

ROBOcientists



The DIY automobile project

Materials and ideas for crafting

Indicative materials for crafting

1. Cardboard:

A sheet of stiff cardboard is needed for the creation of the chassis as well as for DC Motor's fasteners.

You can either use grey (2mm) (*Figure 1, left*), or 3-ply sheet (3mm) cardboard (*Figure 1, right*), or any other stiff cardboard, suitable for robust structures.

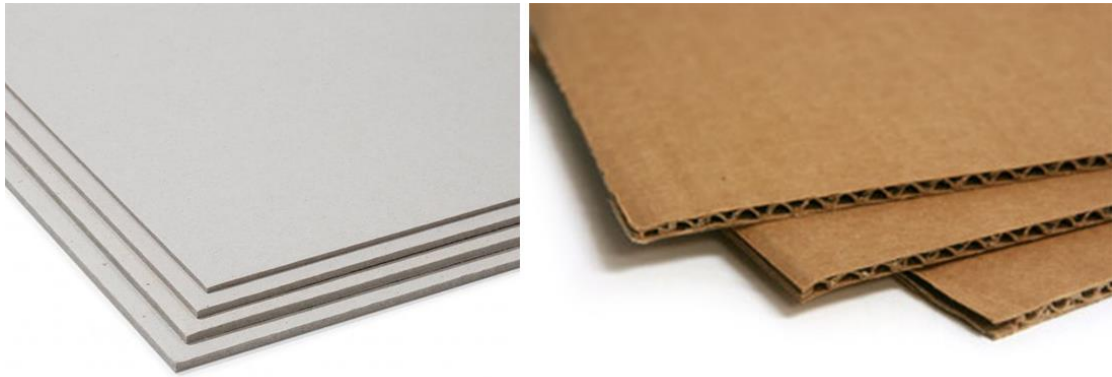


Figure 1: left: Grey cardboard; right: 3-ply sheet cardboard

2. Cutter:

For your convenience, you are advised to use a cutter (*Figure 2*) for cutting the chassis. Alternatively, you can use a rather professional scissor.



Figure 2: Indicative image of a cutter

3. Screws, nuts and Spacers:

If you choose to work with screws and nuts, you will need for each automobile:

- 4 M3 **countersunk** screws of 30mm length (*Figure 3a*)
- 12 M3 spacers of 10mm length (*Figure 3b*)
- 24 M3 screws of 6mm length (*Figure 3c*)
- 4 M3 nuts (*Figure 3d*)

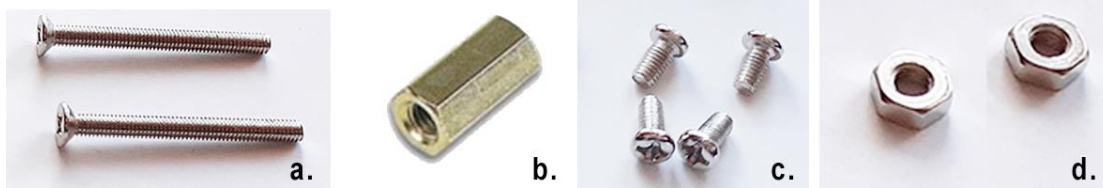


Figure 3: a. M3 screws of 30mm; b. M3 Spacers of 10mm; c. M3 screws of 5mm; d. M3 nuts

- optional

In case that you will choose the solution with the battery holder you will also need 4 M3 **countersunk** of 6mm length (Figure 4) and 2 more M3 nuts.



Figure 4: Indicative image of a countersunk screw. Countersunk screws are those with a rather flat head.

In case that you will use a ball caster (see Figure 5) you will also need 2 M3 spacers of 20mm length



Figure 5: Ball caster

4. Tie wraps

Tie wraps (Figure 6) can be an alternative solution for stabilizing the DC motor gears on the chassis



Figure 6: Indicative image of a tie wrap

5. Wooden Sticks (popsicle sticks)

Suitable for stabilizing some electronic components (e.g. ultrasound sensor) as well as for decoration



6. Silicon glue gun and silicon sticks



7. Screwdriver and small plier

8. Any other thinner cardboard (monochrome or colorful) [for decoration]

Ideas for crafting

The following images present some indicative ideas for creating a DIY automobile.

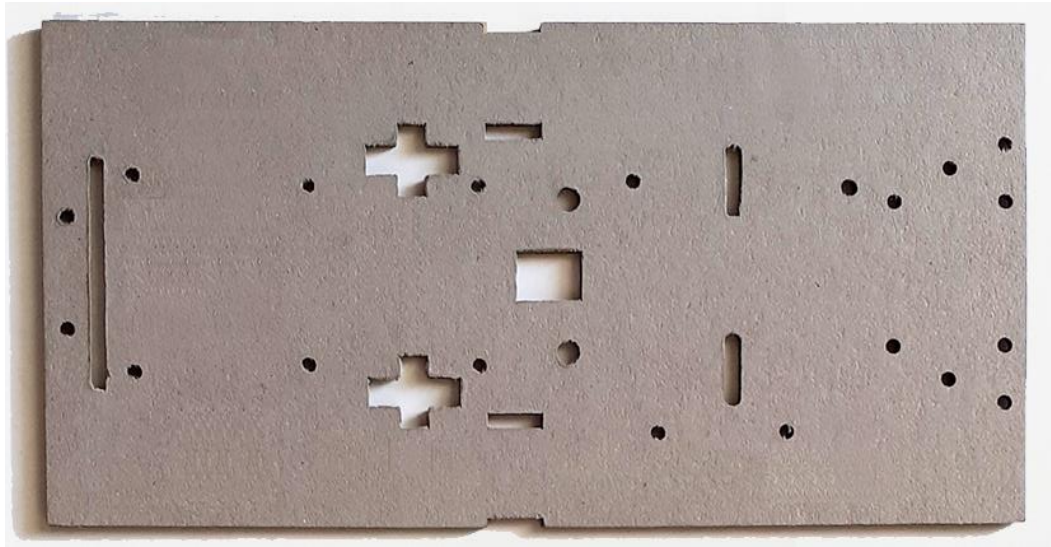


Figure 7: Indicative design for chassis made by a sheet of stiff cardboard

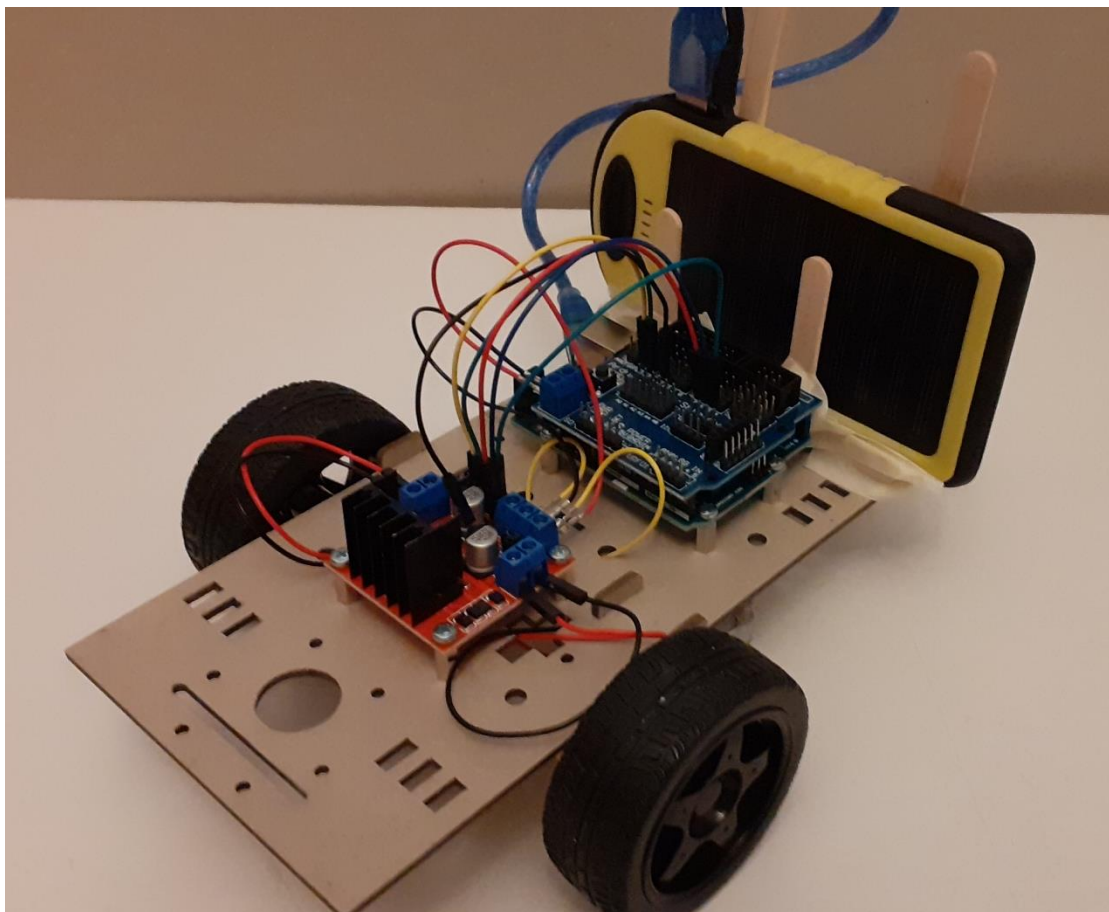


Figure 8: A DIY automobile made by stiff cardboard, spacers, screws and popsicles

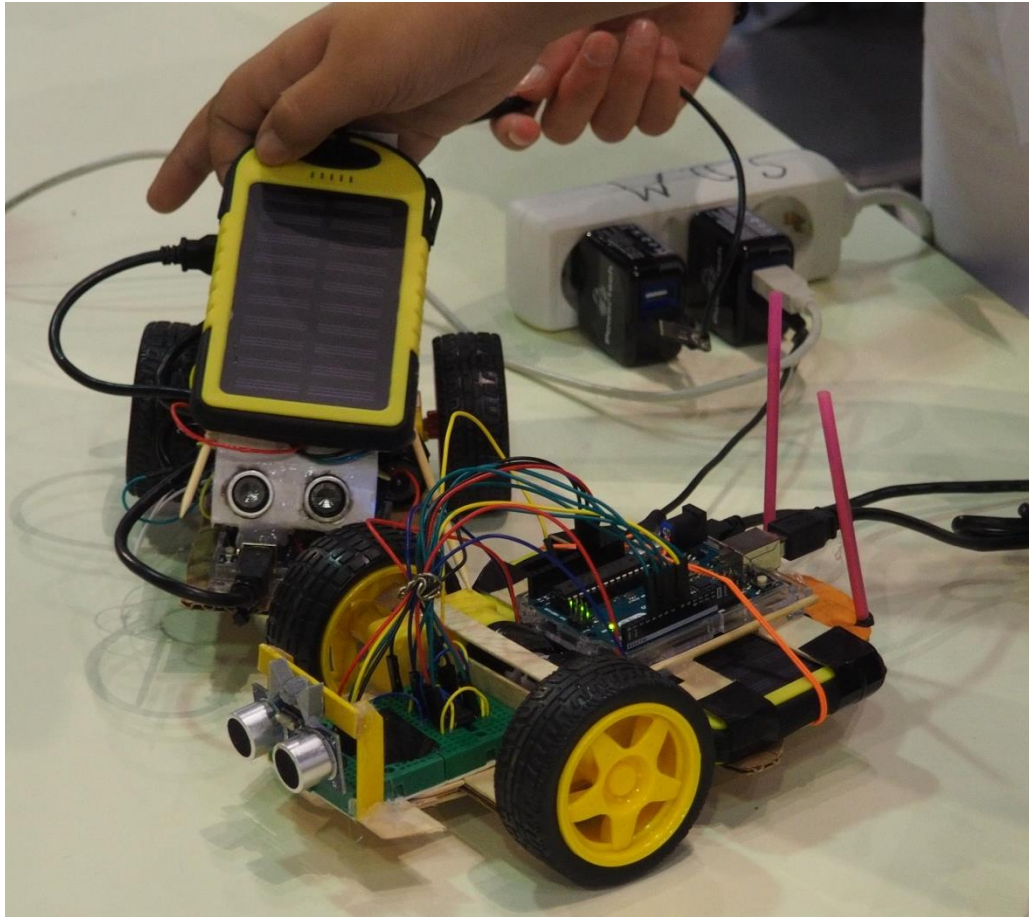


Figure 9: DIYs made by popsicles, cardboards, and hot glue

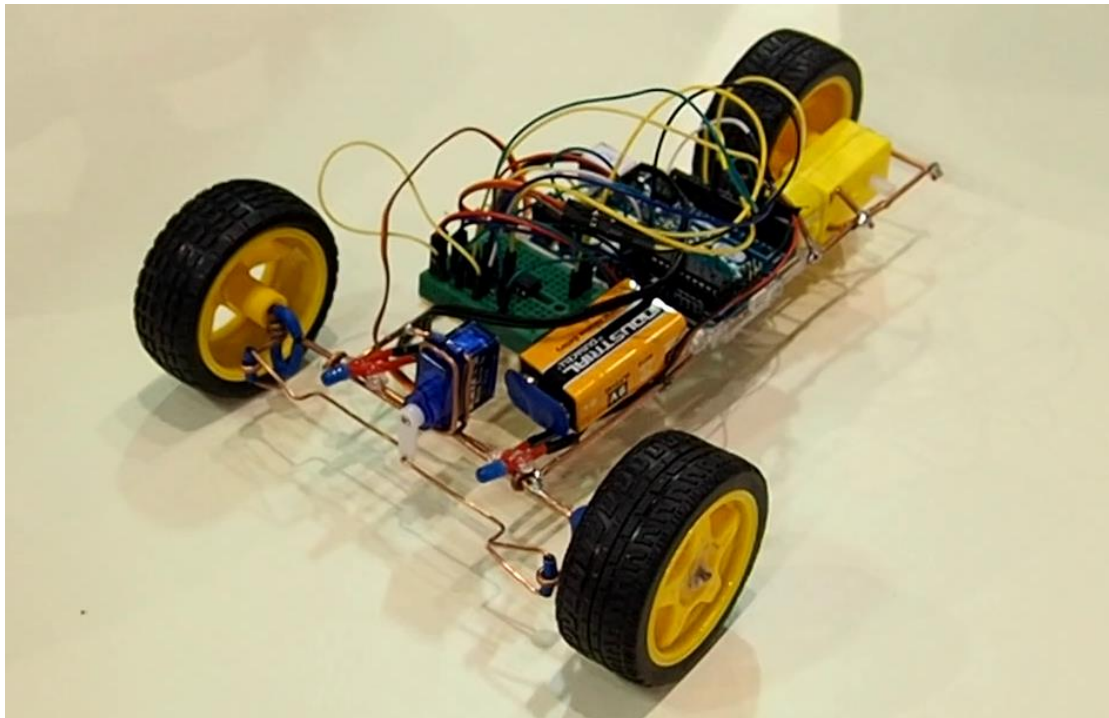


Figure 10: A DIY made by soldered wires

ROBOSCIENTISTS PROJECT

Motivating secondary school students towards STEM careers through robotic artefact making

Erasmus+ KA2 2018-1PL01-KA201-051129

Creators

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Declaration

This report has been prepared in the context of the ROBOSCIENTISTS project. Where other published and unpublished source materials have been used, these have been acknowledged.

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