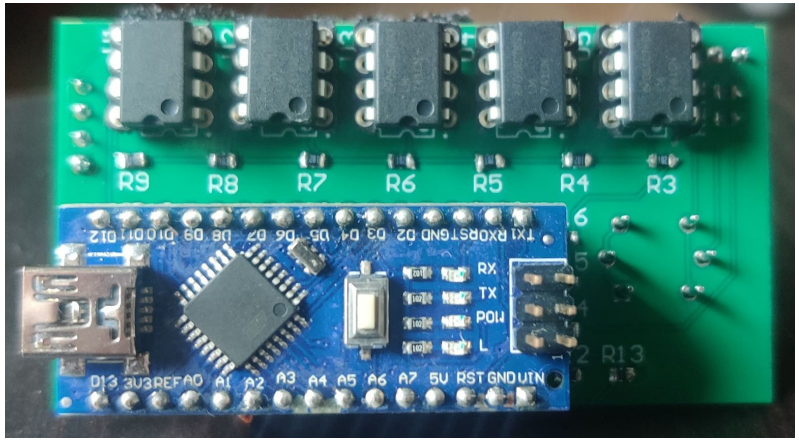
Lector:
Wout Swinkels
Ward Martens

Introduction

- Alcohol Sensor: MQ-3
- Output spanning: 0 - 5v
- Accuraatheid: 25 - 500 ppm



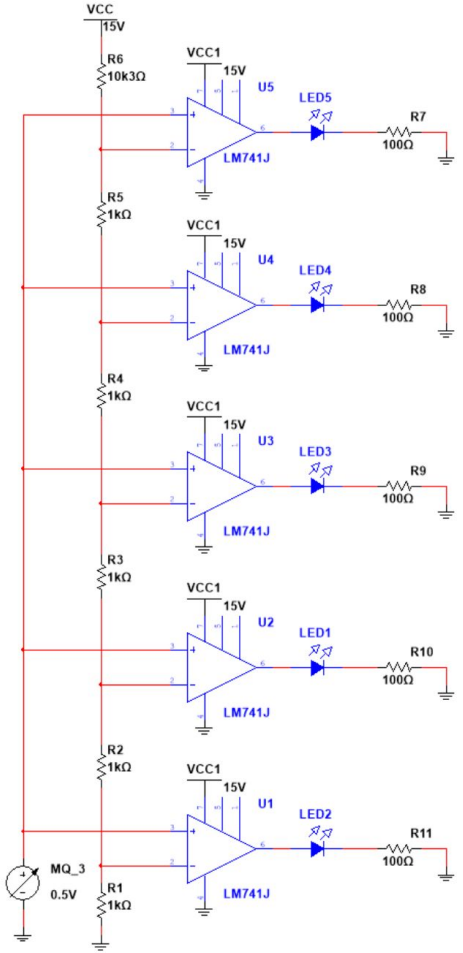


BOM

Hoeveelheid	Beschrijving	Benaming	Afzender
1	7 segment	7 segment	PXL
1	Arduino Nano	ARDUINO NANO	PXL
1	LED1	GROEN_1	PXL
1	Header (2 pin)	J1	PXL
1	MQ - 3	MQ - 3	Mouser
2	LED2	ORANJE_1 /_2	Zelf
1	5,1 Ω	R2	PXL
6	1kΩ	R1, R3, R4, R5, R6, R7	PXL
1	10kΩ	R8	PXL
1	300Ω	R9	PXL
5	100Ω	R12, R13, R14, R15, R16	PXL
2	LED4	ROOD_1 /_2	Zelf
5	LM741J	U1, U2, U3, U4, U5	PXL

Electrical circuit

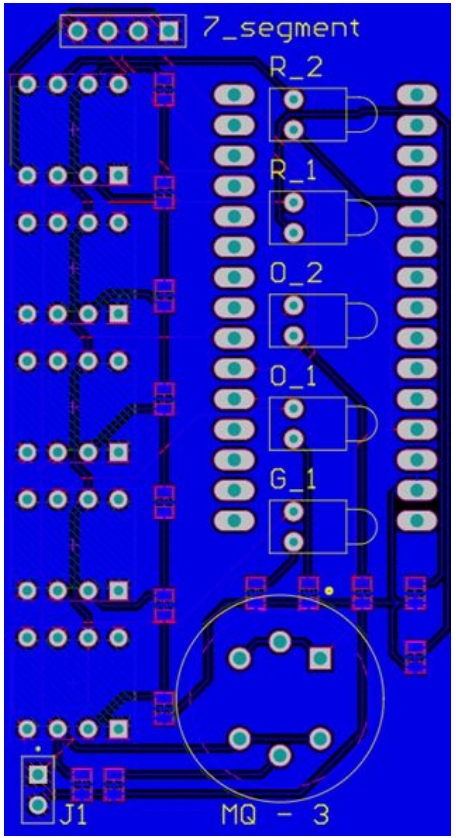
- 5 x LM741J
- MQ-3 => 0 tot 5V
- Leds branden op 1, 2, 3, 4 en 5V
- Spanningsdeler zal net geen 1, 2, 3, 4 en 5V insturen op de comparator



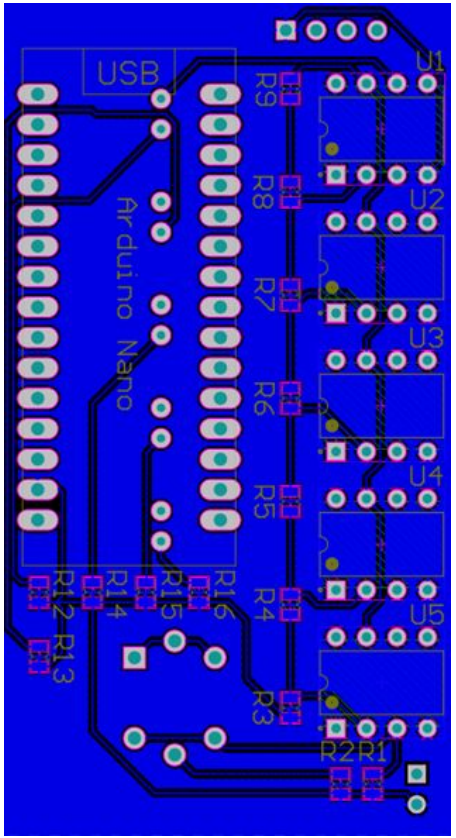
PCB design

- Altium Designer
- JLCPCB
- Compact

Bovenkant



Onderkant



PCB assembly

Tools:

- Soldeerbout, desoldeerbout, tin, kniptang, pincet, spanningsbron, multimeter

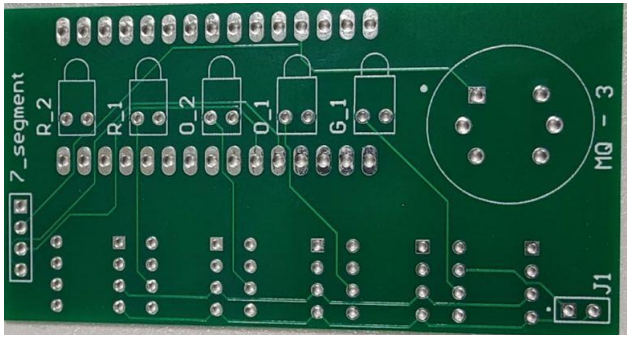
Planning

- SMD /Kleine componenten / 15V circuit

Struikelblokken:

- MQ-3 => plastic smelt tijdens het solderen
- SMD componenten solderen

Bovenkant



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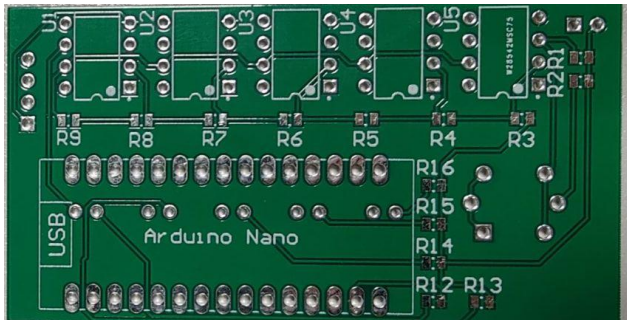

Software

- Arduino IDE
- Library : TM1637Display.h
- In promille en mg/L

```
Sensor Value: 0.16 mg/L
Sensor Value: 0.17 mg/L
Sensor Value: 0.16 mg/L
Sensor Value: 0.15 mg/L
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Sensor Value: 0.17 mg/L
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Sensor Value: 0.17 mg/L
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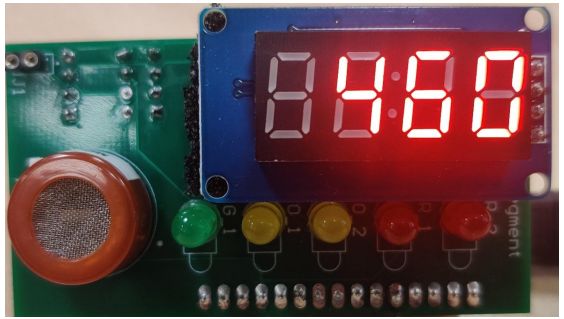
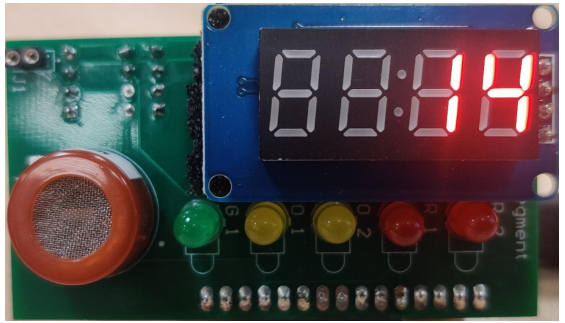
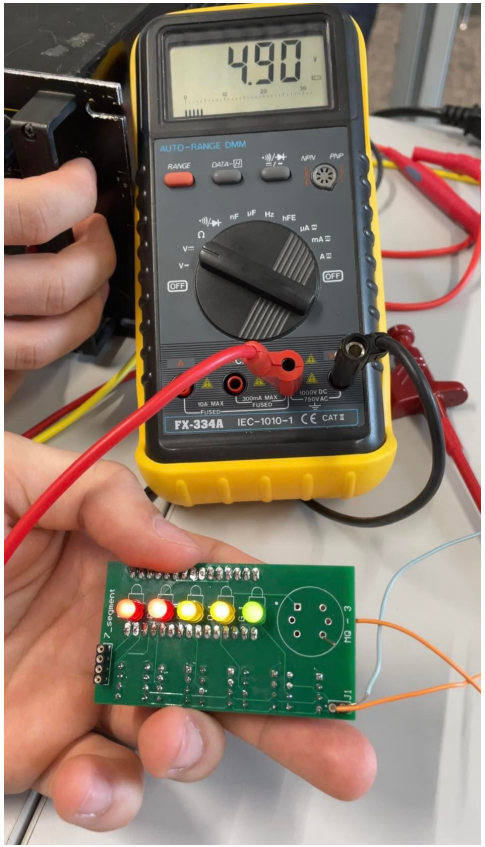
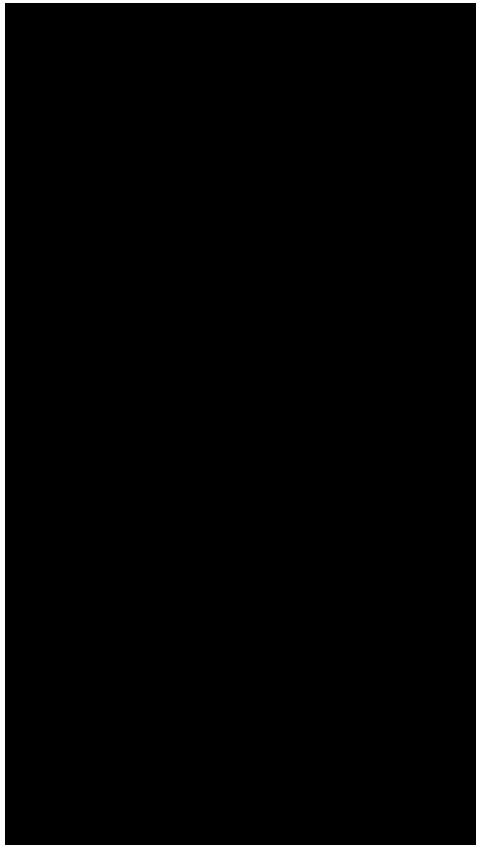




Results





Conclusion

- Aansluitingen
- Beveiliging
- Nauwkeurig SMD solderen
- MQ-3 eerst testen