CIRCUIT BENDING:
TECHNOLOGY AND COMMUNITY OUTREACH

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This project involves taking electronics workshops for adults and adapting them to be more suitable to children and people that wouldn't normally have the chance to work with electronics. In particular, we have targeted students 9-12 years of age from under-served communities, and are currently working on building curriculum, guidebooks and kits to help these students in "circuit bending" (Ghazala, 2004) - the process of hand-modifying battery powered children's toys to build custom electronic instruments. Our goal is to instruct individuals with no prior experience in computing or engineering in the fundamentals of electronics.

VIDEO

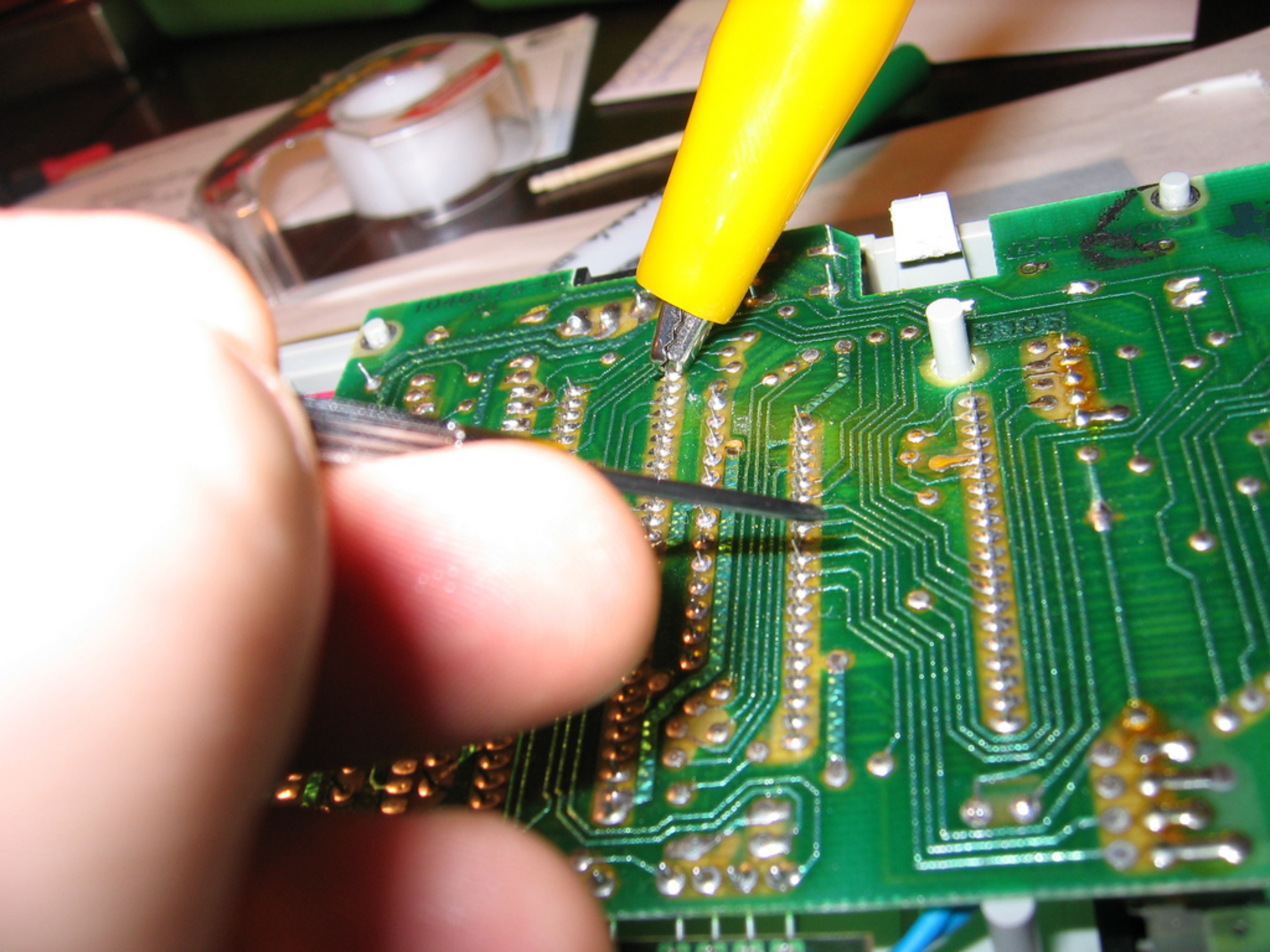
Toy Hacking Overview

http://www.youtube.com/watch?feature=player_embedded&v=aXObMUXmRoM

METHOD

Circuit Bending

Circuit bending is the creative short-circuiting of electronic devices such as low voltage, battery-powered guitar effects, children's toys and small digital synthesizers to create new musical or visual instruments and sound generators.



CURRICULUM

“Toy Hacking” Guidebook

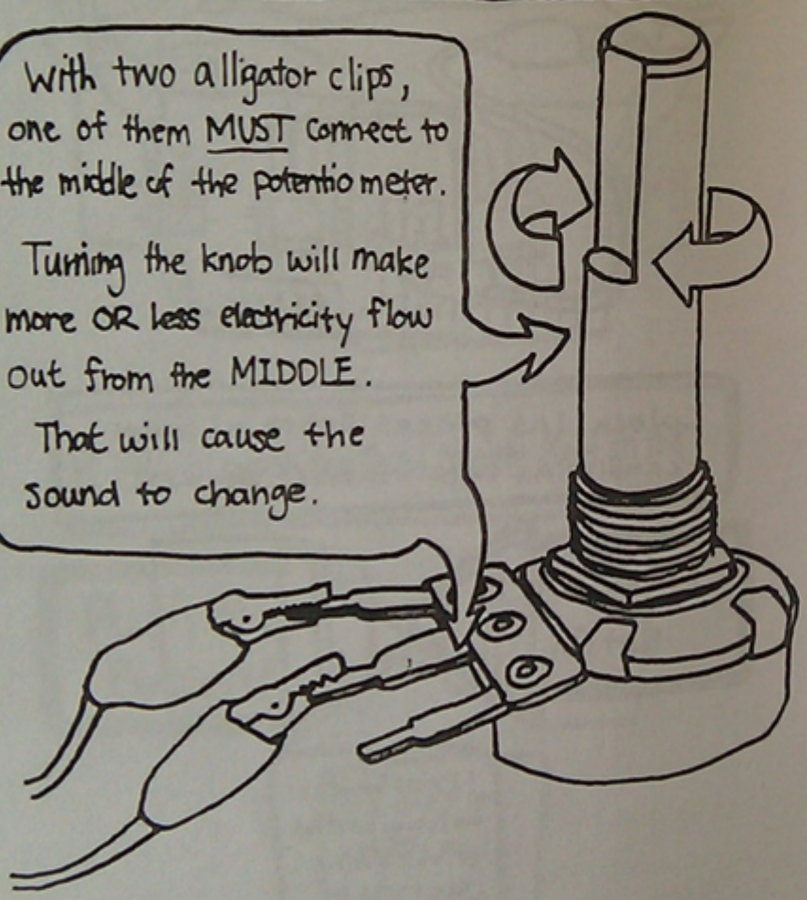
HACKING
玩具制作
BY THE T.A.C.O. TEAM
VERSIÓN ESPAÑOL / INGLÉS
SPANISH / ENGLISH VERSION
TOY
HACKING
GUÍA PARA
Hackear
Juguetes

How to add a potentiometer

With two alligator clips, one of them MUST connect to the middle of the potentiometer.

Turning the knob will make more OR less electricity flow out from the MIDDLE.

That will cause the sound to change.



Cómo agregar un potenciómetro

Toma las pinzitas y conecta una en la mitad del potenciómetro

Girando el control a la izquierda obtendras mas corriente, girando a la derecha menos. Eso va hacer que el volumen disinuya o aumente.

3) Touch the other end of the wire to any other part of the circuit board.

Did the sound change?

4) If NOT, touch the wire to another part of the circuit board and Listen!

Make sure that you are doing this when the toy is making sound!

现在的声音有变化吗?

如果没有，请用电线的另一端去接触电路板其他地方，听！

记住你要在玩具正在发出声音的情况下做这个试验哦！

中文 英文 版 CHINESE & ENGLISH VERSION

TOY HACKING

玩具制作

BY THE T.A.C.O. TEAM

FUTURE DIRECTIONS

Curricular Kits & T.A.C.O. Truck

Research & Education Objective:

To design and develop curriculum and kits for D.I.Y. electronic hardware development – primarily using no-cost or surplus technology – for middle school adolescents in underserved, Latino communities.

STEP-VAN

STEPVAN

Speak & Spell
D.I.Y.
TRED TRUCK

Spear & Spell
STEP-VAN
D.I.Y.
TRED TRUCK

DIY
TACO TRUCK

DIY
TACO TRUCK

CONCEPT

Un-Blackboxing Technology

A photograph of a flight data recorder, often referred to as a "black box." Data recorders are a clear example of a system where the interior functionality of the device is sealed off and not accessible to a user. In fact, a flight data recorder is engineered to be tamperproof and to operate autonomously without a user. (Image source: National Transportation Safety Board, Cockpit Voice Recorders and Flight Data Recorders, <http://www.ntsb.gov/aviation/cvr_fdr.htm> (Last modified September 2004, last visited October 18th 2009.)

INPUT
BLACKBOX
OUTPUT

BLACK

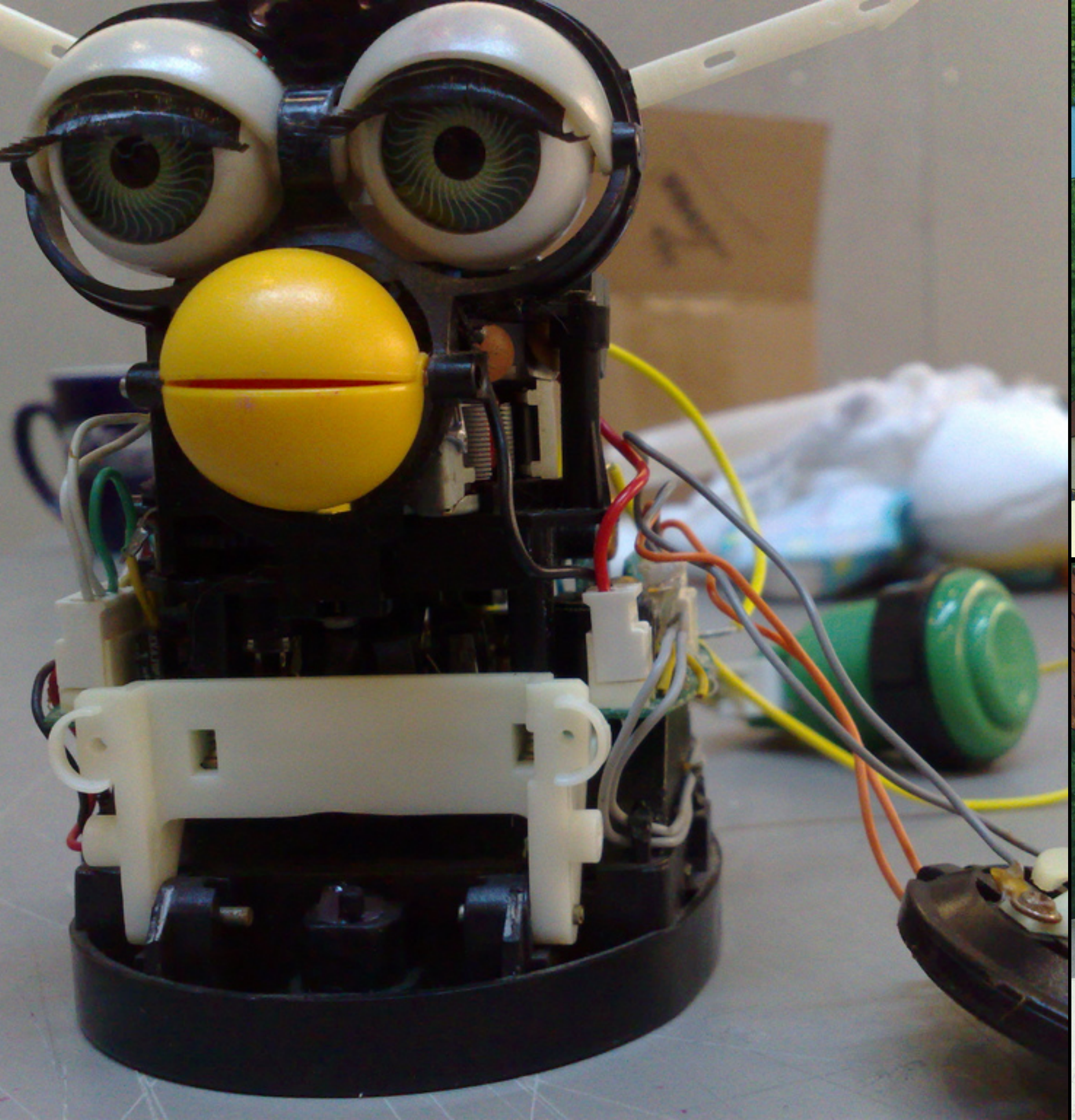
EXPERT
TERRITORY

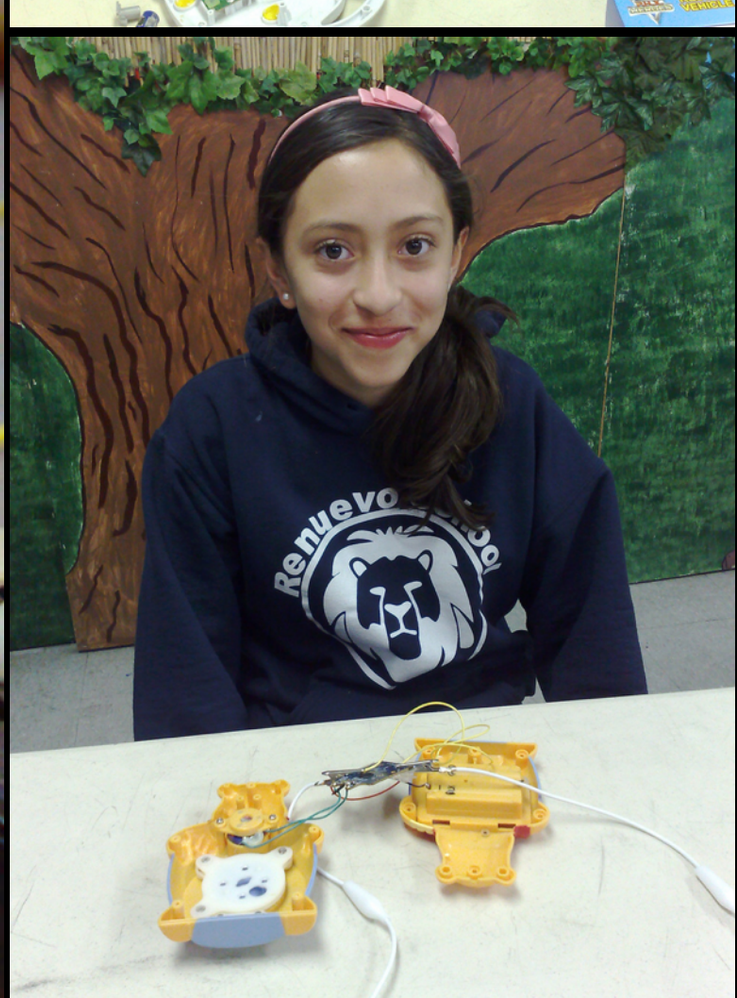
KBOX

NON-EXPERT
BLACK
KBOX
BENDING

As unrecognized producers, poets of their own acts, silent discoverers of their own paths in the jungle of functionalist rationality, consumers produce through their signifying practices ... 'indirect' or 'errant' trajectories obeying their own logic.

Michel de Certeau, "The Practice of Everyday Life" University of California Press, 2002 (first published in 1984.)





MORE INFORMATION

http://www.conceptlab.com/circuitbending/

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