

Theremin circuits

a simple, single antenna, standard component Theremin circuit & other Theremin ideas

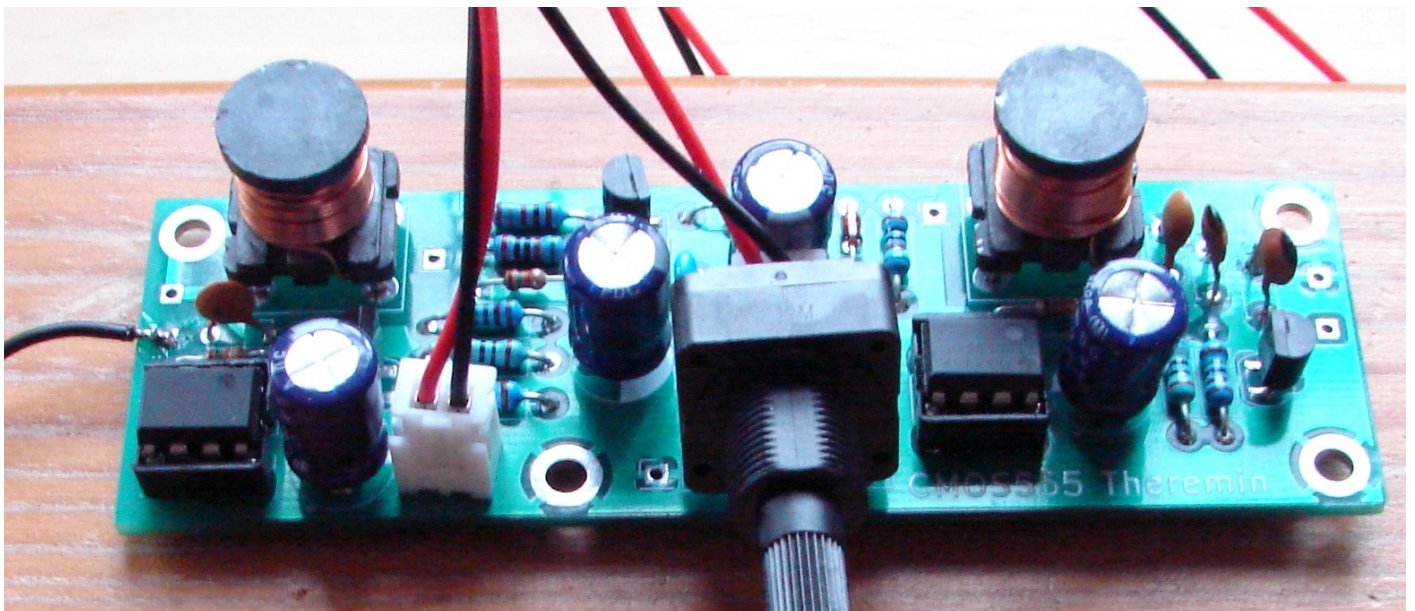
- [CMOS-555 Theremin](#)

CMOS-555 Theremin

My friend Wolfgang Dorninger asked me for a recommendation for student workshop suitable DIY Theremin kit. He sent me 4 links and asked me to choose the best design. After watching Youtube vides and listening to sound examples, I compained that all of them were either crap or too expensive and decided to design my own Theremin for him with these specs :

- old school analog design
- about 10€ for PCB + components to be affordable for kids
- low part count for beginner friendly assembly during a 1h workshop
- standard components still in production, no programmable or obsolete parts
- simple standard coils for oscillators
- tunable by potentiometer
- no variable capacitors or other trimmable parts
- simple to play with pitch only antenna and
- playable antenna distance range of > 50cm

Well, I underestimated the effort to realize this "small" project. It took me 6 prototypes until I was satisfied with the result. Here it is :



1k potentiometer RV1 has a grounded wiper and acts as 2 variable resistors to set the 2 supply voltages.

Meanwhile (May 2023) almost 50 CMOS-555-Theremins were successfully built in DIY workshops in Austria, Spain, Switzerland and Germany.

Some funny applications :

prepared CMOS-555 Theremin by Ralf Schreiber : electromechanical treatment of antenna and coils with aluminium foils :

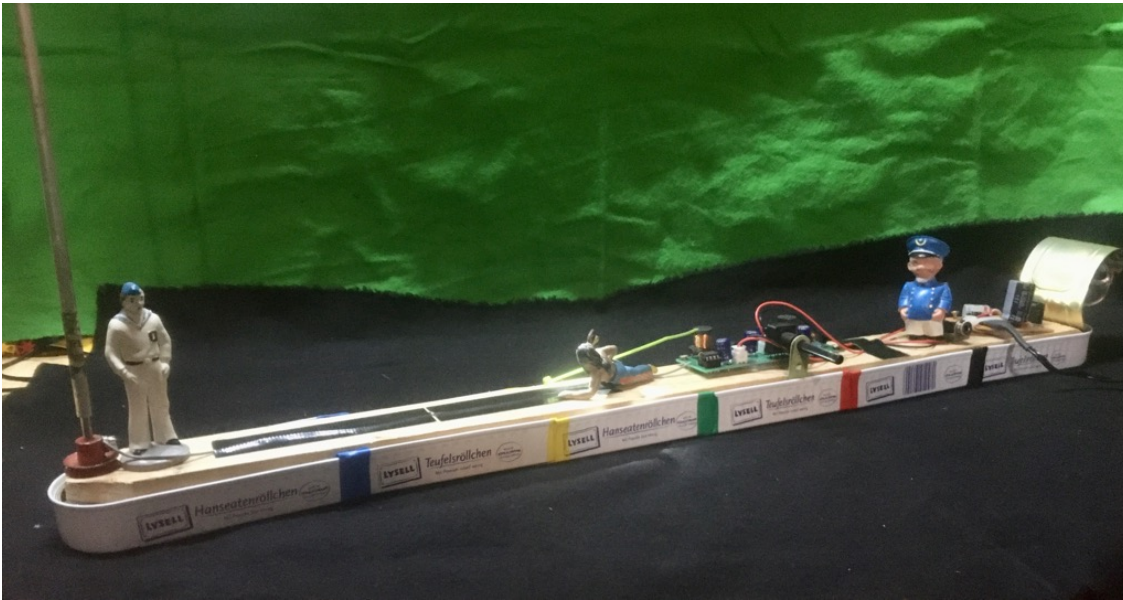
<https://www.youtube.com/embed/Swed1-60Slg>

"Beeremin" an interactive sound installation with 3 CMOS-555 Theremins and beer cans as antennas for both oscillators performed by visitors of "Mapa de Ruido" Noise Festival 2023, Mallorca :



<https://www.youtube.com/embed/1j6gu9JXR7c>

Theremin - submarin : special edition made by Karsten Bauch, Dresden



design files :

German How-To : [CMOS555-Theremin_HOW2_DE.pdf](#)

Schematics : [theremin_555-SCH.pdf](#)

assembled PCB pic : [Theremin_PCB_ASY.jpg](#)

KICAD V7.x files : [555CMOS_Theremin_KICAD.zip](#)

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LTSPICE LC- Schmitt-Trigger oscillator example : [Theremin_HC14_CVout.asc](#)