



Internet of Bats

Lukas Schauer

 [lukas2511](https://twitter.com/lukas2511)  lukas.im  hi@lukas.im

Über mich

- Student, 25 Jahre alt
- Dinge mit Soft- und Hardware
 - „dehydrated“ (Let's Encrypt Client)
 - Internet of Bats
 - Viele kleinere Bastelprojekte
- Manchmal finde ich versehentlich Sicherheitslücken:
 - u.a. bei Apple, Ubiquiti, Uberspace, auf Plasteroutern, usw.



Vorgeschichte

- Python
- Arduino
- Dingfabrik

- Lichtschranken
- Ultraschall-Rekorder
- SDR-Triangulation
- und weiteres...

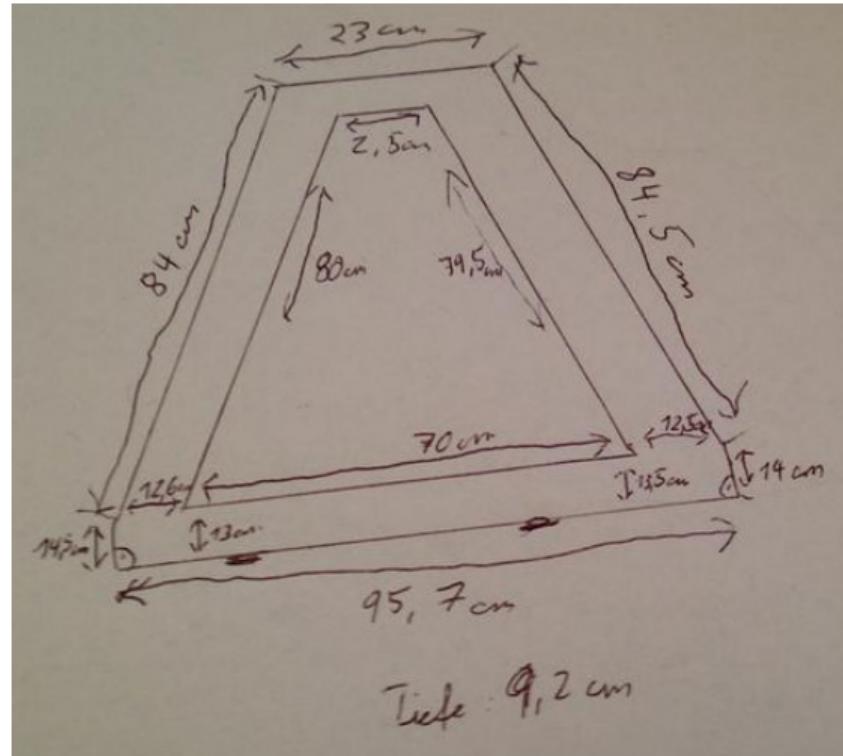
Warum?

- Alternativlos
- Kosten
- Daten

Lichtschranken

Erster Entwurf

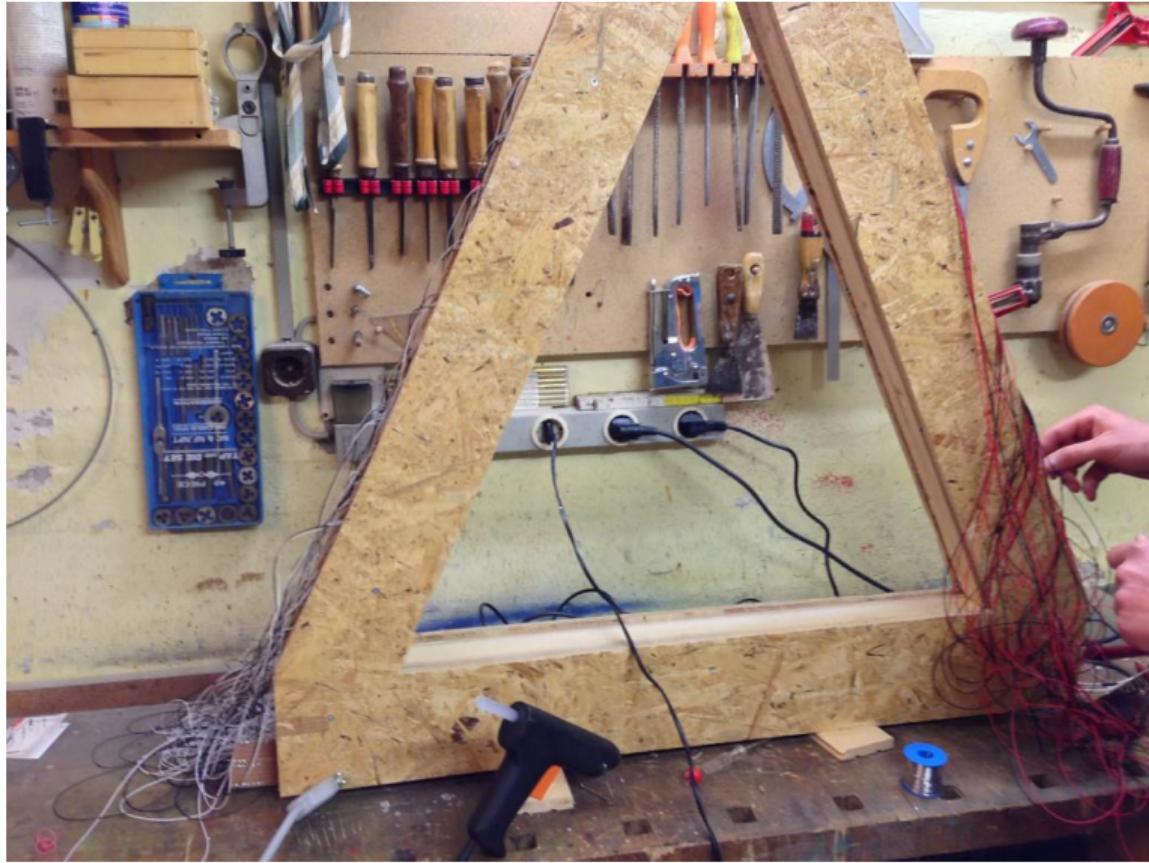
- Dachboden auf Fachwerkhaus
- Dreieckiges Fenster als Einflug



Aufbau



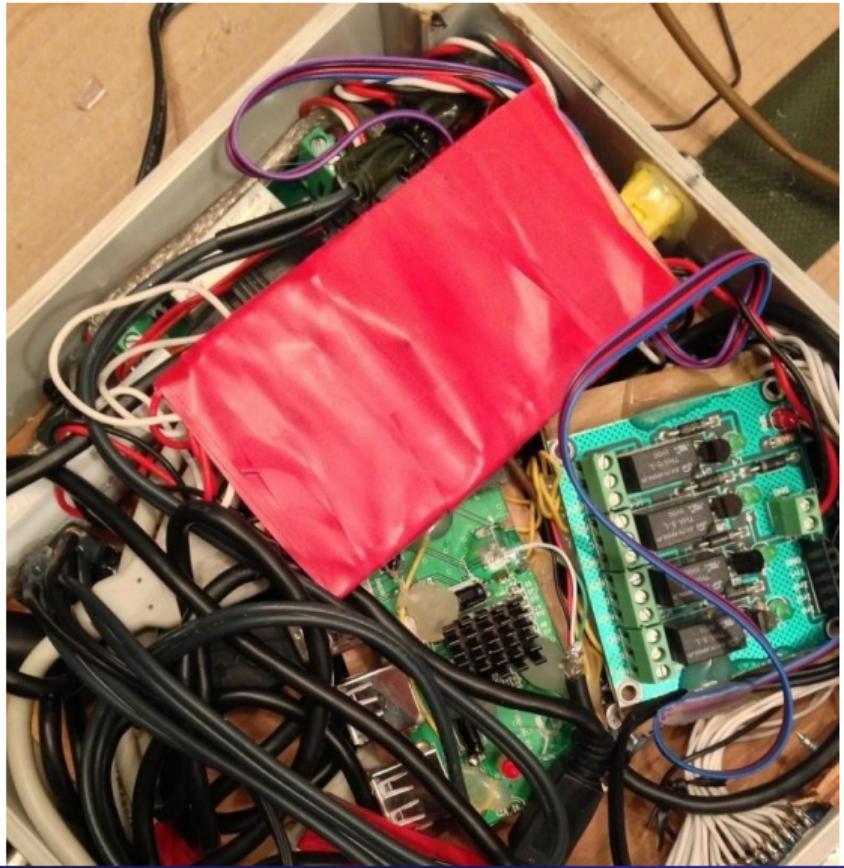
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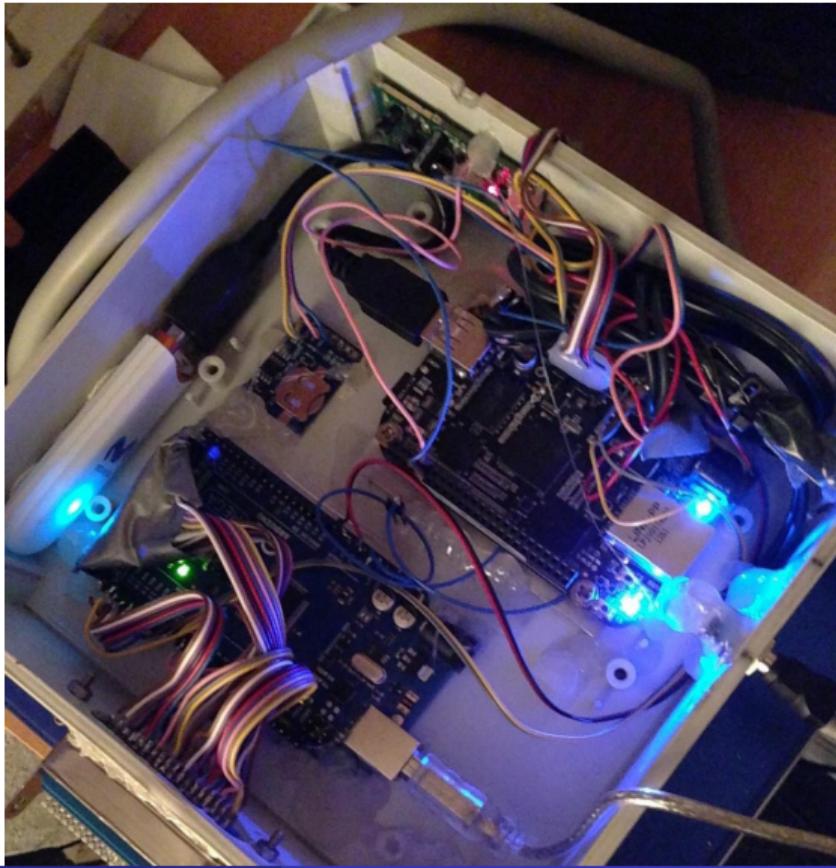
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Webmontag Bonn, Mai 2018

Elektronik



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Internet of Bats

Webmontag Bonn, Mai 2018

- Logging: Python Scripts zum Lesen der Lichtschranken- und Wetter-Daten
- Datenübertragung: UMTSKeeper, Sakis3g, OpenVPN, OpenSSH, rsync
- SMS: Python Logging-Script für Provider-SMS u.ä., „wakeupcall“-SMS
- Sonstiges: Python basiertes Webinterface zur Logansicht, Debug-LED-Blink-Scripts
- Zu finden unter <https://github.com/lukas2511/FlederSchranke>

Einbau der ersten Lichtschranke



Erfolg?

Flippy Bits: A04, A07, A12, A14, A16, B17

A → B: 33

B → A: 34

?????: 6

Sonnenuntergang: 2014-03-15 17:33:46

Sonnenaufgang: 2014-03-16 05:46:47

Rohdaten herunterladen

				Innen (A)	Außen (B)
2014-03-15	19:17:02,609	-	T	1394907421920400	00000001010000000000000000000000
2014-03-15	19:17:02,617	-	T	1394907421920484	00000011010111000000000000000000
2014-03-15	19:17:02,623	-	T	1394907421920564	00000011011111000000000000000000
2014-03-15	19:17:02,630	-	T	1394907421921408	00000011011111110000000000000000
2014-03-15	19:17:02,643	-	T	1394907421922672	00000011111111110000000000000000
2014-03-15	19:17:02,656	-	T	1394907421931724	00000011111111110000000000000000
2014-03-15	19:17:02,663	-	T	1394907421931808	00000011111111110000000000000000
2014-03-15	19:17:02,670	-	T	1394907421932144	00000011111111110000000000000000
2014-03-15	19:17:02,674	-	T	1394907421932616	00000011111111110000000000000000
2014-03-15	19:17:02,678	-	T	1394907421933780	00000011111111110000000000000000
2014-03-15	19:17:02,685	-	T	1394907421934352	00000011111111110000000000000000
2014-03-15	19:17:02,689	-	T	1394907421934492	00000011111111110000000000000000
2014-03-15	19:17:02,693	-	T	1394907421935136	00000011111111110000000000000000
2014-03-15	19:17:02,697	-	T	1394907421935748	00000000111111111100000000000000
2014-03-15	19:17:02,700	-	T	1394907421935832	00000000111101110000000000000000
2014-03-15	19:17:02,704	-	T	1394907421937620	00000000111101110000000000000000
2014-03-15	19:17:02,708	-	T	1394907421937624	00000000111101110000000000000000

Nein? Warum?

1111001001010011011100000101111111111101011101001
1111001001010010011100000101111111111101011101001
1111001001010011011100000101111111111101011101001
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Wildbienen

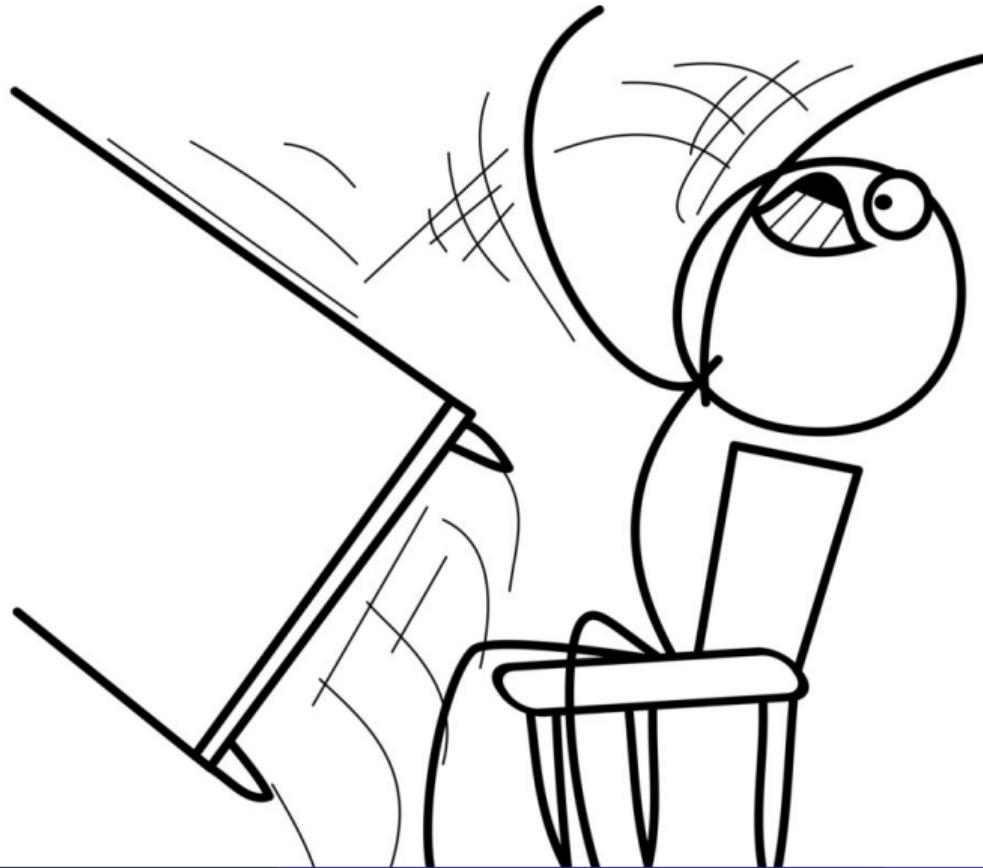


Zweite Lichtschranke

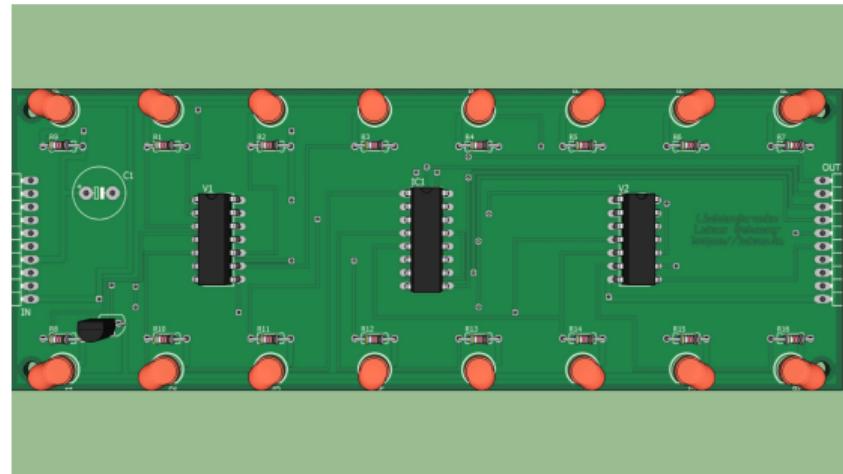
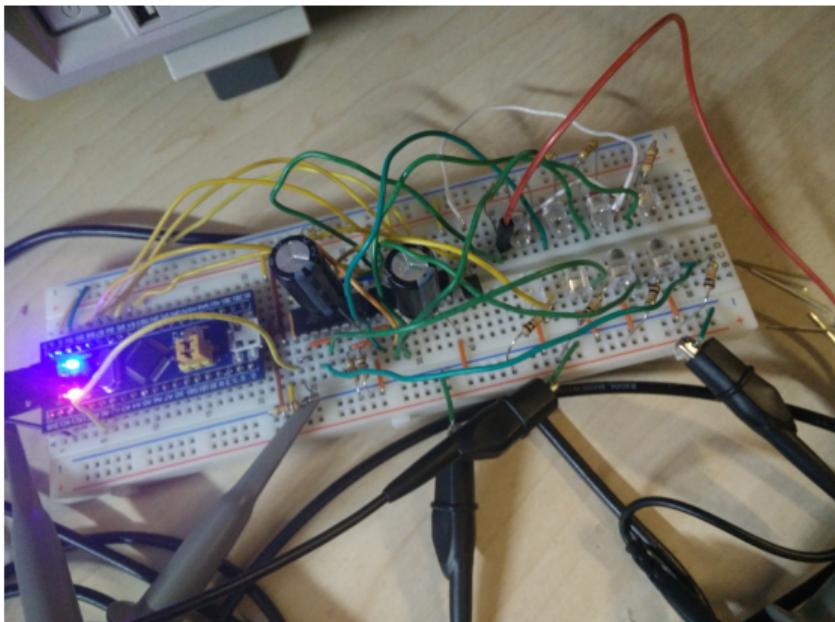
- In einer Höhle
- Keine Internetverbindung -> Kein Remote-Debugging
- Leider wegen Software-Fehler keine Daten erhalten...



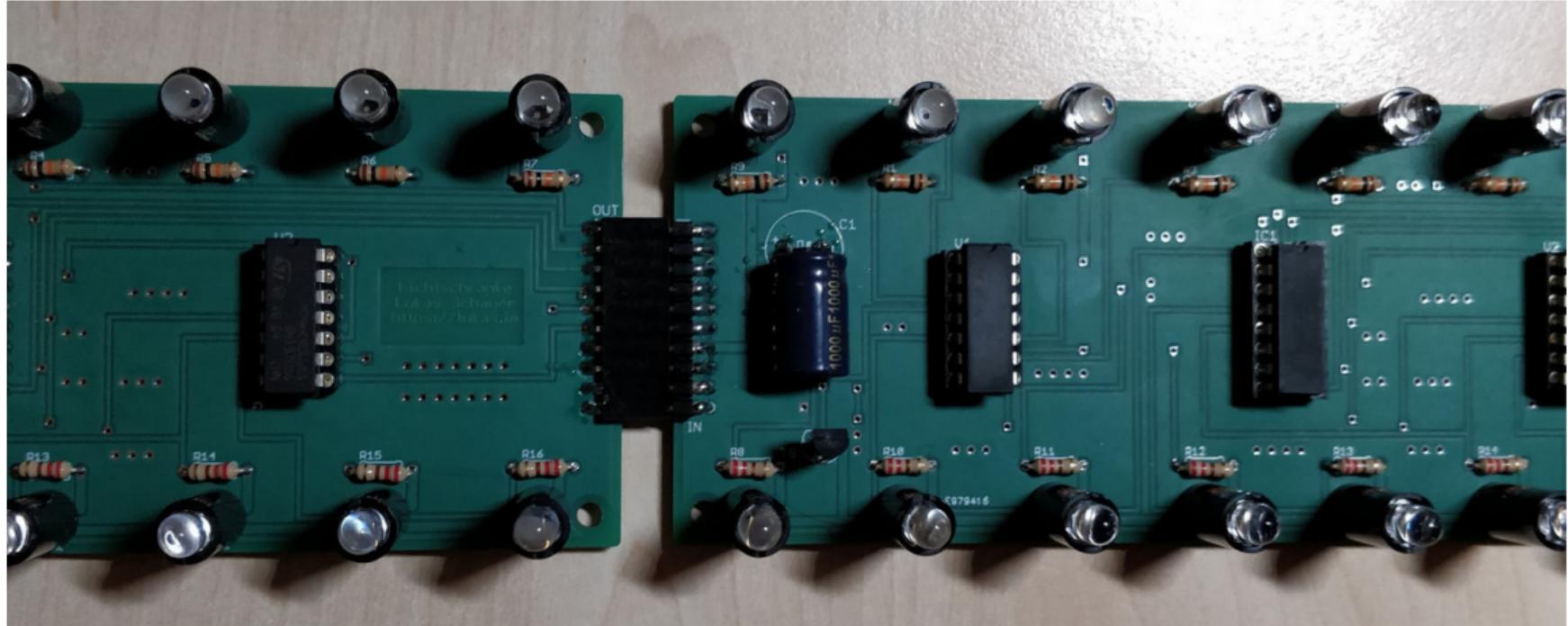
OK.



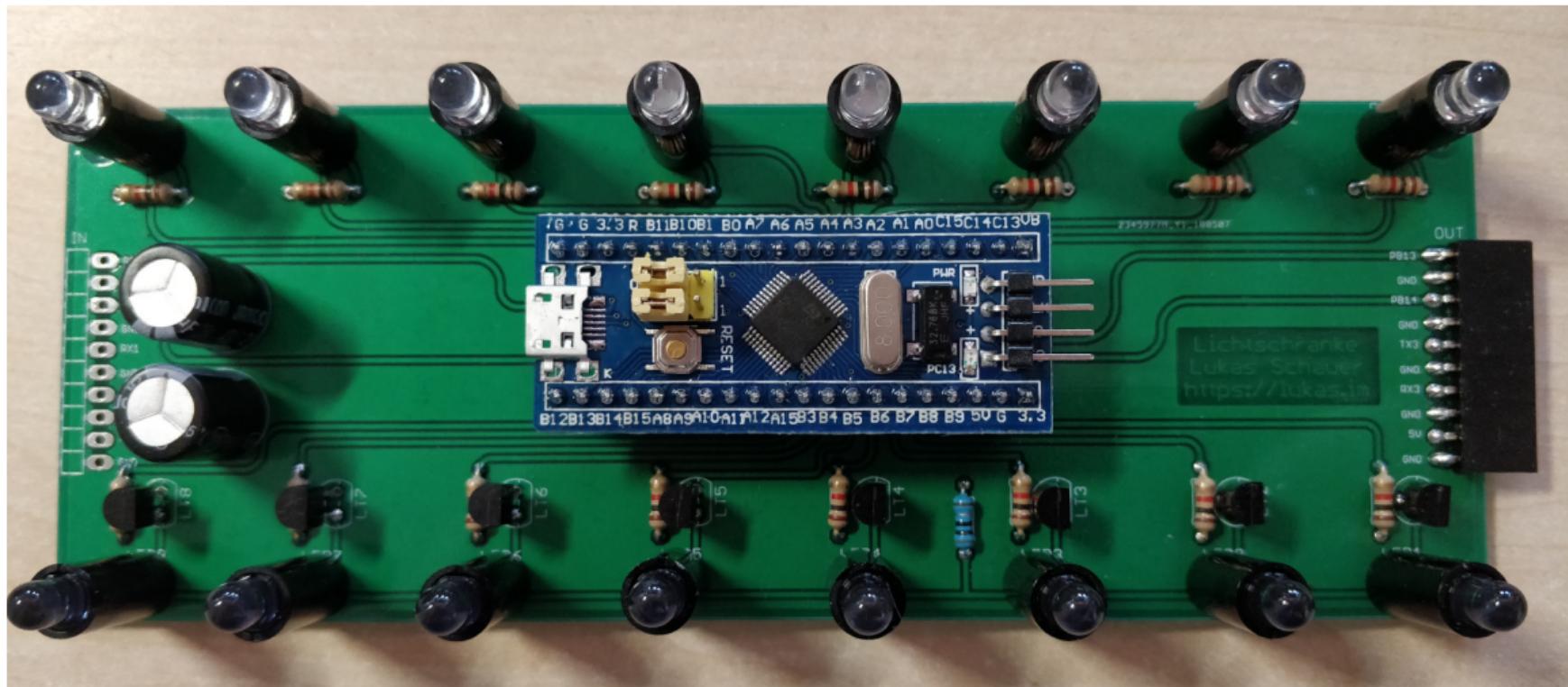
Entwurf mit Shift-Registern



Umsetzung und neue Probleme



Neue Version

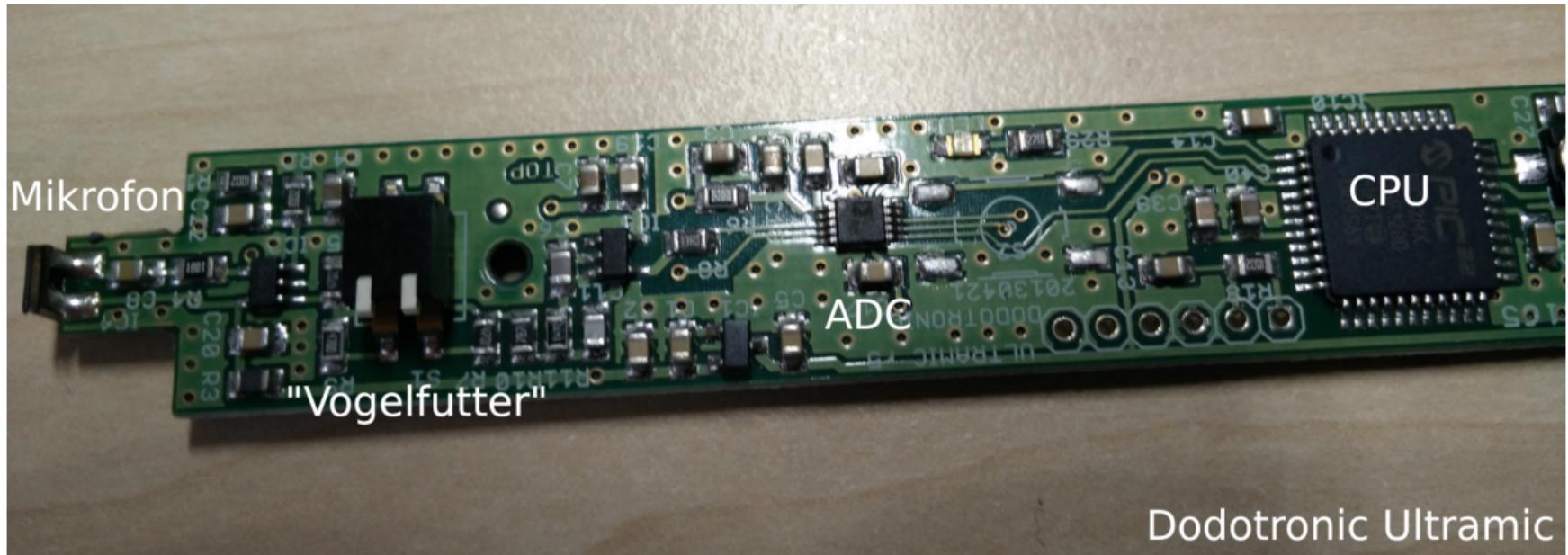


Ultraschall Rekorder

- Aufzeichnung von Fledermausrufen
- Arten-Identifizierung
- Kombination mit anderen Daten

Sonstige Projekte

DIY Mikrofone



SDR-Triangulation



Sonstiges



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