

TELETRON: MODIFYING THE MATTEL MINDFLEX TOY TO PLAY A SYNTHESIZER WITH YOUR MIND

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Provided here are instructions for converting the Mattel MindFlex toy, which employs EEG sensors to control the motions of a ball with the user's mind, into a control voltage source for an oscillator or synthesizer. The author refers to the resulting mind-to-instrument interface as the Teletron.

1. Open the MindFlex body after removing the screws on the bottom of the unit, including screws hidden beneath the smaller plastic feet that are some trouble to remove. The reader is referred to the excellent set of notes and photos of the disassembled MindFlex by Alpha, posted online at <http://www.bigmech.com/misc/mindflex>, that the author used in conceiving these modifications.
2. Be sure to avoid risk factors for electric shock, such as handling circuitry with the unit powered up. Inside the upper section of the unit, unplug the photointerruptor from the fan motor (purple/black/white/red cable), to allow the upper section to be completely removed. The photointerruptor is unnecessary for this modification.
3. Cut the red/black DC leads close to the fan motor, to allow maximum cable length, and strip the clipped ends of the leads. The DC cables are connected to the circuit board by a small red plug that should be unplugged while cutting and soldering, to reduce the risk of shock, and reconnected after.
4. Solder to the stripped DC cable an appropriate plug or jack for connection to the control voltage (CV) input of an oscillator, noting that the red lead is hot, and black is ground. The author measured the MindFlex unit as putting out a DC voltage of 0-6 V, within the CV range accepted by many audio oscillators. At this stage, a 5 k Ω potentiometer may be inserted in the circuit if desired, to allow for adjustments to the range of pitches available (solder the red and black DC cables from the MindFlex to the outer pins of the pot; solder the hot lead going out to the oscillator to the center pin, and the ground out to the oscillator to the same pin as the black cable). The Moog MG-1 synthesizer used by the author accepts 0-5 V DC and a ¼" stereo plug, with a jumper connecting the tip and ring, and with the sleeve to ground, in the jack on the rear panel labeled "Pitch."
5. Close the unit, letting the newly attached wires and circuitry reside in the MindFlex's underneath storage compartment for easy access. Further modifications may be made to the MindFlex body as desired (see photos). To play, use "freestyle" mode, pressing button 1 then button 2 to activate.

