

SYNTH HACKS #13

MINIMO SAYS “I DO” TO THE CRE8AUDIO WEST PEST

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Man, I really like the sound of my Cre8audio West Pest: complex, woody, and alive. Every nudge of the wavefolder knob creates so many spicy variations it's hard to choose where to stop. When I posted a video of my electronic fidget spinner playing a bass line on the Pest (see Synth Hacks, Waveform issue #12), it got a million views on Instagram. But as a former brass player, I really missed having an attack envelope. The Pest makes endless West Coast plucks, but to swell the start of a note, you need to add an external envelope generator.

Enter the Envelop miniMO, perhaps the world's tiniest modular synth (minimosynth.com). Developed by composer

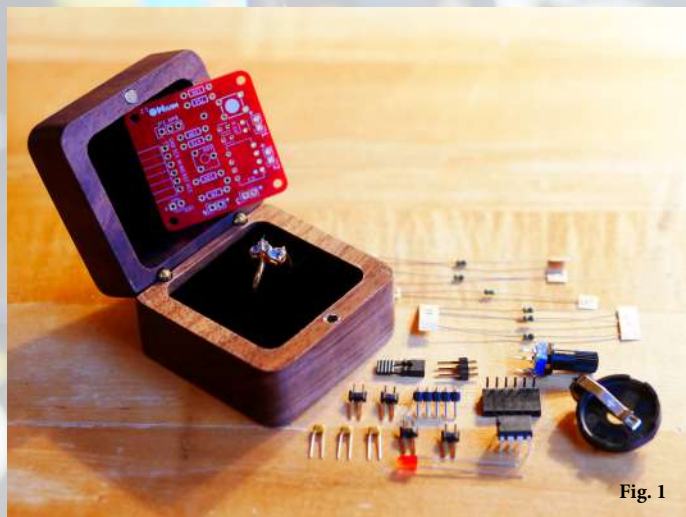


Fig. 1

miniMO modules cost just \$24 shipped, or \$15 in kit form. I mounted mine in a wooden ring box, adding external jacks and USB power, though it runs happily from a 3V coin cell, too.

Jose Luis Gonzalez Castro, each module is small enough to fit inside an engagement ring box (see Figure 1). Jose offers sixteen modules, including oscillators, sequencers, a filter, and effects. Each is physically identical; an ATTiny85 microprocessor determines the function.

I ordered my miniMO programmed as an ADSR envelope generator. With an Arduino interface, you can download code for the other modules and perform a personality swap. The hardware is open-source, so you can even build your own modules from the provided schematics. I bought the kit version, which is so well-labeled that I built and modded it just by looking at the online photos. Getting the bare board made it easier to attach jacks and a larger pot.

MiniMO modules have four sets of I/O ports (each containing



Fig. 2

Each miniMO module uses the same parts, and you can buy them preprogrammed or program them yourself. 3D-printed cases cost \$5—or you can grab the free STL files from GitHub.

signal and ground), a header for programming, a button, a pot, and an LED (see Figure 2). In the ADSR configuration, ports 1 and 2 are CV outputs, port 3 is a CV input that duplicates the knob, and port 4 is a trigger input. On power-up, the knob controls attack time. Each time you press the button, it reassigns the knob to control the next envelope segment: decay time, sustain level, release time, and then attack again. (The LED blinks one to four times to show you which segment you're adjusting.) Cleverly, Jose implemented pickup mode, so switching to a new segment doesn't change its value until you twist the knob through the current value. An alternative boot mode turns the envelope into an LFO. You can also trigger it by double-clicking the button.

I connected the West Pest's gate output to the miniMO's trigger input (see Figure 3) and patched one of the miniMO's outputs into the Pest's dynamic gate input. A twist of the knob, and I had a lovely brass attack. Patching the envelope to the Pest's FM, pitch, and wavefolder mod inputs unlocked all sorts of squawks, air horns, and timbral animation. The maximum time per segment is only about a second and the shape is a bit coarse, but it was more than enough to give my West Pest a whole new personality.



Fig. 3

Engagement ring modulator? Here the gate output of the West Pest (black cable) triggers the miniMO ADSR, which feeds the dynamic gate input (blue cable) to add an amplitude envelope to each note.