The simplest, cheapest CD tray etchant agitator, with 4096 and a transistor H-bridge

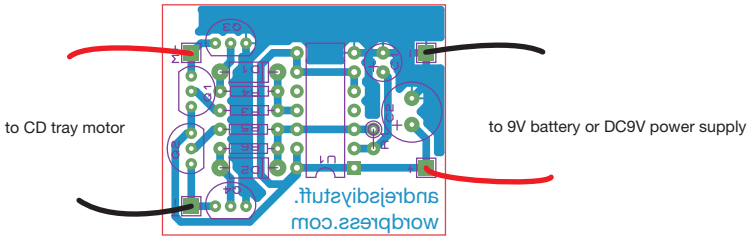
I've seen many CD tray etchant agitators online, but all of them are either too expensive or too complicated. I had some 4096s (Schmitt trigger NAND gate) lying around (and they're better than 555s when it comes to symmetrical duty cycle squarewaves), and I decided to design the cheapest, simplest, lowest-component-count CD tray etchant agitator.

The circuit consists of a squarewave oscillator made with a single 4096 gate, a (logical) inverter made with another 4096 gate (needed by H-bridge) and a simple, common transistor H-bridge with some protection. Hookup is really simple, as you can see. The circuit can be easily modified to use a quad NOR gate or an inverter, as long as they have Schmitt trigger inputs.

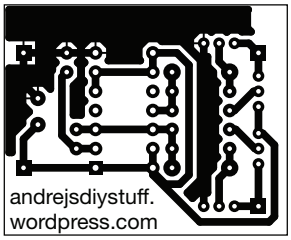
You can replace R1 with a 100k linear pot (wired as a variable resistor) in series with a 20k resistor, for 170ms to 1s period adjustment.

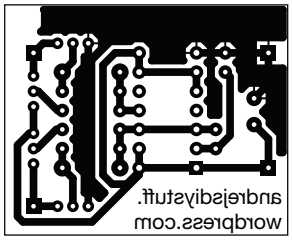
The price should be under 2€.

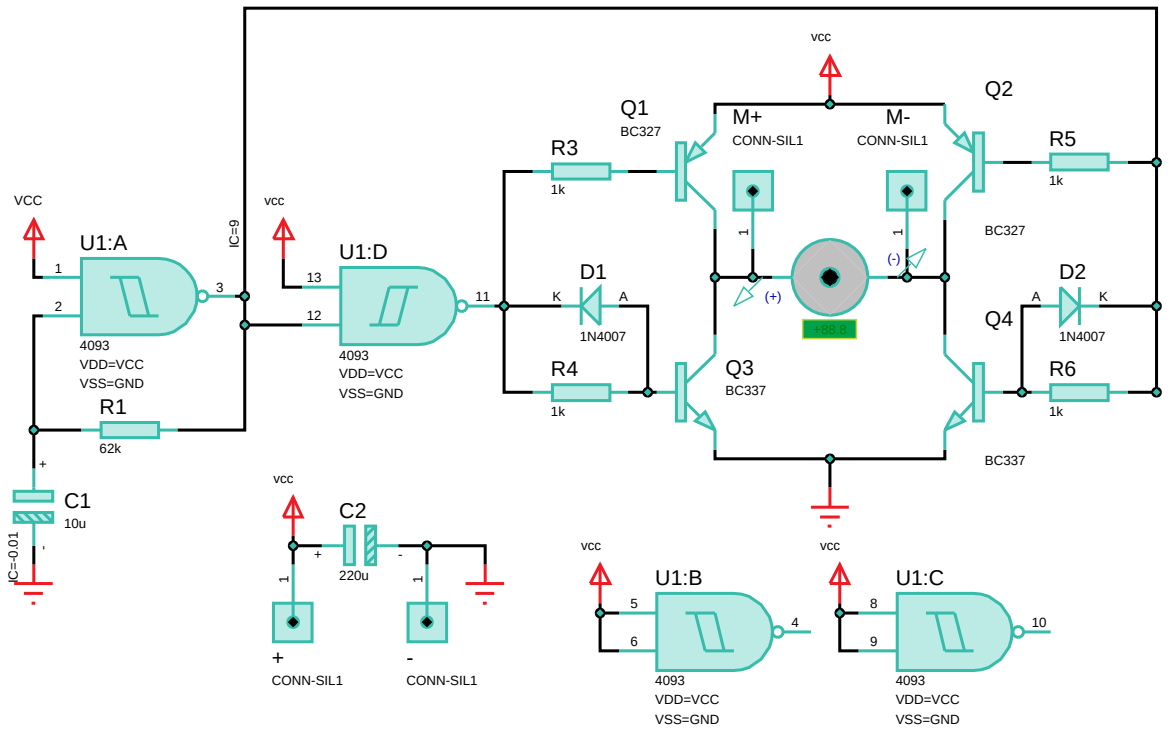
Layout:



PCB:







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FILE NAME:	4093 v1.DSN
DESIGN TITLE:	4093 & H-bridge CD tray agitator
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