

# “3D” ZOETROPE



# INDEX

## Material

- MDF 4mm

## Building technique

- Laser cutting

## Pieces

- bottom (1)
- top (1)
- walls (15)
- character frames (15)

## Pipeline

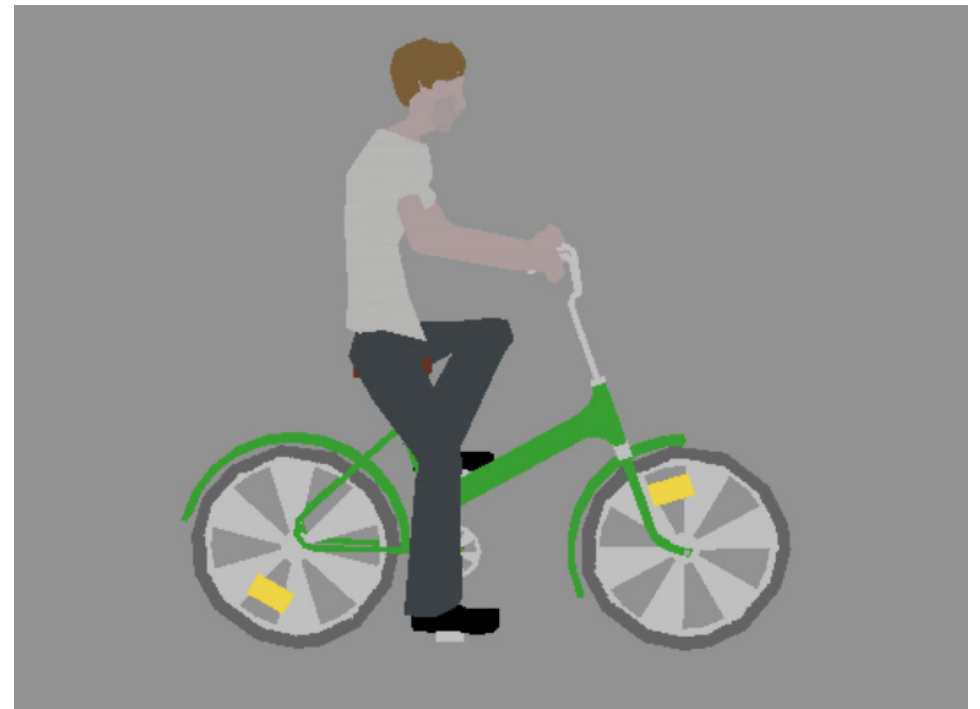
1. 3D-modeled and animated character + bike. 15 frames loop cycle.
2. Export frames as .PNG (bitmap) images.
3. Convert bitmap images to vector paths (to achieve cutting lines).
4. Add bottom notch outline to vector images cutting line.
5. Keep bitmap & vector images aligned on top of each other.

# ANIMATION

I had already modeled and animated this bicycling character in a 3D software.

2D animation could have been used as well.

(But 3D animation could have been used in 3D printer also.)



## Video file

[https://raw.githubusercontent.com/DigitalFabricationStudio/Project\\_0.2/master/toni.enstrom/biking\\_export\\_25frames\\_loop.mov](https://raw.githubusercontent.com/DigitalFabricationStudio/Project_0.2/master/toni.enstrom/biking_export_25frames_loop.mov)

# ENGRAVING

Exported bitmap images with few shades of grey.



# CUTTING LINES

Vector shapes + bottom part notch added to achieve a cutting line.

I used Adobe Illustrator to convert images to paths.



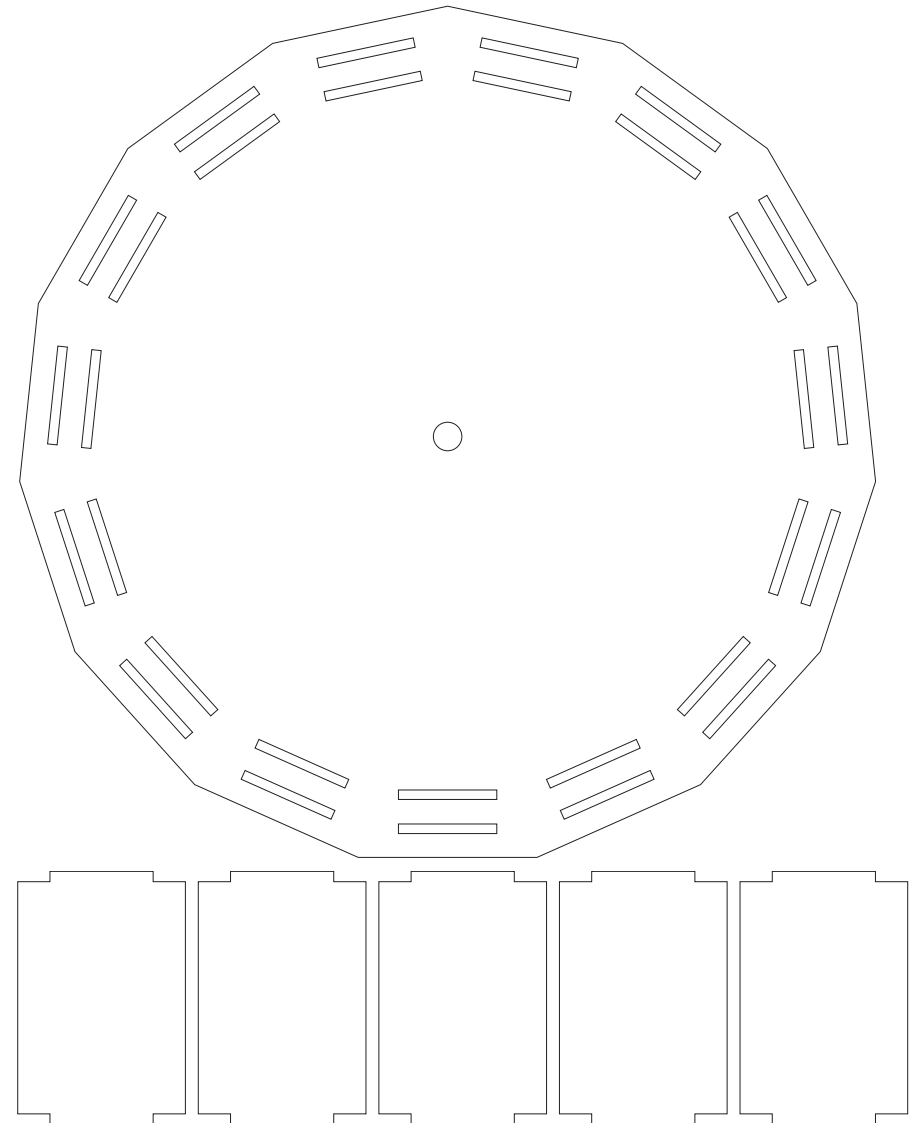
# CUTTING LINES

Vector shapes for the other pieces of a zoetrope.

Diameter of a zoetrope was approx 32 centimeters.

Wall pieces were 6,5 x 9,8 centimeters.

Notches & holes were 4 x 0,3 centimeters.



# PRINTING

With both bitmap + vector images aligned on top of each other, first lasered the engraving and then in second pass the cutting.

The size of a biker shape is approx 6 x 8 centimeters.

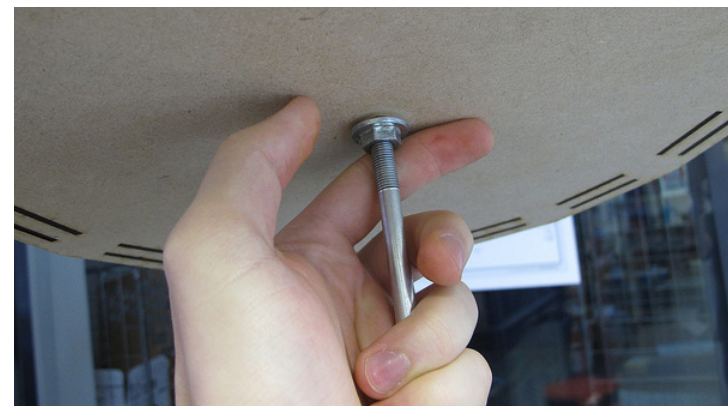
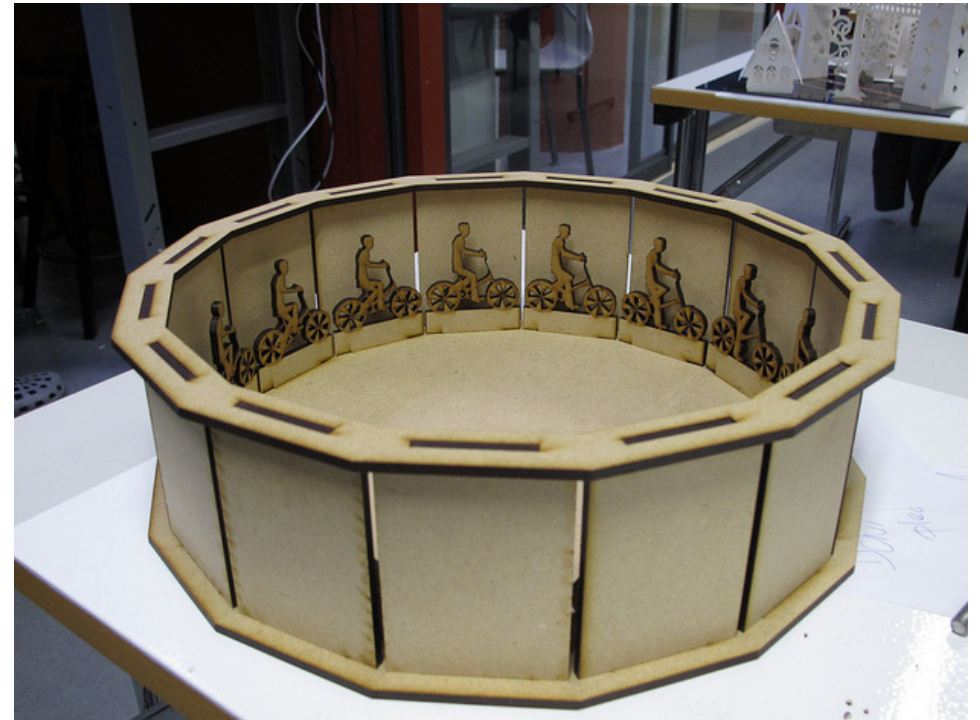




# ASSEMBLING

I managed to assemble the zoetrope almost without using glue (just one piece was too loose).

For a pivot i used a bicycle front wheel axis. It's a little rough solution, but works in prototyping.





# IMPROVEMENTS

Laser cut zoetrope works as it is now, but it needs to be used in a properly lit environment.

Enhanced version of a zoetrope could use a built-in light source, either placed between the layers (walls & character frames) or then in the ceiling piece.