



Analogic Drawing Pad

The Analogic drawing pad is a DIY machine that works in a similar way as an etch as sketch device. It allows you to draw lines, text, and simple shapes.

 Difficulty **Medium**

 Duration **2 hour(s)**

 Categories **Art, Play & Hobbies**

 Cost **20 EUR (€)**

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Introduction

In this activity, kids experiment with an analogic drawing pad, to grasp the concept of a cnc machine moving along its x, y, and z axis.

The analogic pad has a pen mounted onto it that can move along the x and y axis of the pad.

Kids can attempt to draw simple geometrical shapes such as squares, rectangles, triangles, etc. on the analogic pad, and later observe a cnc machine (such as a 3D printer) that moves along its x, y, and z axis to create a 3D object. They will notice that the basic working principles of the two systems are very similar.

What follows is a step by step tutorial on how to build your own analogic drawing pad.

Une version française de ce tutoriel est disponible [ici](#).

Materials

10x M4x25mm screws

34x M4 Nuts

2x big pulleys

8 x small pulleys

1x A4 size MDF board, 3mm thick

2 long wooden skewers

nylon wire

Tools

Step 1 - Draw the different parts of the pad on the wooden board

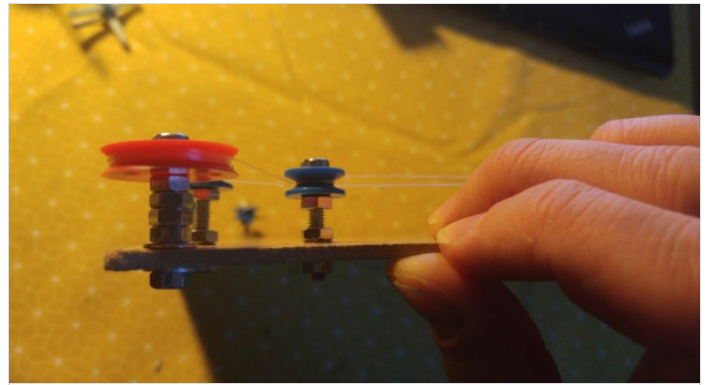
You will need to draw 10 pulleys in total. To draw the pulleys, just place them on the board and draw their contour.

Place de pulleys marked with "1" at 2cm from the sides of the board, and 5cm from the bottom of the board (the bottom of the board is the longest side).



Step 2 - Lock the pulleys to the board, using screws and bolts and washers

Use 3 bolts in total for the small pulleys (the blue ones) and 5 bolts plus 2 washers for the big pulleys (the control pulleys - in red)



Step 3 - Wrap the nylon wire around the blue pulleys and the control pulleys

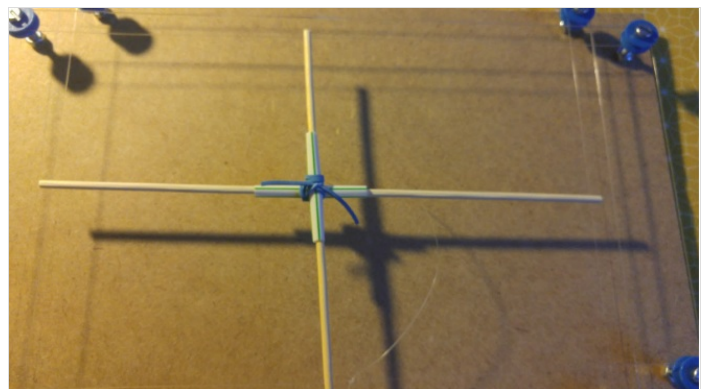
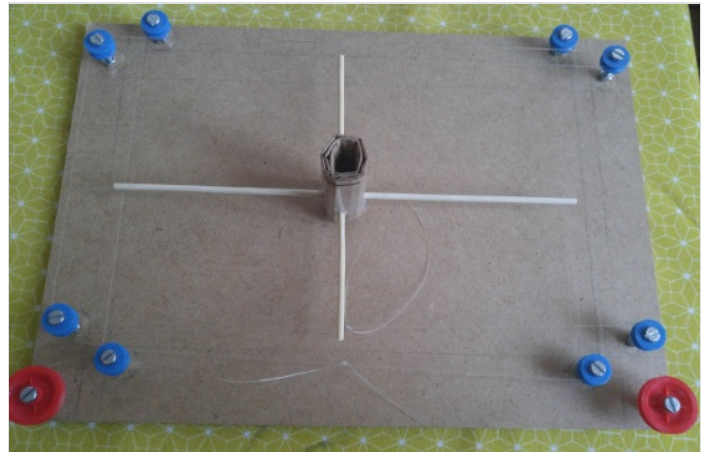
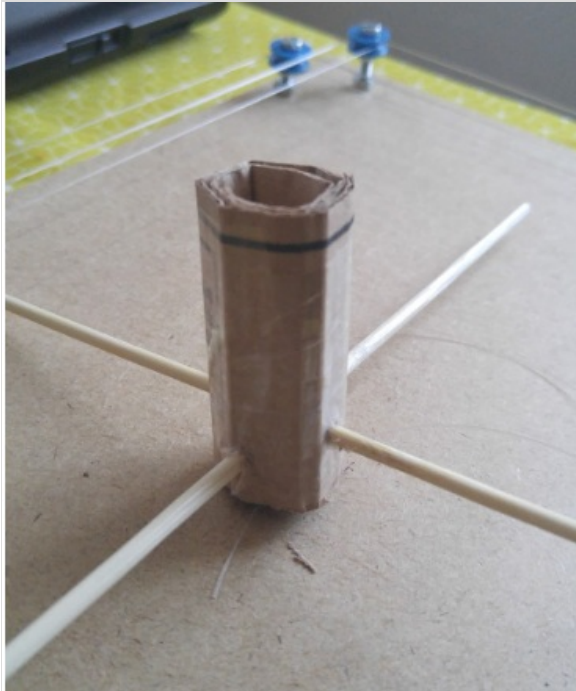
Watch [this](#) video to learn how

You can also watch [this](#) video if you struggle with the wiring.

Use a piece of cardboard to place two wooden skewers at 90° angles with respect to one another.

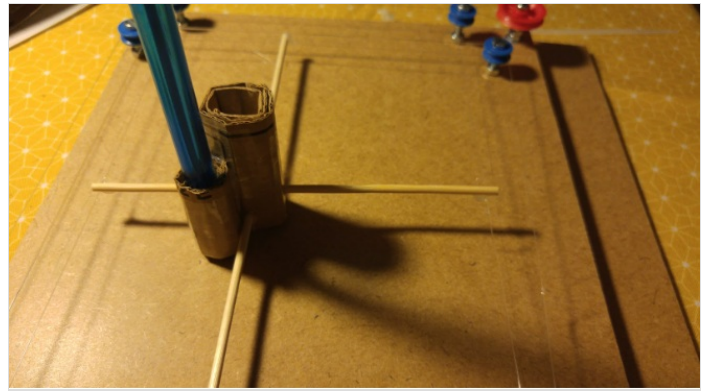
The skewers need to be long enough to reach the nylon wire on the top bottom left and right of the pad.

Alternatively, you can use straws to accomplish this step.



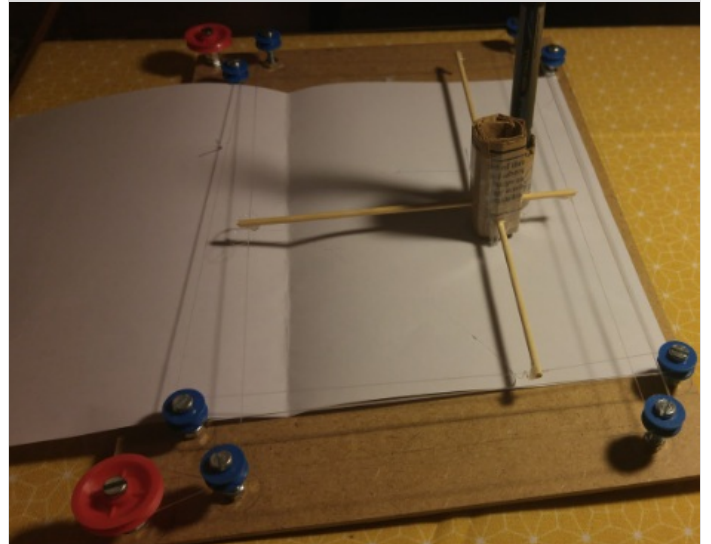
Step 4 - Use some hot glue to stick the ends of the skewers to the nylon wire

If you've assembled all parts in the correct way, both skewers should be able to move freely around the pad (along the x and y axis of the pad).



Step 5 - Create the support for the pen

We now need to create a support for the pen. Use a piece of cardboard to create it, then glue it to the other piece of cardboard hosting the skewers.



Notes and references

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