

TOPAOKO

Interactive Construction Kit

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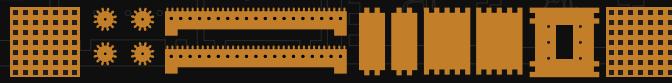


TOPAOKO for **designers** — to build functional prototypes.
for **novices** — to design and build automata toys.
for **DIY-ers** — to build special-purpose tools

Soon low-cost laser cutters will become more accessible.
With your home laser-cutter you can build TOPAOKO, a
printable interactive construction kit for experiment and play
with hardboard-embedded circuits. From raw materials to
simple mechanisms, The TOPAOKO project explores how to
make interactive objects with laser cutter and hardboard.

1. ROW MATERIALS

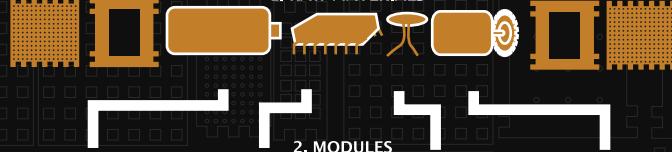
Download TOPAOKO pdf
pattern files and cut them out
with the laser cutter. You can
design your own pattern in
graphic or CAD software such
as Adobe Illustrator.



1. RAW MATERIALS

2. MODULES

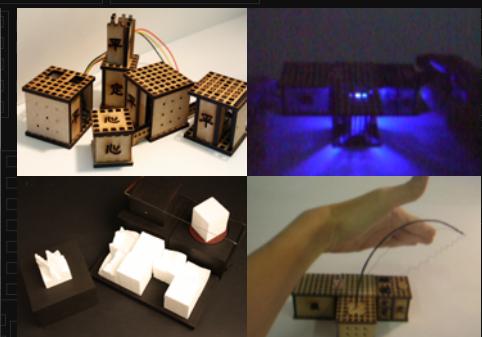
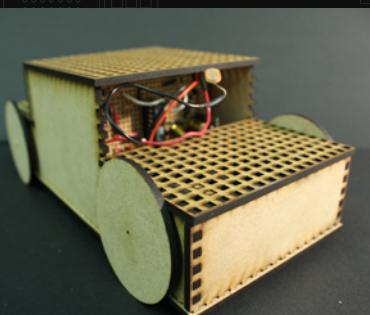
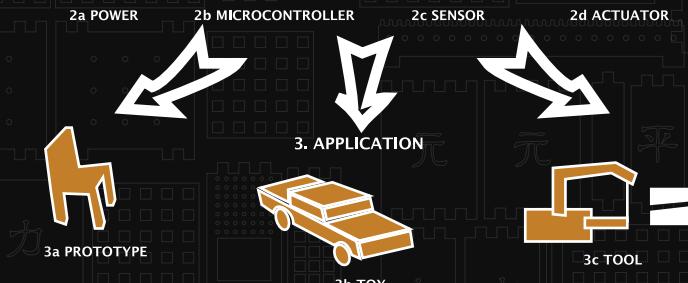
To explore the range of
constructions you can make, we
built four embedded circuit
modules: **microcontroller**,
sensor, **actuator** and **power**.



2. MODULES

3. APPLICATIONS

Now we use the modules to
make more interesting things.
We used TOPAOKO to build a
foam cutter. Starting from a
simple mechanism, we built a
prototype quickly, and then a
final product — a tool to make
more things.



TOPAOKO is the name for Ch'ing Dynasty curio boxes with surprising twists, hidden chambers, and secret mechanisms that emperors used to store their treasures.

1 RAW MATERIALS

Hardboard, copper foil, magnet,
battery, microcontroller, sensor,
motor, and some other electronic
components.

2a POWER embeds a 3 mm cube
magnet to secure physical
connection.

2b MICROCONTROLLER ATmega
168 – 20pu chip with copper foil
traces take microcontroller pins to
ports on the sides of the package.

2c SENSOR has three ports: power,
ground, and voltage input.

2d ACTUATOR contains one of
three devices: motors, light
emitting diodes (LEDs), and
muscle (Nitinol) wires.

3a PROTOTYPE for exploring
tangible interaction

3b TOY for fun designing your
own toys.

3c TOOL for building artifacts or
robots.