

## The Sunflower project

*Ideas for crafting*

## General considerations

Crafting/ handcrafting is considered as a pivotal point and a complementary task that can imbue meaning to the project. Through the crafting process (highly interwoven in the robotic artefact construction) students become more engaged to the entire process as they explore of a number of engineering and design concepts, and they consider multiple solutions in order to achieve the results that they want.

The present document contains certain different ideas and approaches on crafting for the sunflower project. Each of them is based on the use of simple (and recyclable) materials that can be easily accessed and modified. The proposed techniques and the corresponding steps are optional and indicative. Students should be encouraged to use any material they like as well as to experiment with different designs, forms and constructing techniques. In this way they will be able to overcome any design-related problem (e.g. how to create a stable structure, how to embed the circuit to their model etc.).

## - Quick and easy solution

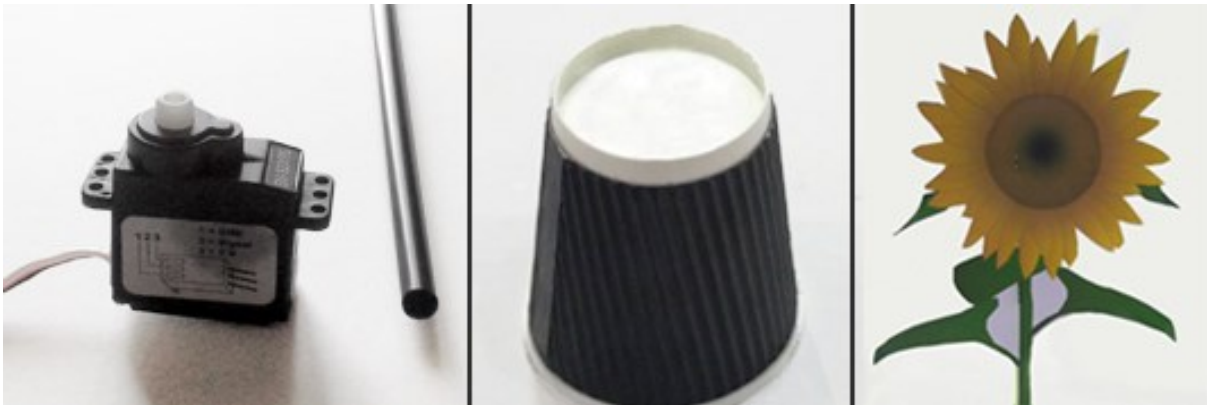


The following images depict the procedure of modelling a sunflower by using a straw, a paper cup and a printed image of a sunflower. Apart from the aforementioned materials, students will need a cutter and glue.

The students, with the assistance of their tutors, will initially cut a small hole at the bottom of the cup, equal to the diameter of the straw.

Then they will place the straw and will attach it to the upper part of the servo motor.

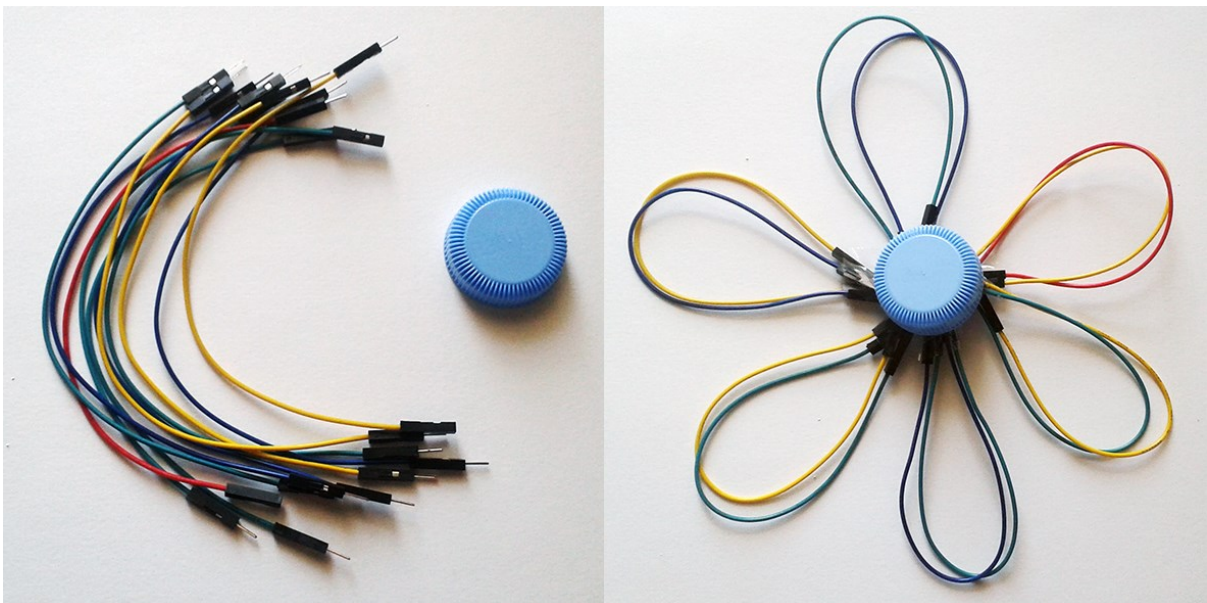
Finally, and on top of the straw, they will glue the printed image of the sunflower.



## - Alternative solutions

Apart from the aforementioned (rather easy) solution, students should be encouraged to use their imagination and implement alternative methods and techniques. For example, they can search on the internet to find folding instructions for creating an origami flower. They can also draw inspiration from the available equipment and use some jumpers for shaping the leaves of their sunflower. In this case they can also use the lid of a plastic bottle as the flower head (capitula). Another idea is to use textiles and some buttons for creating a 2-dimensional or even a 3-dimensional sunflower.

However, they should always keep in mind that their construction should not be very heavy, since the weight that can be borne by the provided servo motor is limited.



## **ROBOSCIENTISTS PROJECT**

Motivating secondary school students towards STEM careers through robotic artefact making

**Erasmus+ KA2 2018-1PL01-KA201-051129**

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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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