How to make your own Box It Sensor

This describes how to make a simple reaction game, by combining various homemade sensors.

To begin with we must find a container for the game. We used an old mobile phone box (turned inside out). Choose your sensors (we used a button, a potentiometer, a tilt sensor and a ‘flick it’ sensor).

**Ingredients**: Box, Scissors, Insulated Wire, Four Sensors

**Step 1**: Take your box and plan where you think your sensors may fit inside.

**Step 2**: Remember to cut a hole in it at one side to allow the cable for your picoboard to exit the box.

Take care when placing the wires in the box that no accidental connections can be made.

An example of the completed box. The following pages describe how the box and sensors are assembled.

**Safety**: Please note that you use these resources at your own risk. Correct use of some components requires care.
The instruction sheet for Tilt sensor may be found separately.

It is important to be very careful with the tilt sensor, in case it leaks near electrical wires. We placed ours outside in order to prevent possible damage.

**Step 1:** Take your tilt sensor, and hold it on the side of your box where you wish to put it. Punch holes in order to feed elastic through to hold it in place.

**Step 2:** Wrap wire around the pins and punch a hole to feed it through into the box.

**Step 3:** Connect using crocodile clips into the picoboard Sensor A Input.

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**Hit/Press It Sensor (Sensor B)**

**Ingredients:** Button, Scissors

**Step 1:** Work out the position of your sensor. Ours is in the lid.

**Step 2:** Cut a hole the correct size. Insert Button and connect it up using the clips into the picoboard Sensor B Input.

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Flick It Sensor (Sensor C)

This sensor works by breaking the connection between the stick and the foil underneath when it is flicked.

Ingredients: Tin Foil, Insulated wire, Cardboard, Stick/Ruler, Elastic, Scissors

Step 1: Cut a hole in your box for the stick to be inserted.

Step 2: Cover the end of your stick and the square of cardboard in Tin Foil.

Step 3: Wrap a wire around the foiled part of the stick and connect to the clip. Clip the other one to the foiled cardboard. Plug into the picoboard Sensor C Input.

Step 4: Cut 2 holes in the base of the box and tie elastic around the stick to pull it back to its original position once flicked.

Turn It Sensor (Sensor D)

Ingredients: Potentiometer, Scissors, Dial for Potentiometer

Step 1: Work out the position of your sensor.

Step 2: Cut a hole the correct size. Insert Potentiometer, fit Dial on the end and connect it up using the clips into the picoboard Sensor D Input.

Safety: Please note that you use these resources at your own risk. Correct use of some components requires care.