Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
KA220-SCH - Cooperation partnerships in school education



Automation Engineers



Automation Engineers

Transfer to the screen

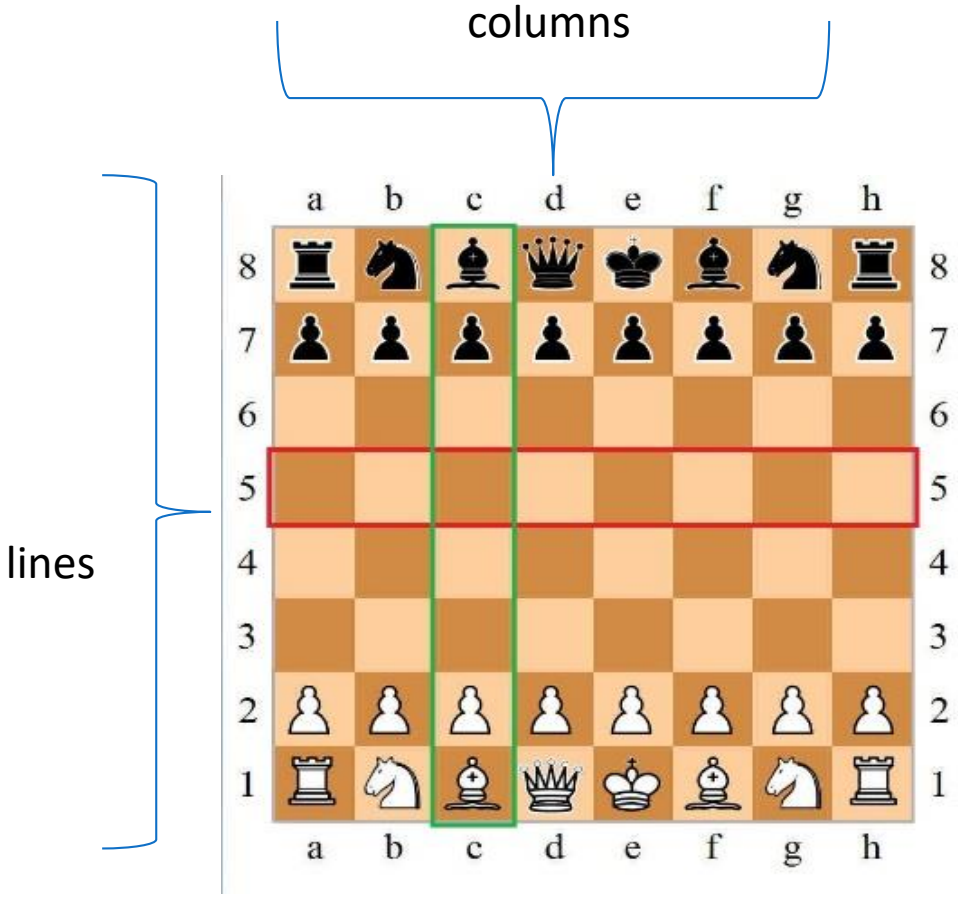
Do you know what chess, battleship, google maps and scratch have in common?



The coordination system!

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Explain your students in simple words about the coordination systems and their usefulness to define a point.

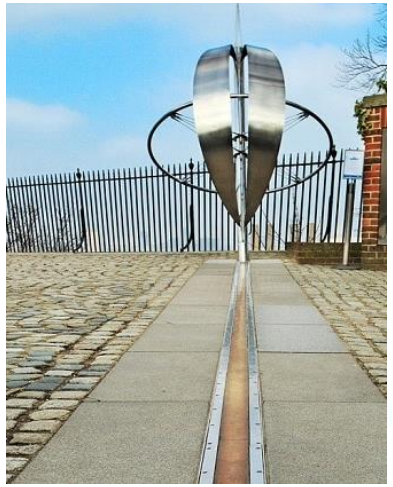


The surface in the chess has columns and lines. Each column is named after a letter and each line after a number. So, every square formed has a unique name.

For example, which pawn is in G1?

Automation Engineers

Transfer to the screen



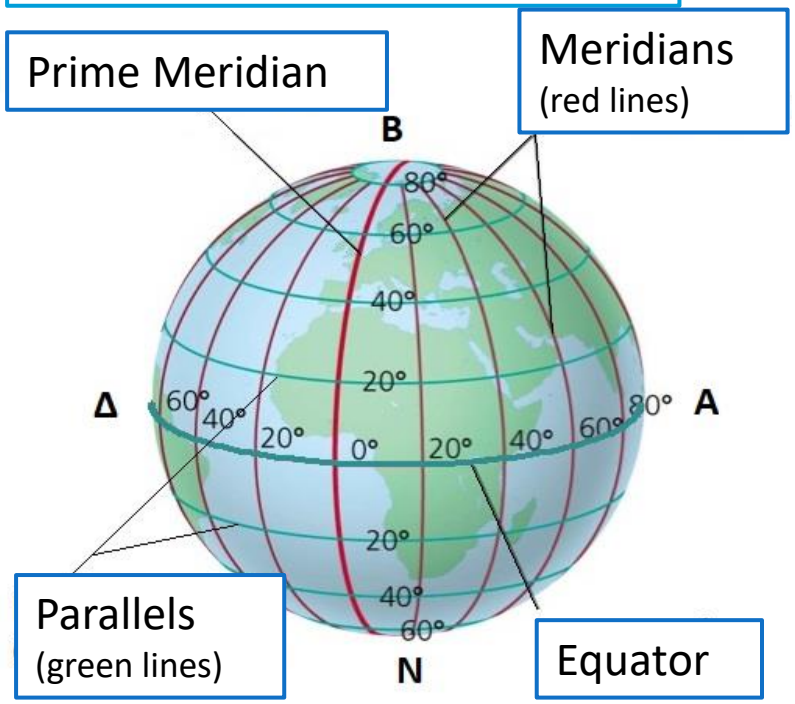


Greenwich Observatory, London

The Earth surface is divided into horizontal circles, that are called **parallels** and define the **latitude**. The point zero is the **Equator**.

Also, the Earth surface is divided into vertical circles, called **meridian** and define the **longitude**. The measurement starts from the **Prime Meridian**.

Combining the latitude and the longitude, the **Geographic Coordinate System** is formed. This is how we locate everything on our planet.







Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

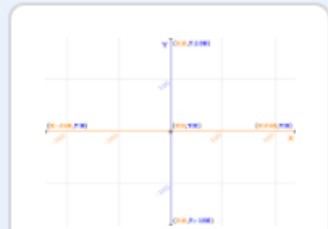
You can find the coordinates of your town and refer to the measurement in degrees.

Automation Engineers

Transfer to the screen

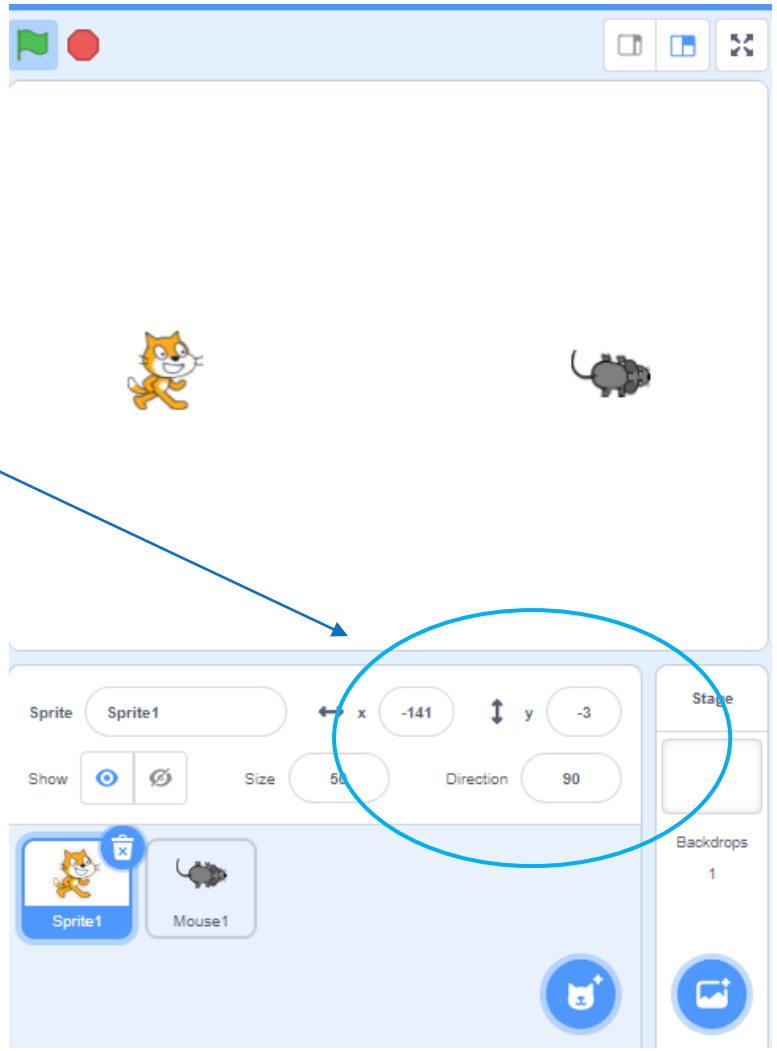
Open Scratch 3.
Apart from the cat, introduce the mouse sprite
Try to move the mouse with your mouse
Notice how x and y change right and down from the stage.
0 is in the center of the screen.

You can also use a background that shows the coordinate system!


Xy-grid

Xy-grid-20px

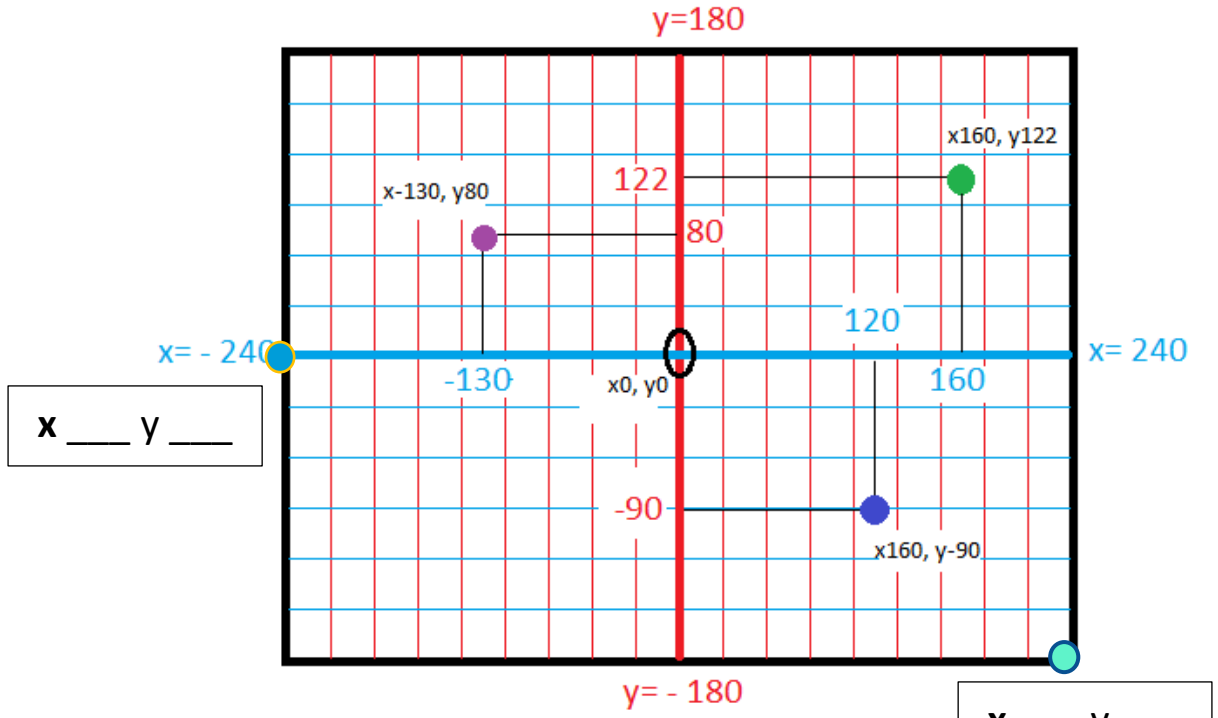
Xy-grid-30px



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen



x ___ y ___

x ___ y ___

Find the coordinates of the two dots and write them in your worksheet

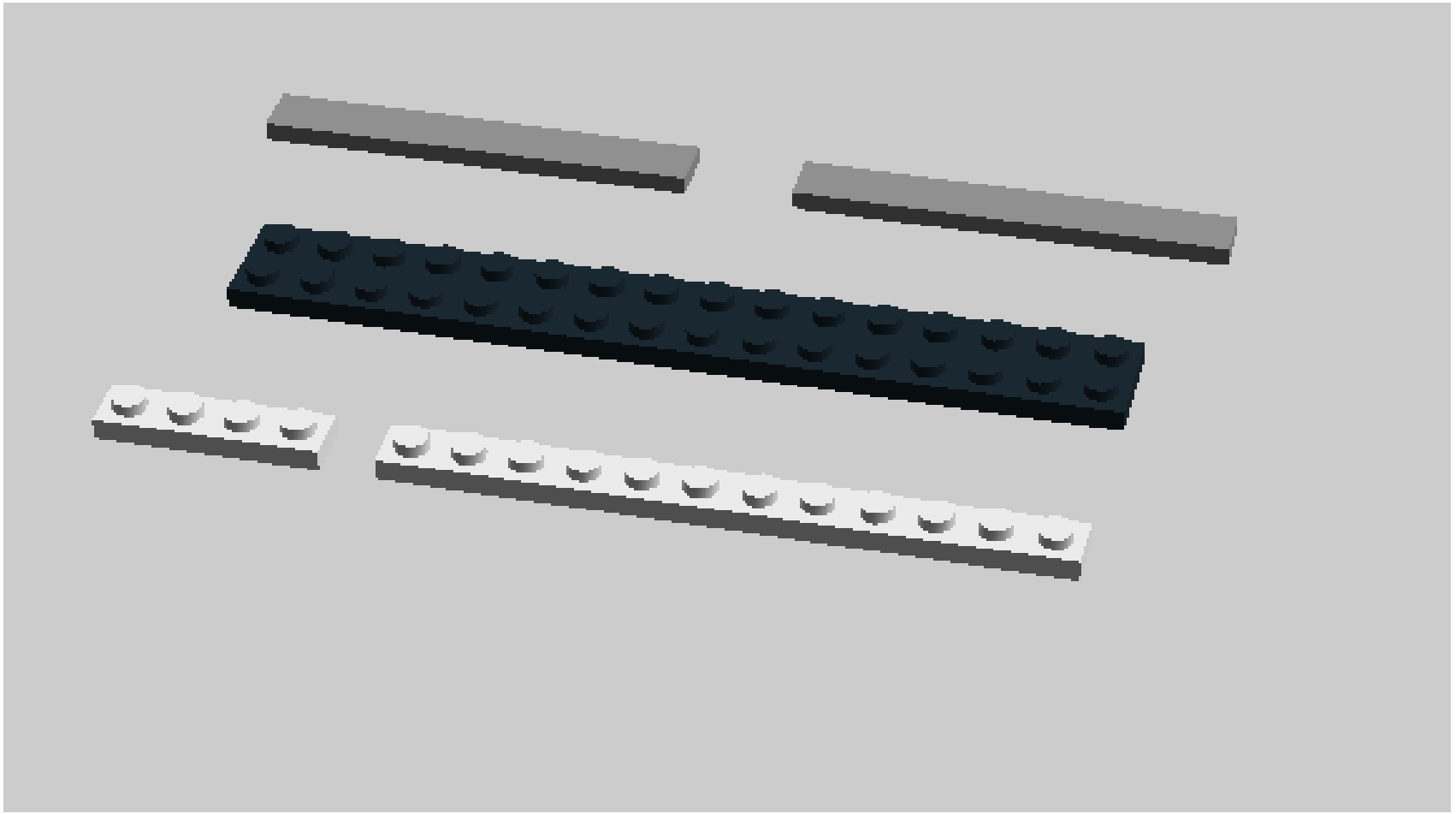
Then move on to the building

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

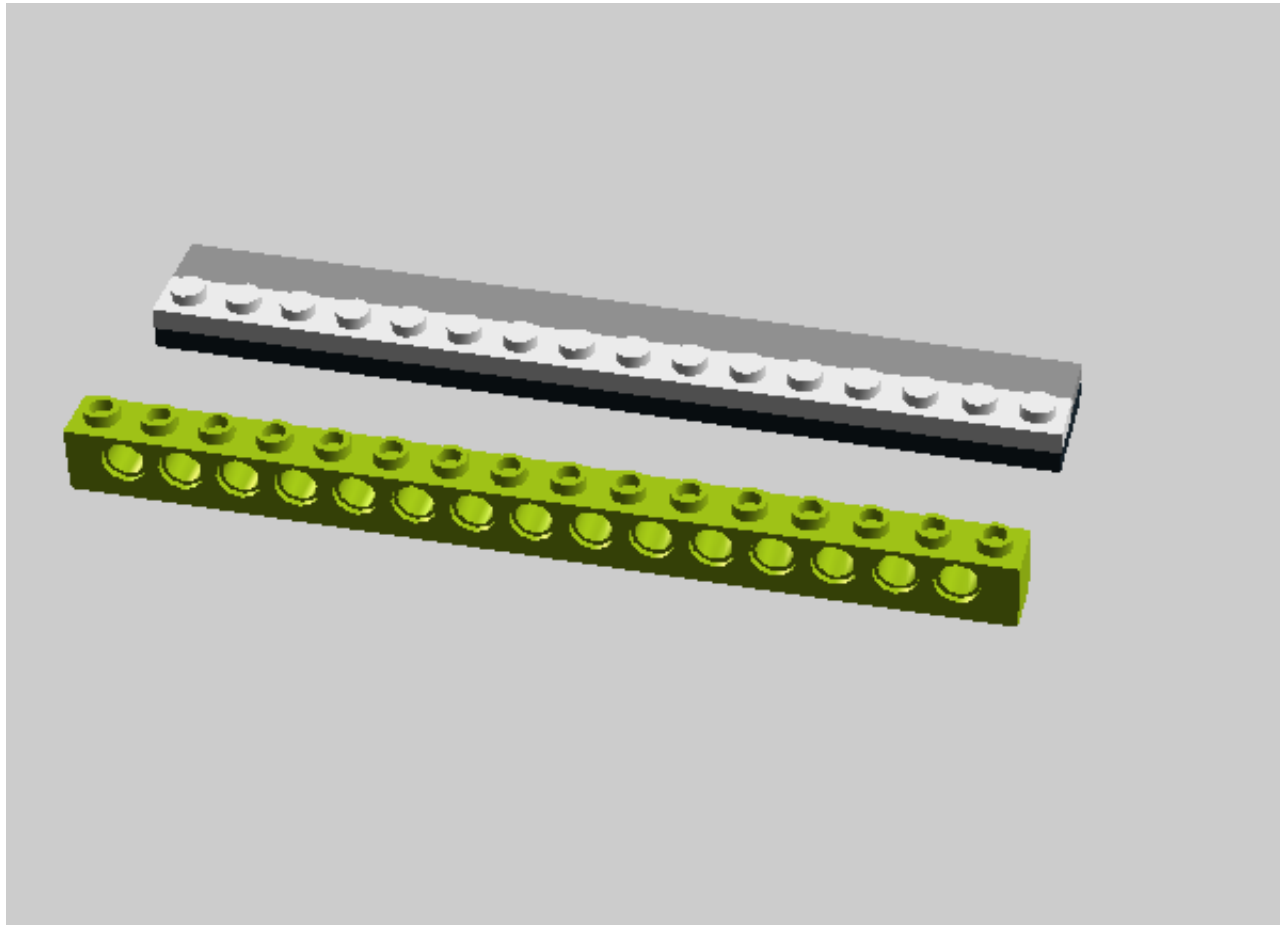
1



Automation Engineers

Transfer to the screen

2

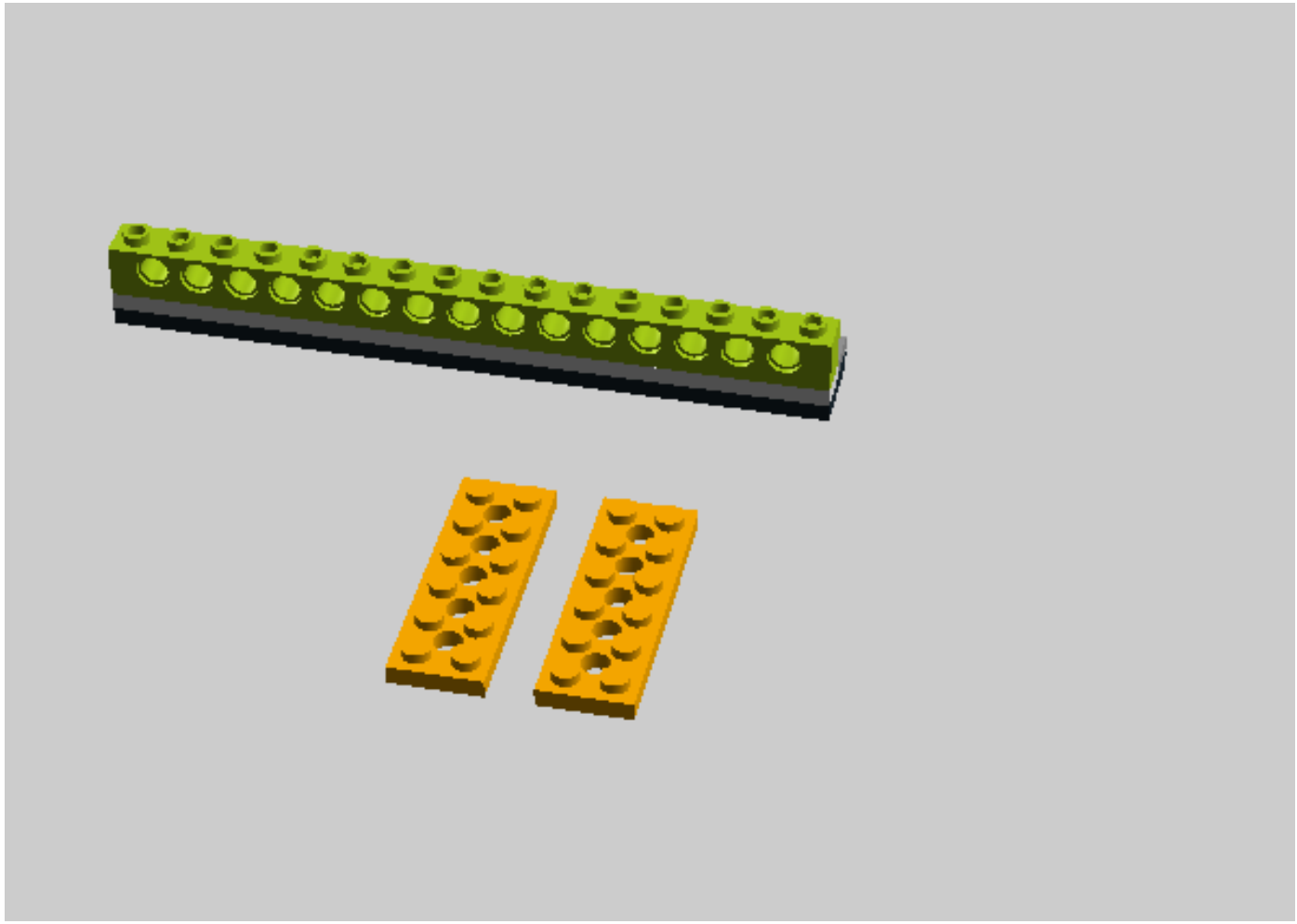


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

3

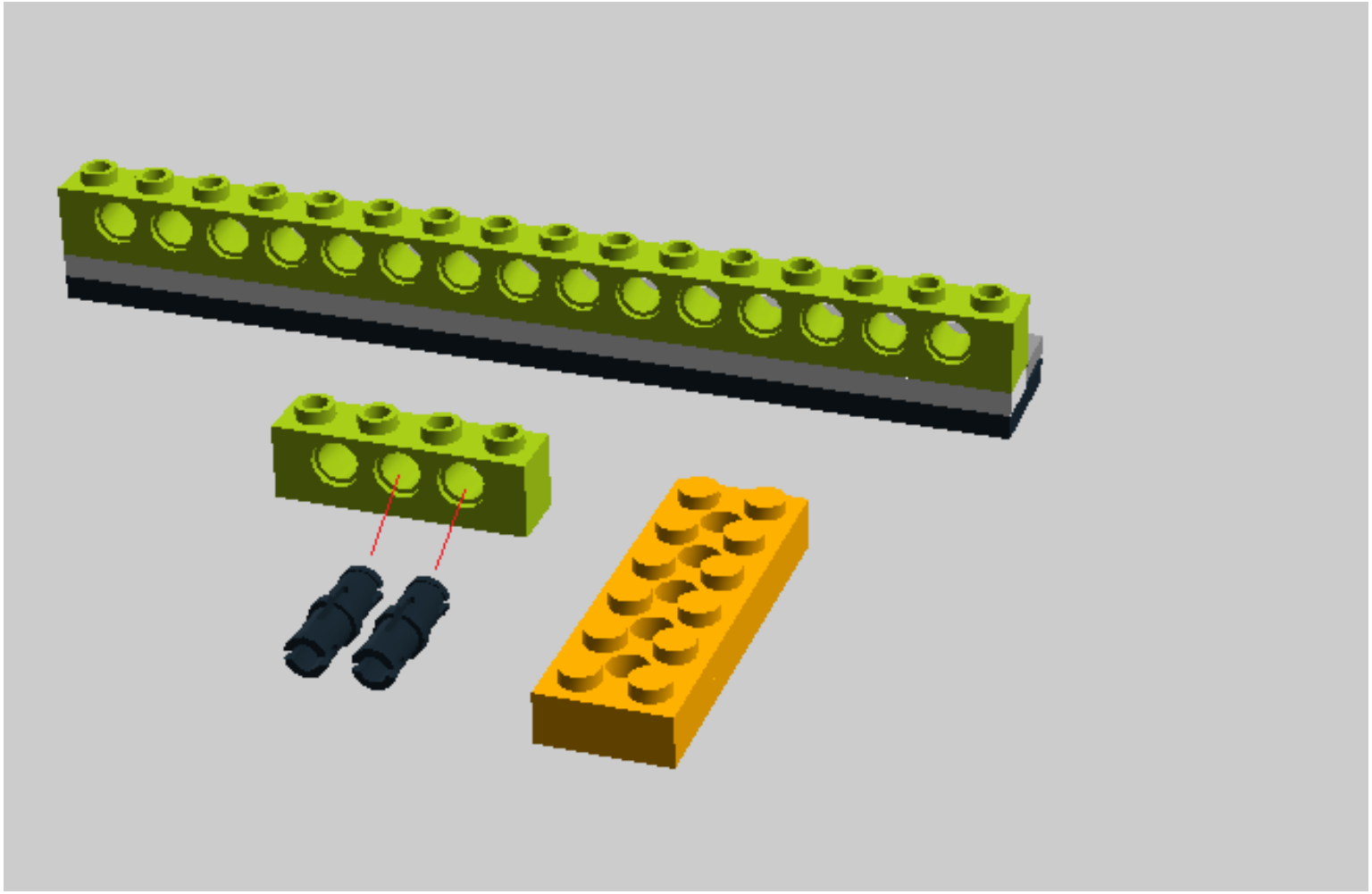


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

4

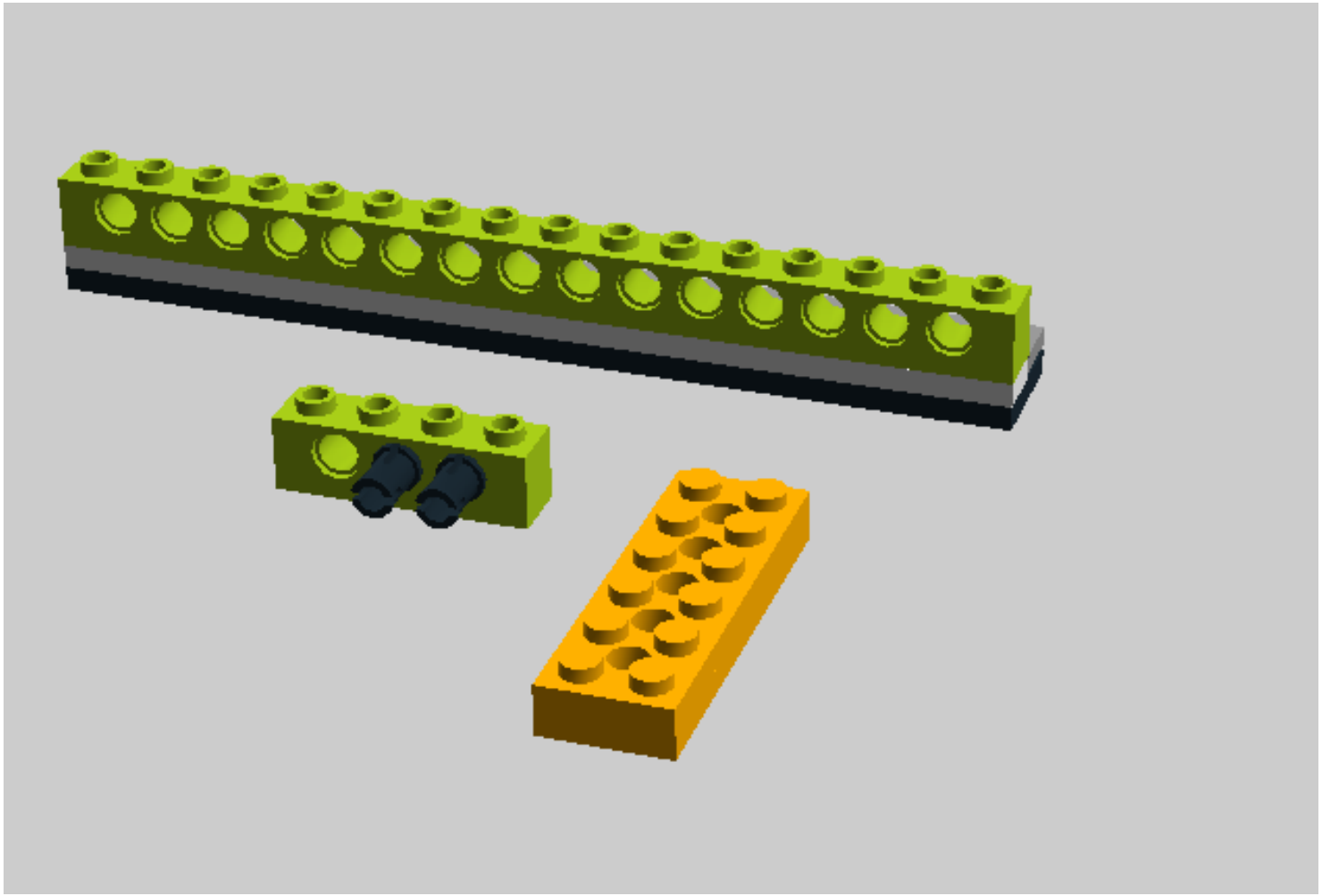


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

5

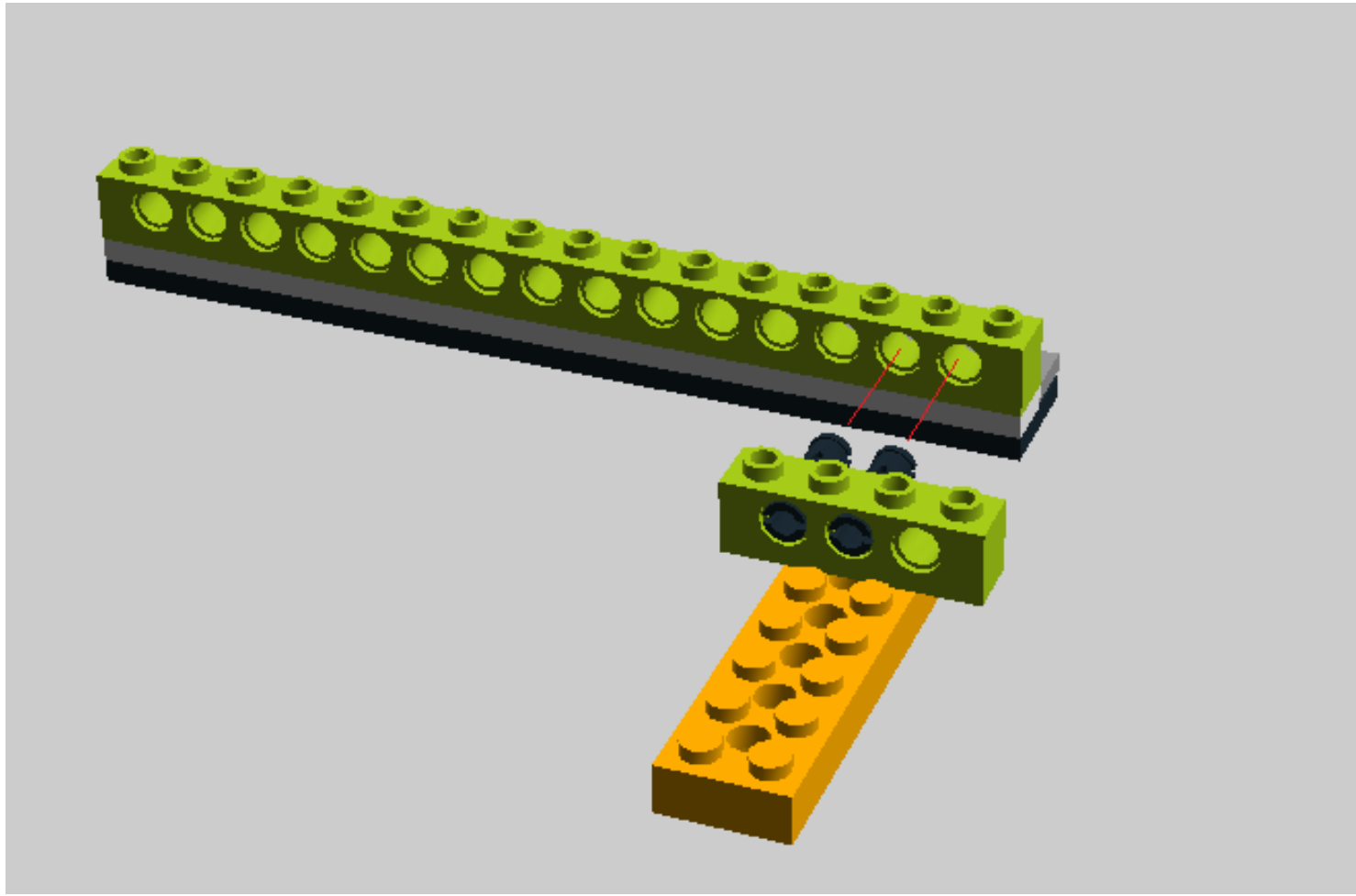


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

6



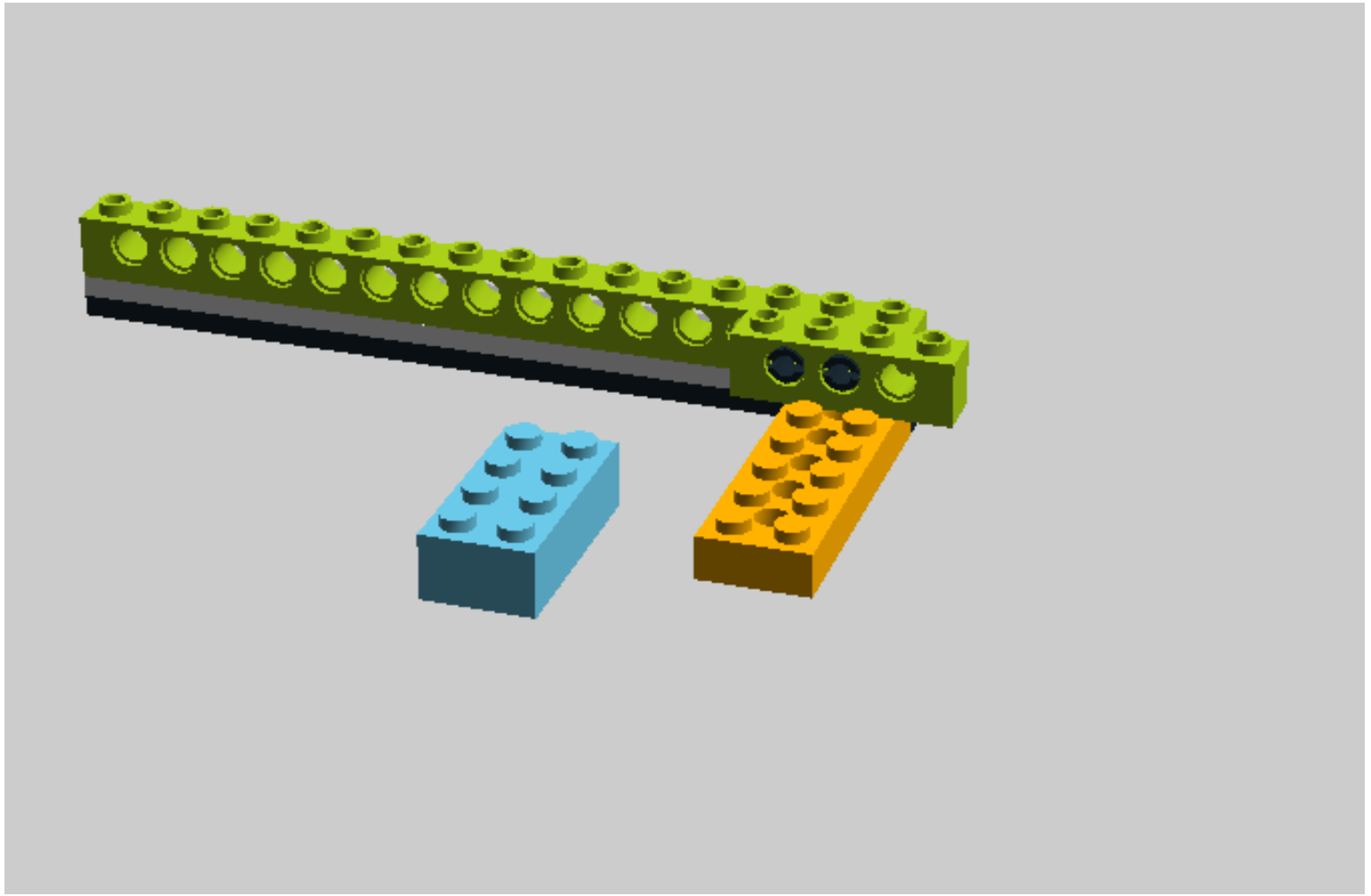
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

7

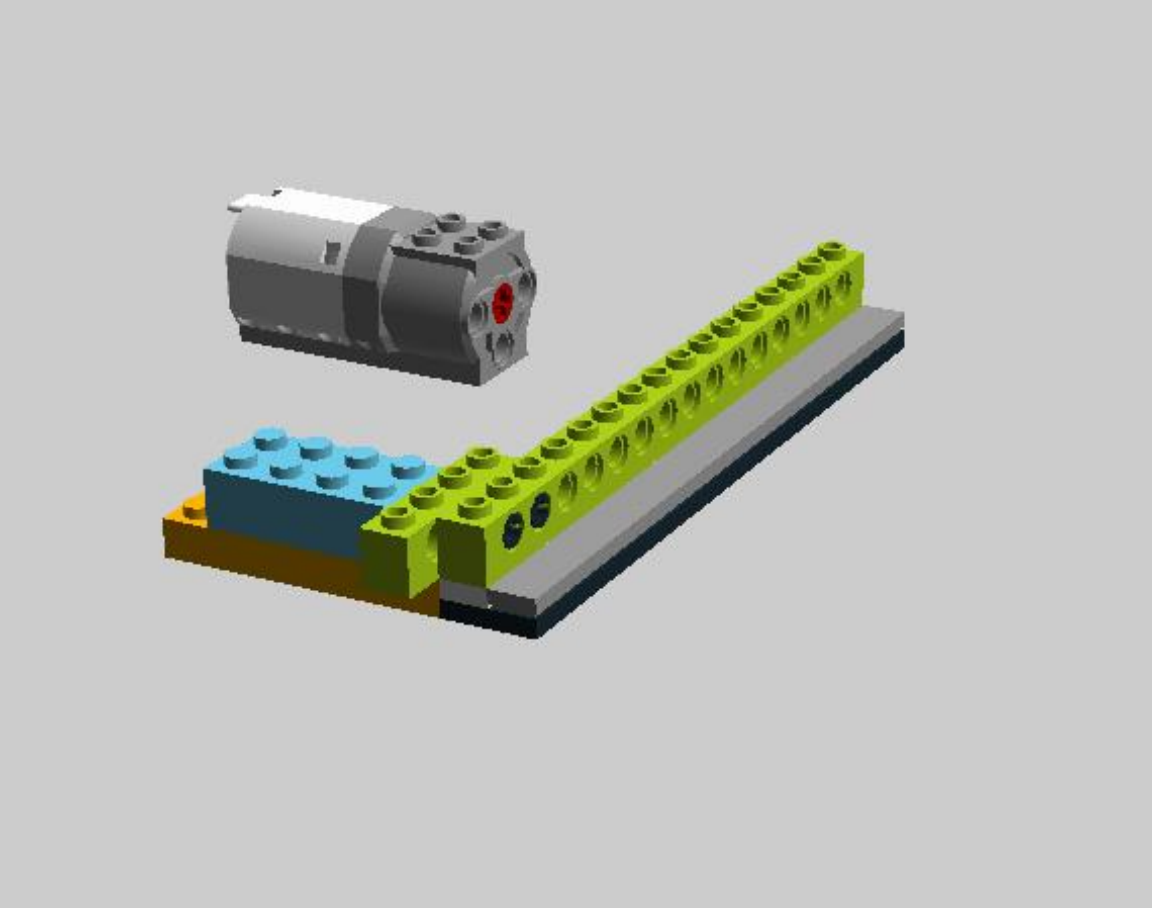


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

8

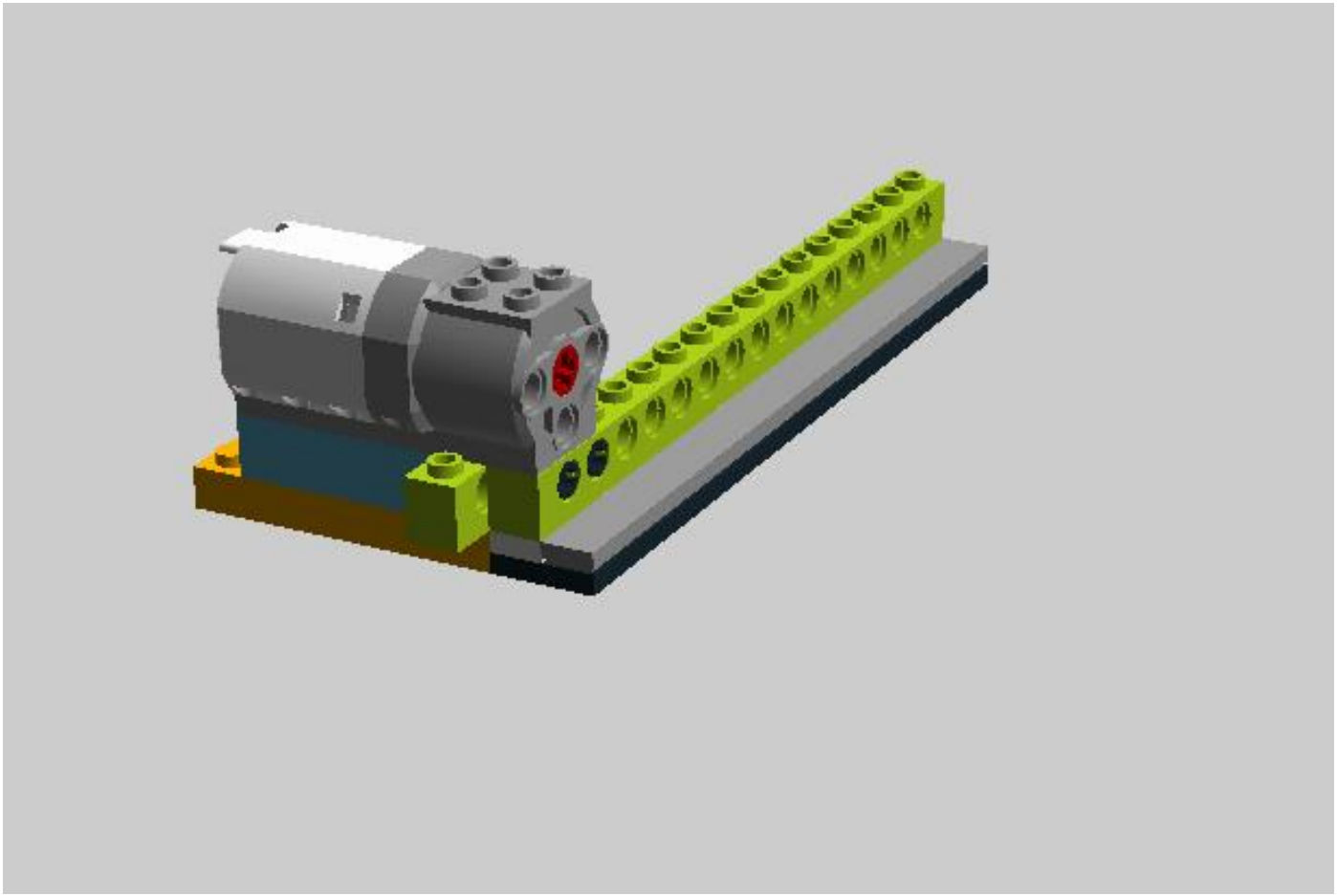


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

9

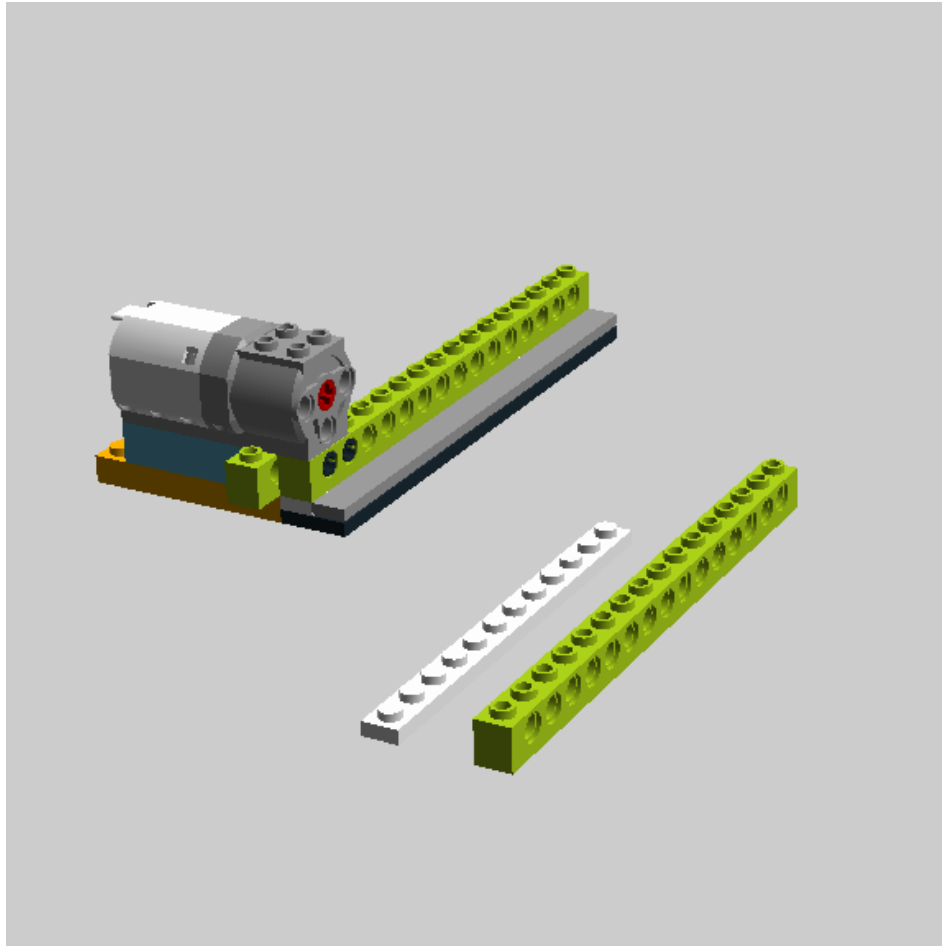


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

10

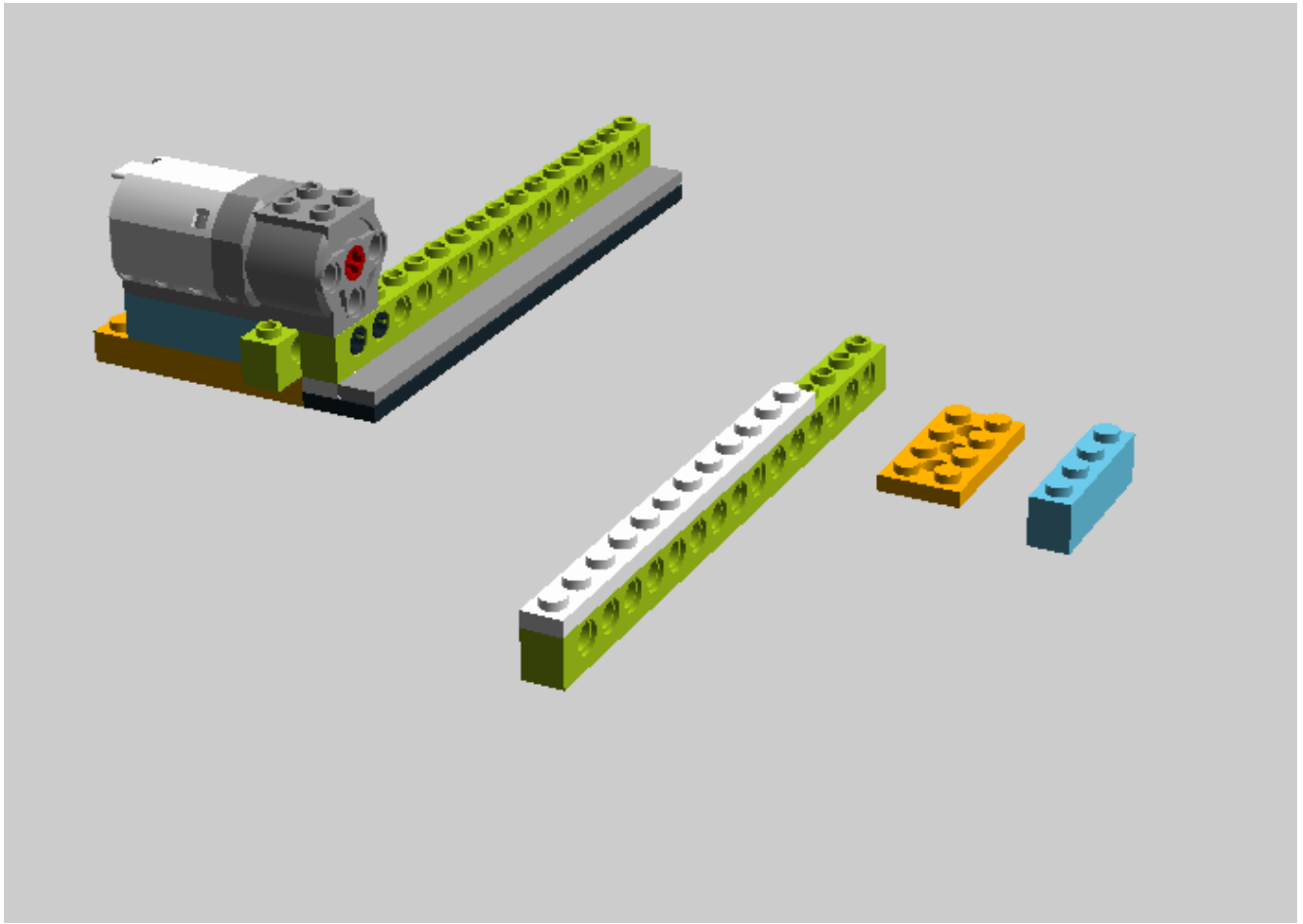


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

11

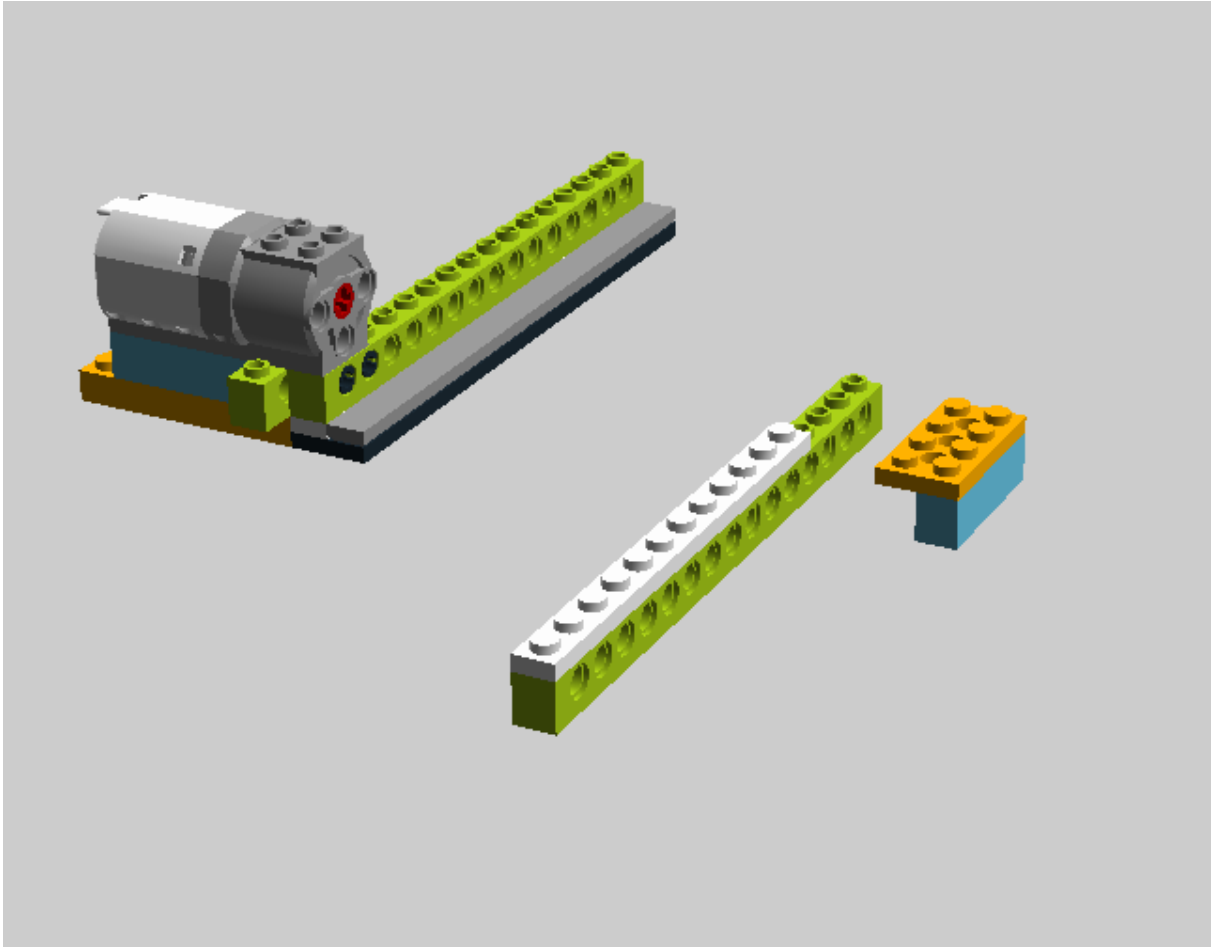


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

12

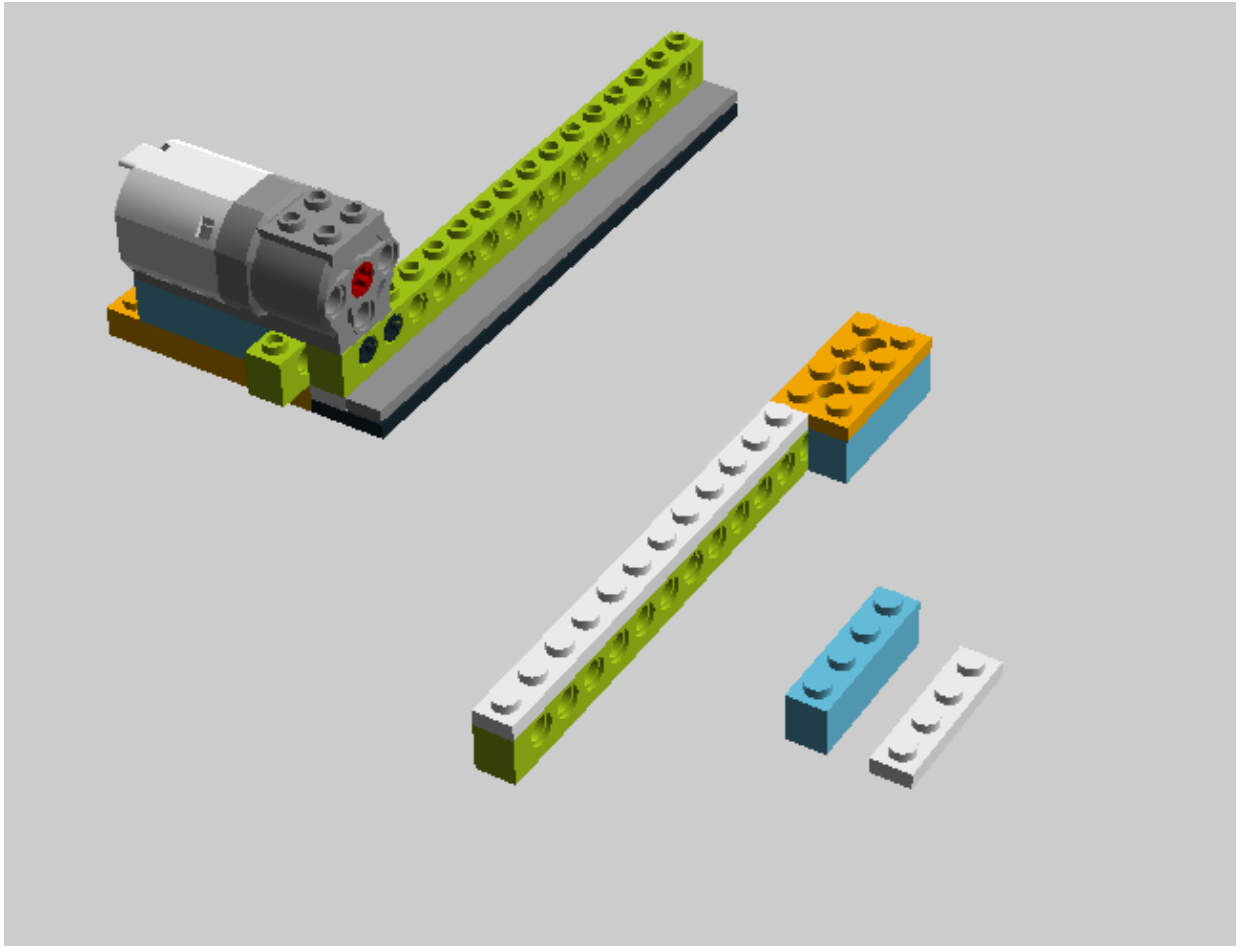


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

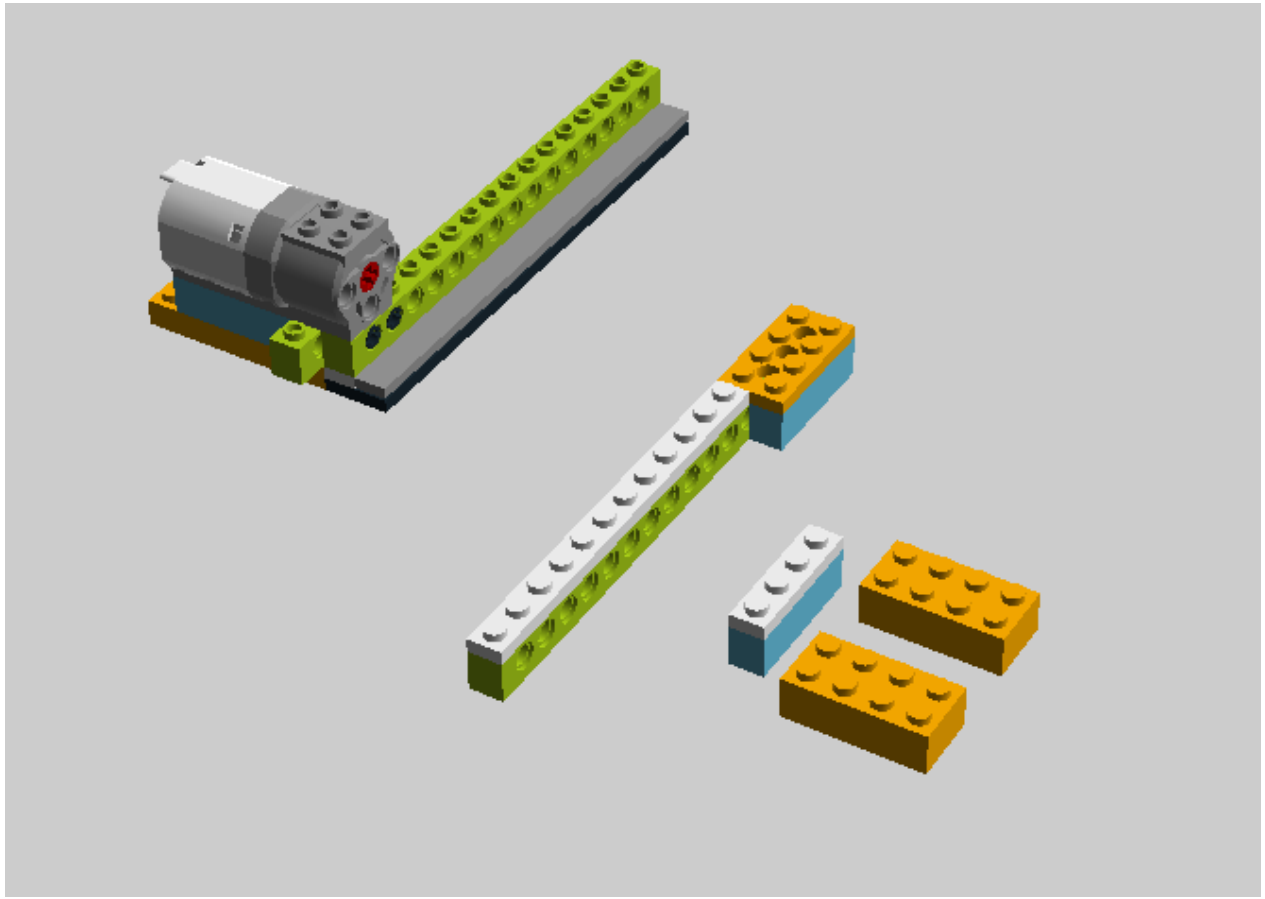
Transfer to the screen

13



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

14



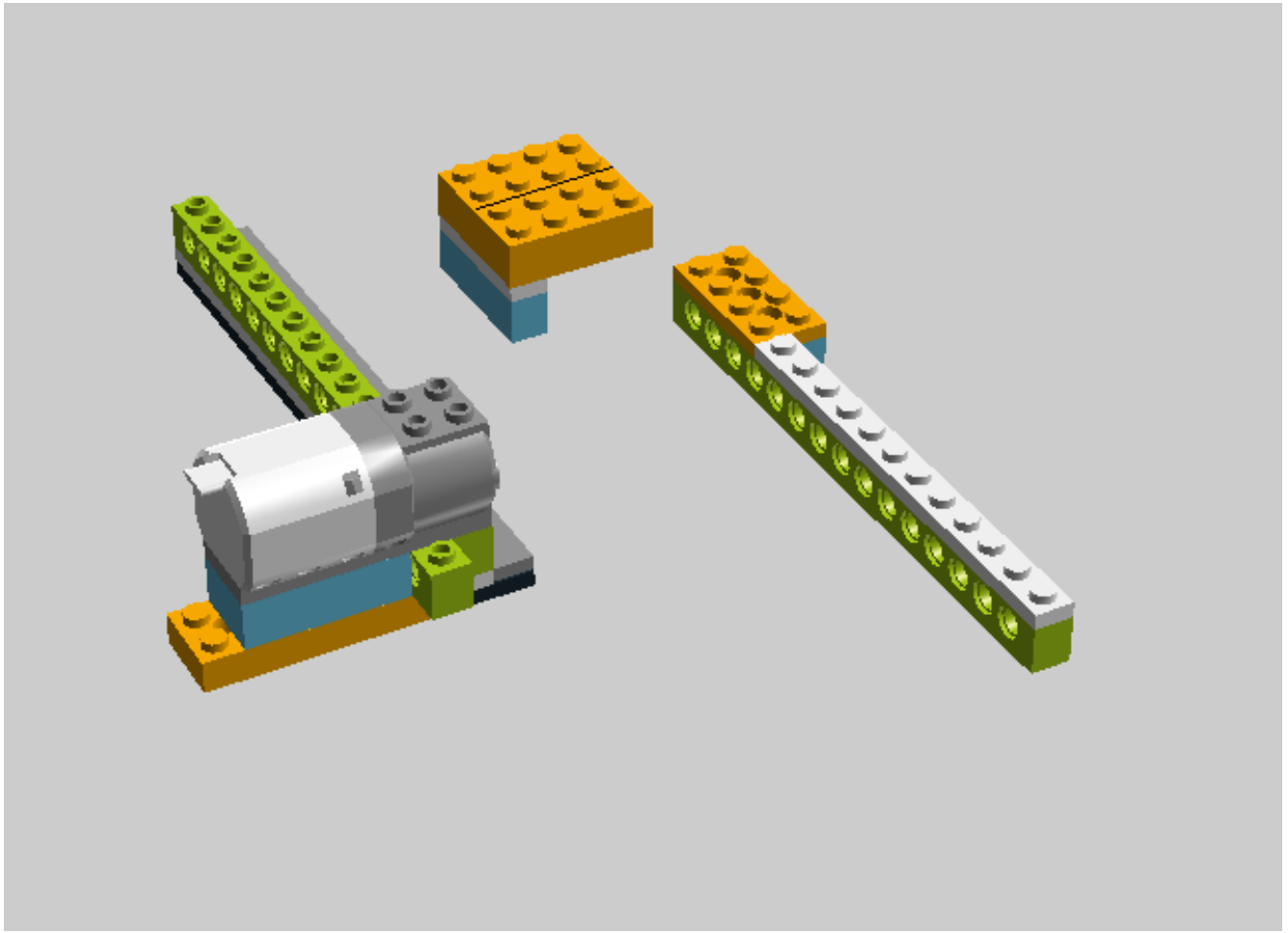
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

15

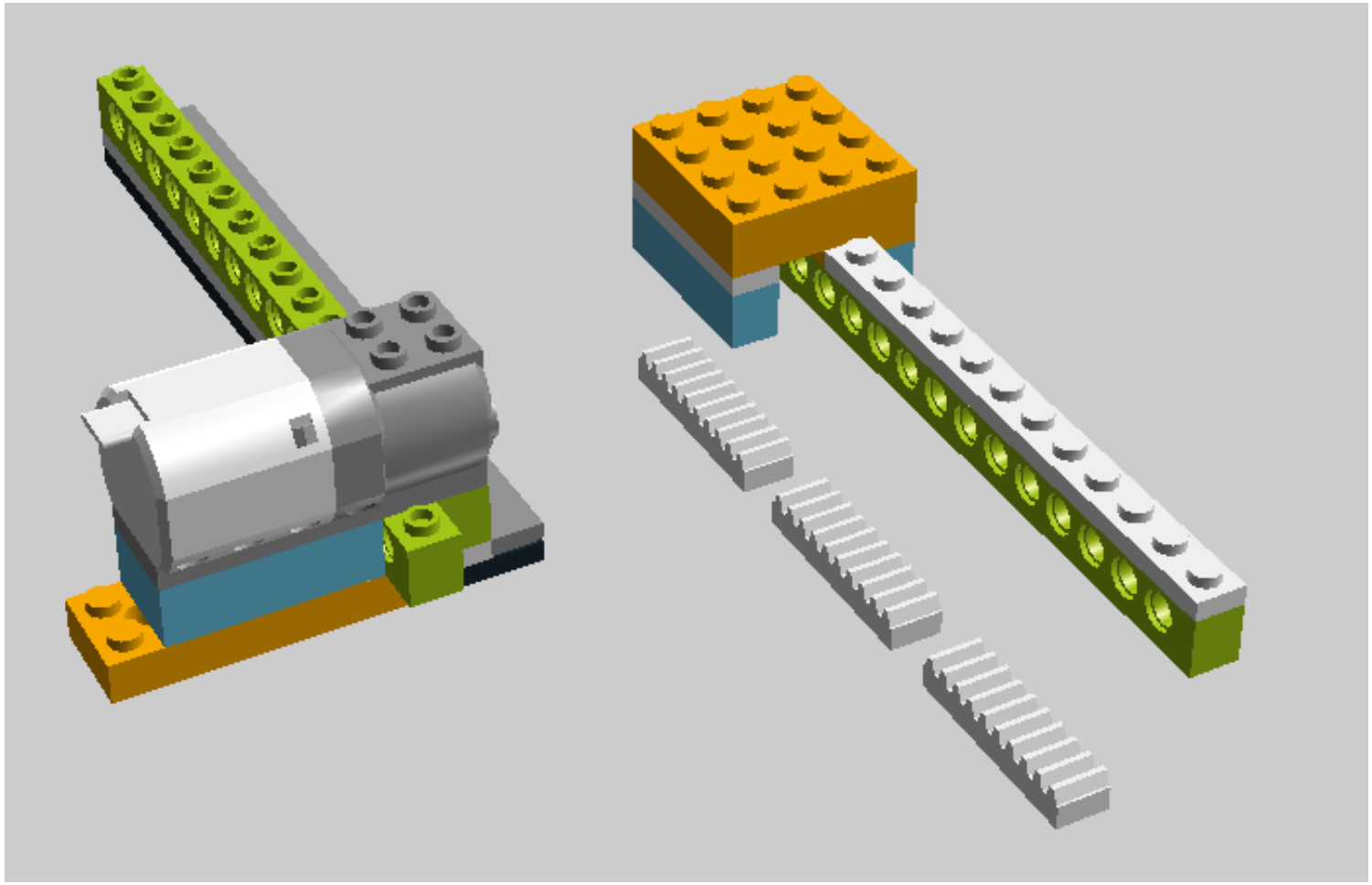


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

16

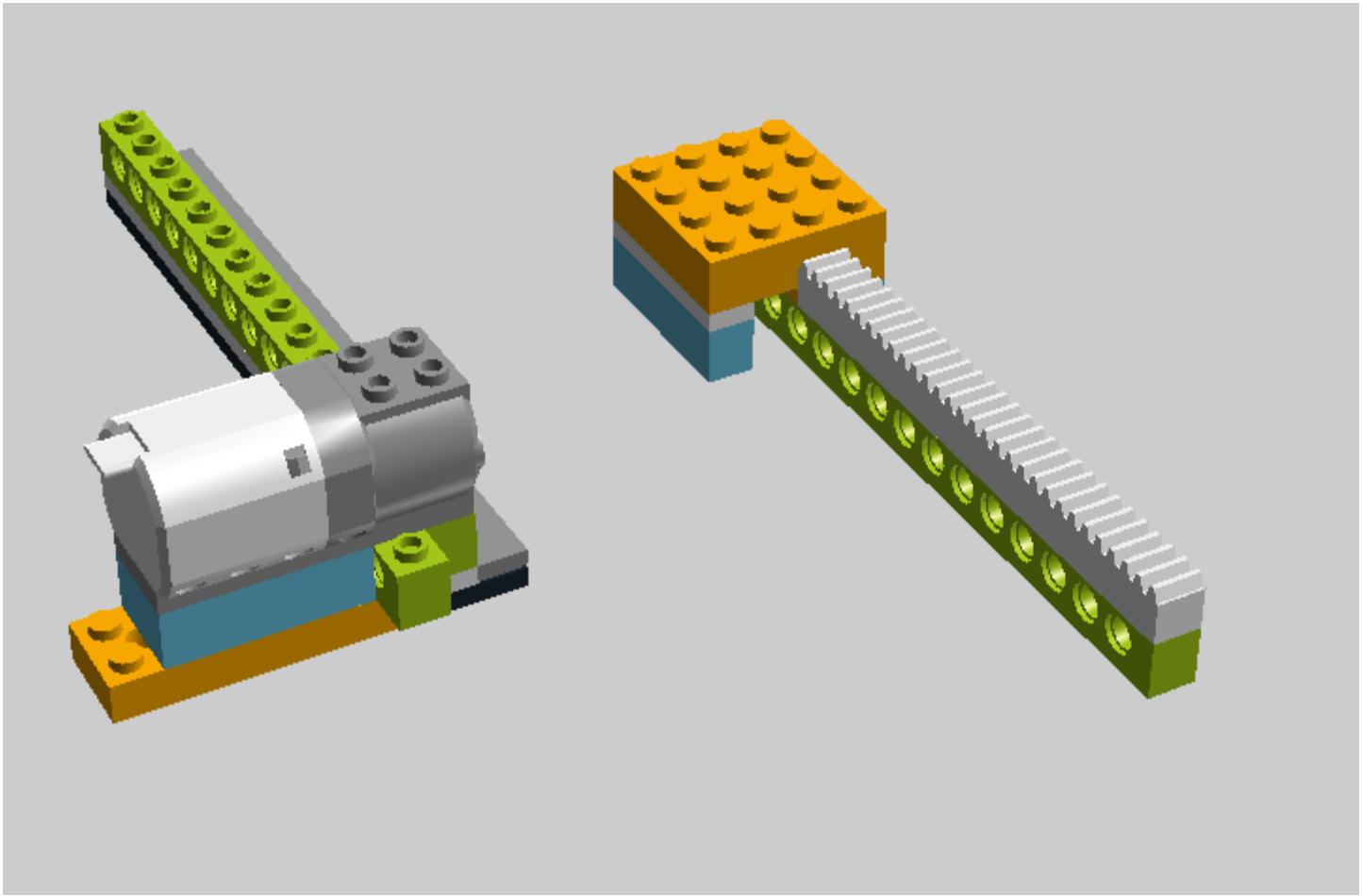


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

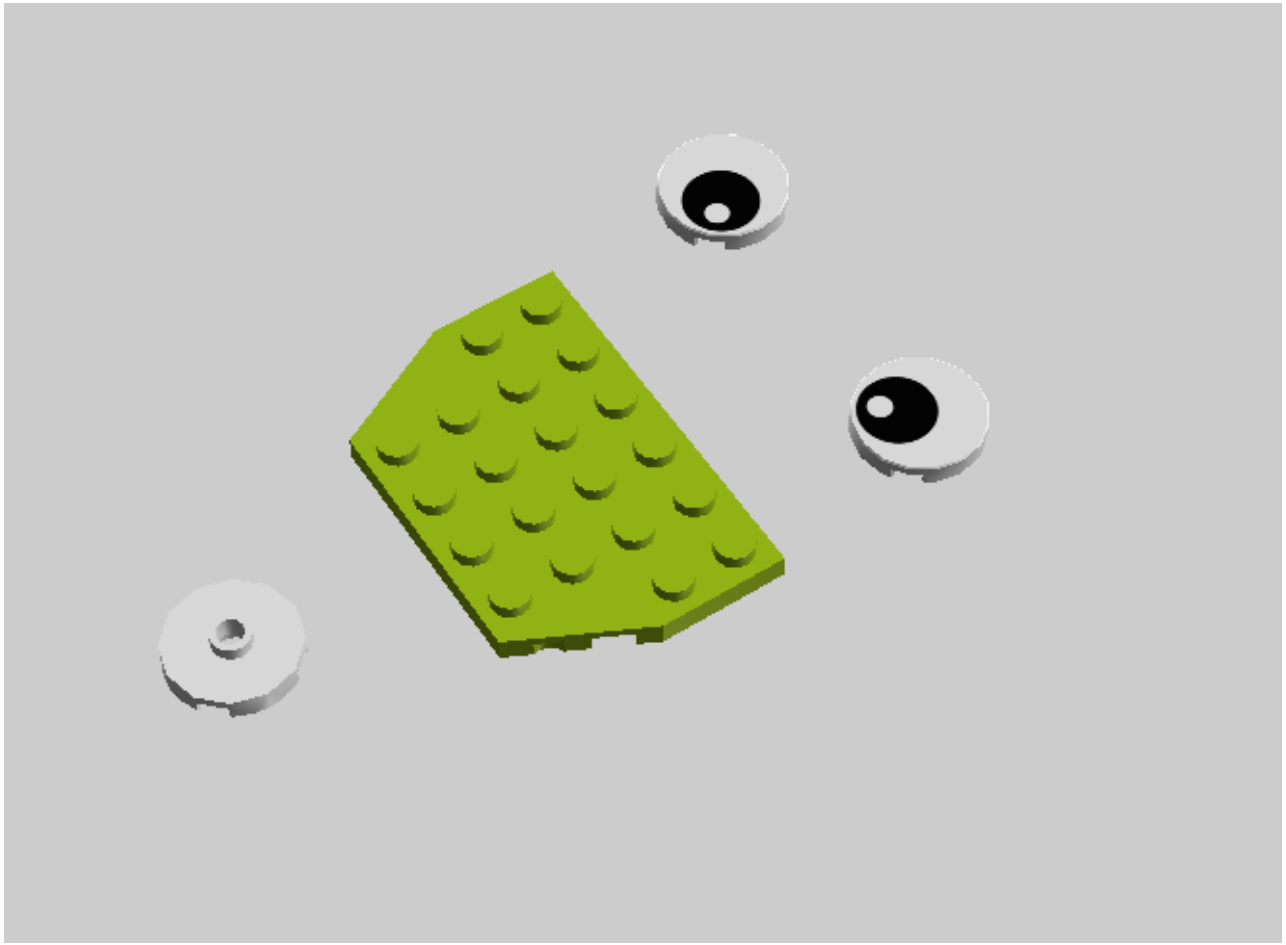
Automation Engineers

Transfer to the screen

17



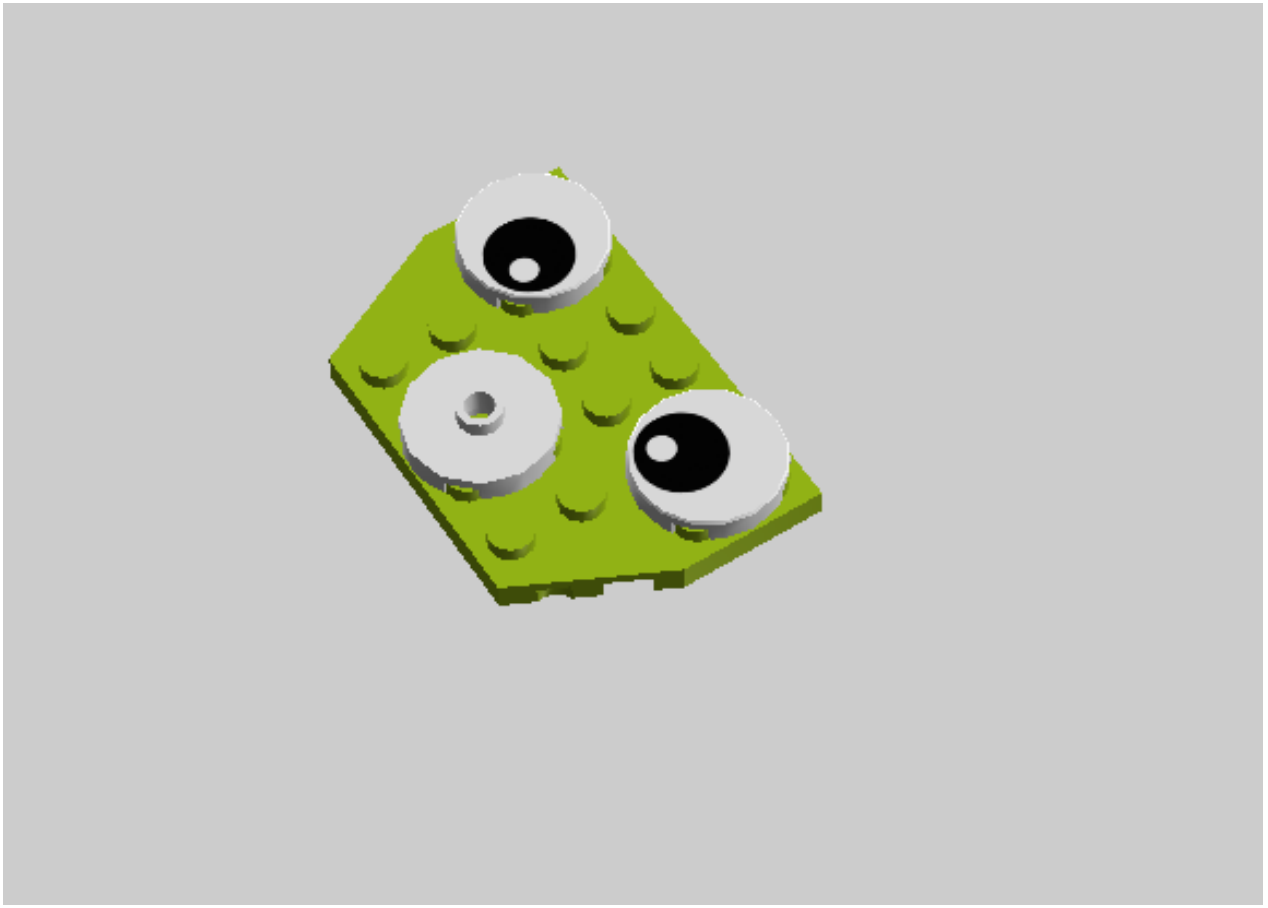
18



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

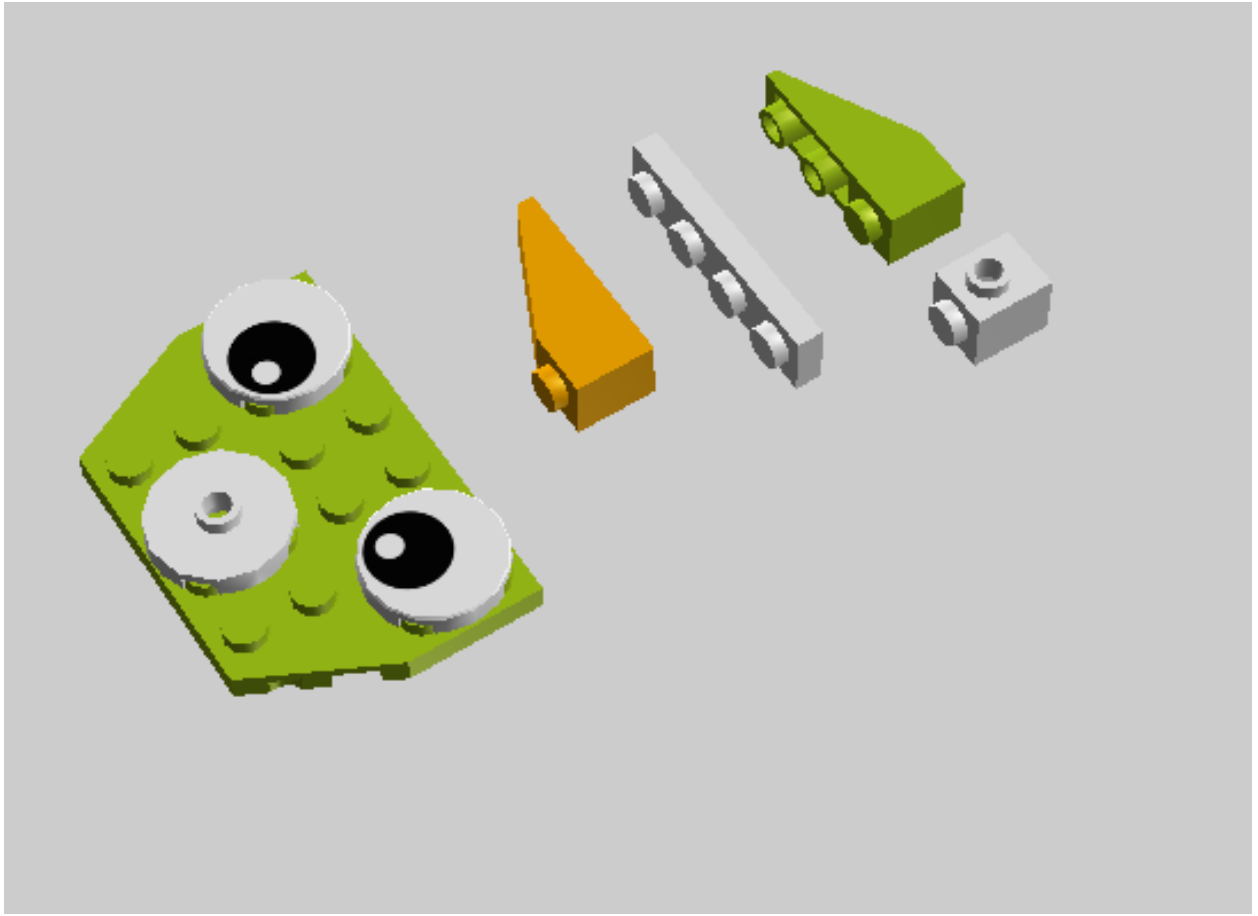
19



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

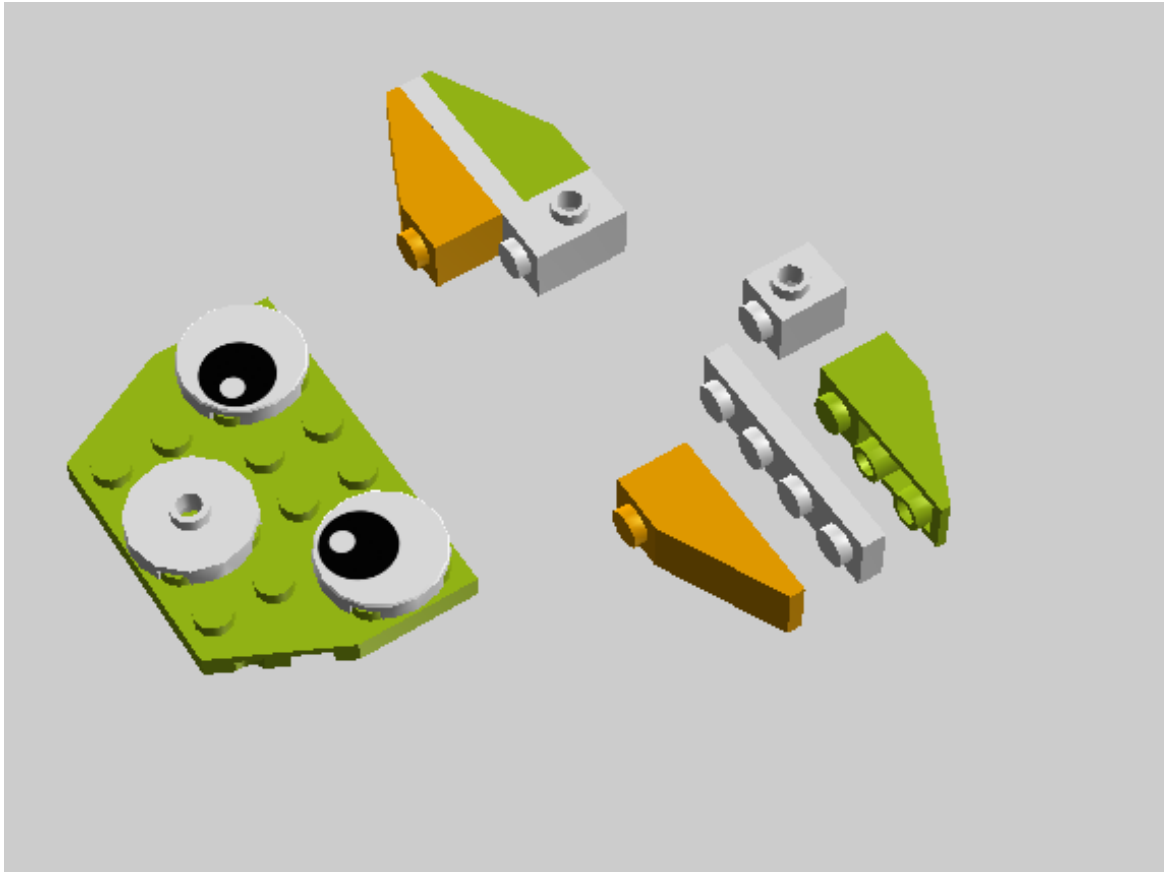
20



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

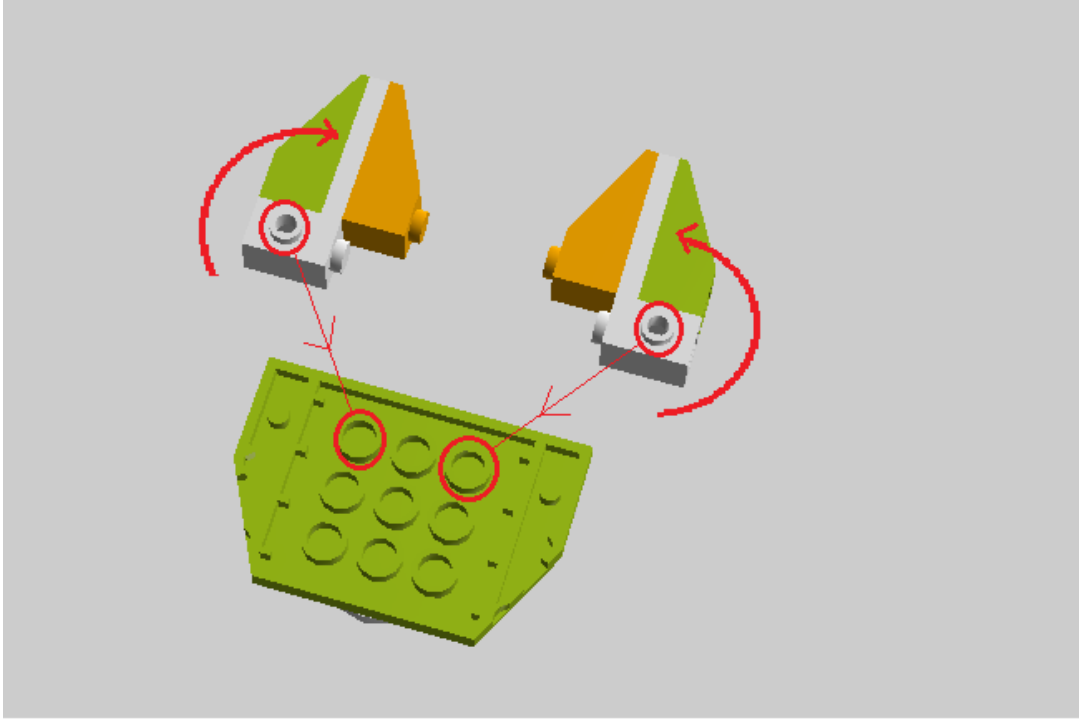
21



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

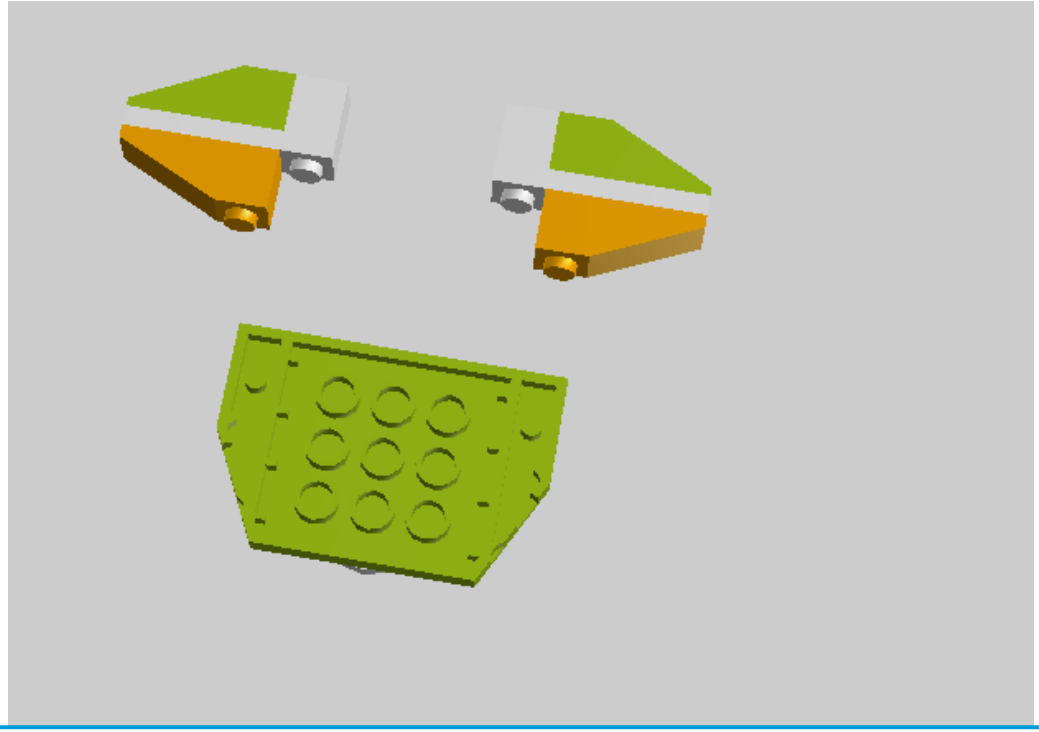
22



In the back side of the face, you will place the ears. The receptors will get into the holes you see marked in red.

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

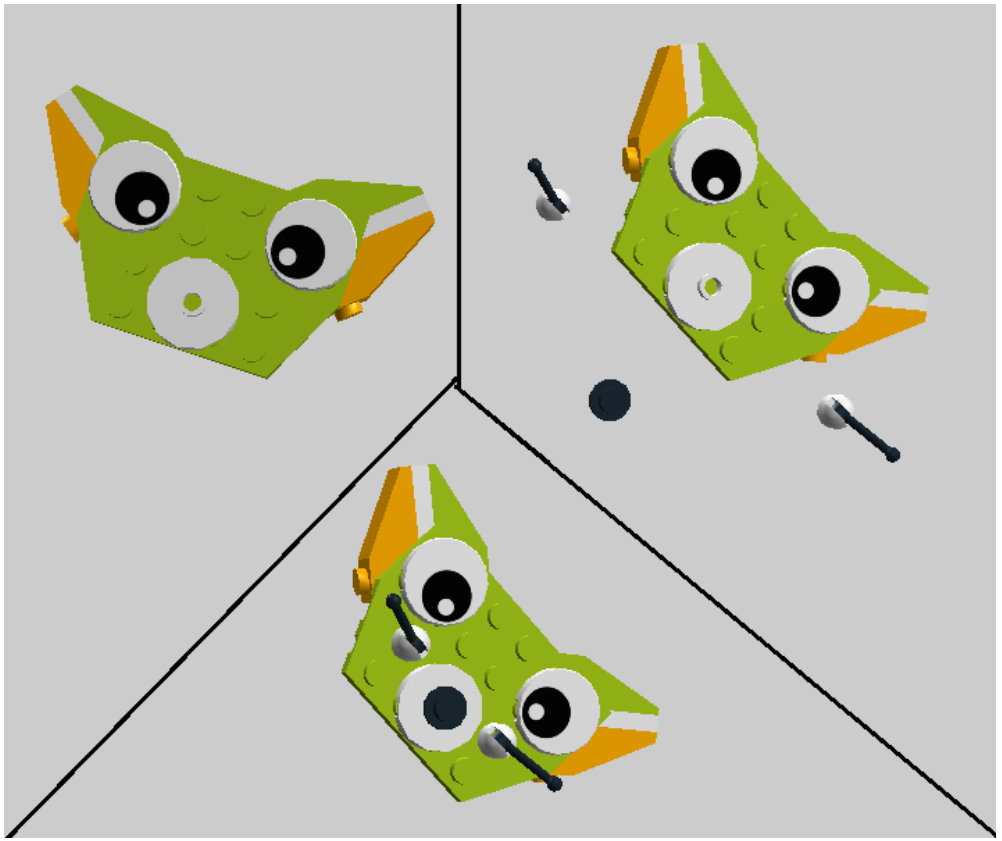
23



Turn the ears and take care so the result is as you see in the picture. Then place the ears.

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

24



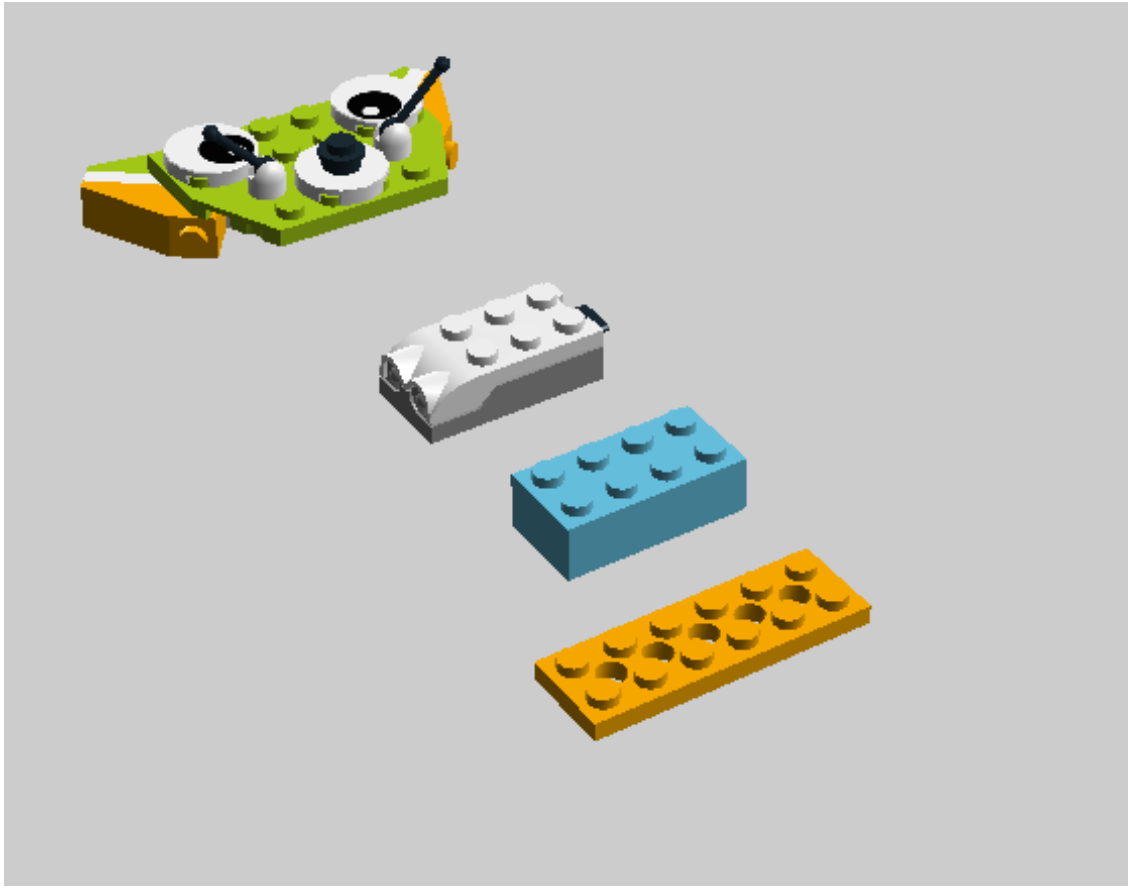
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

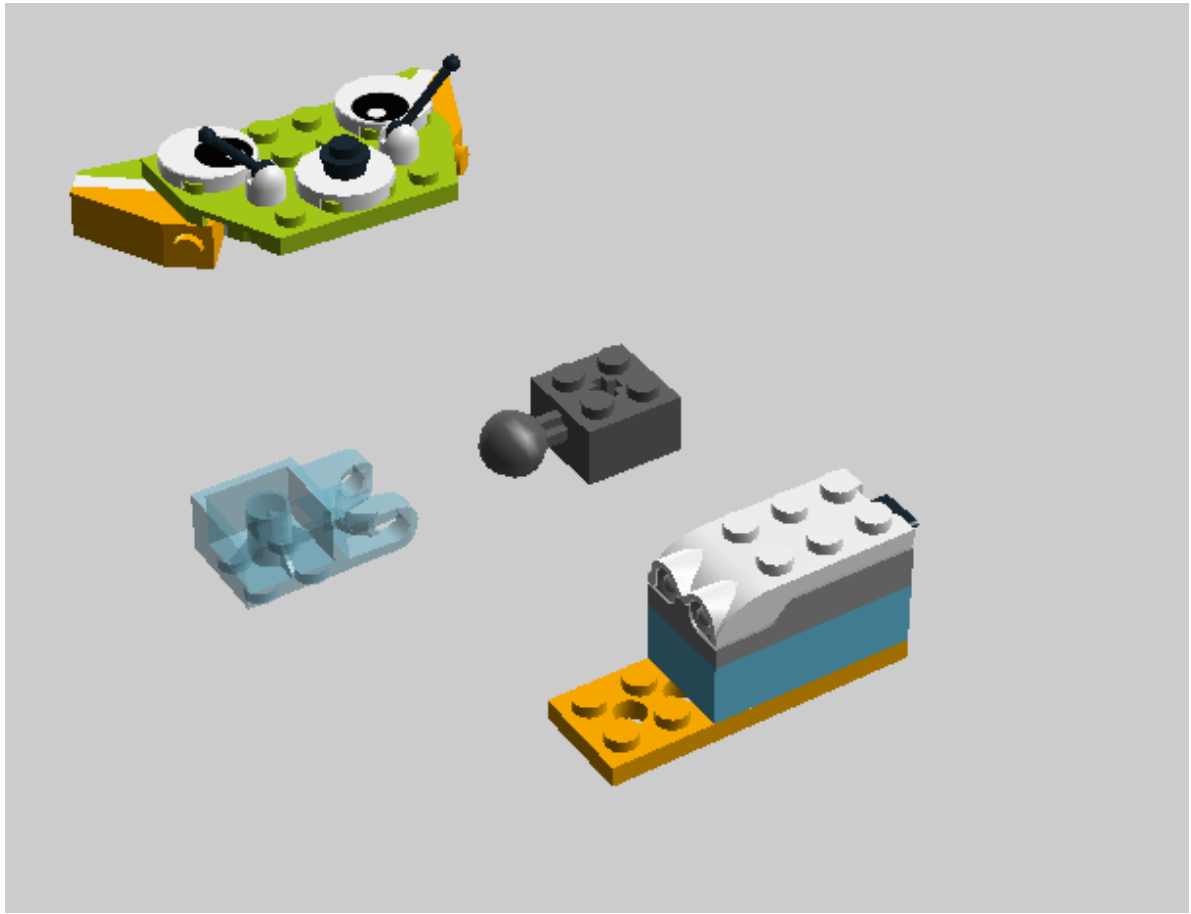
Transfer to the screen

25



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

26



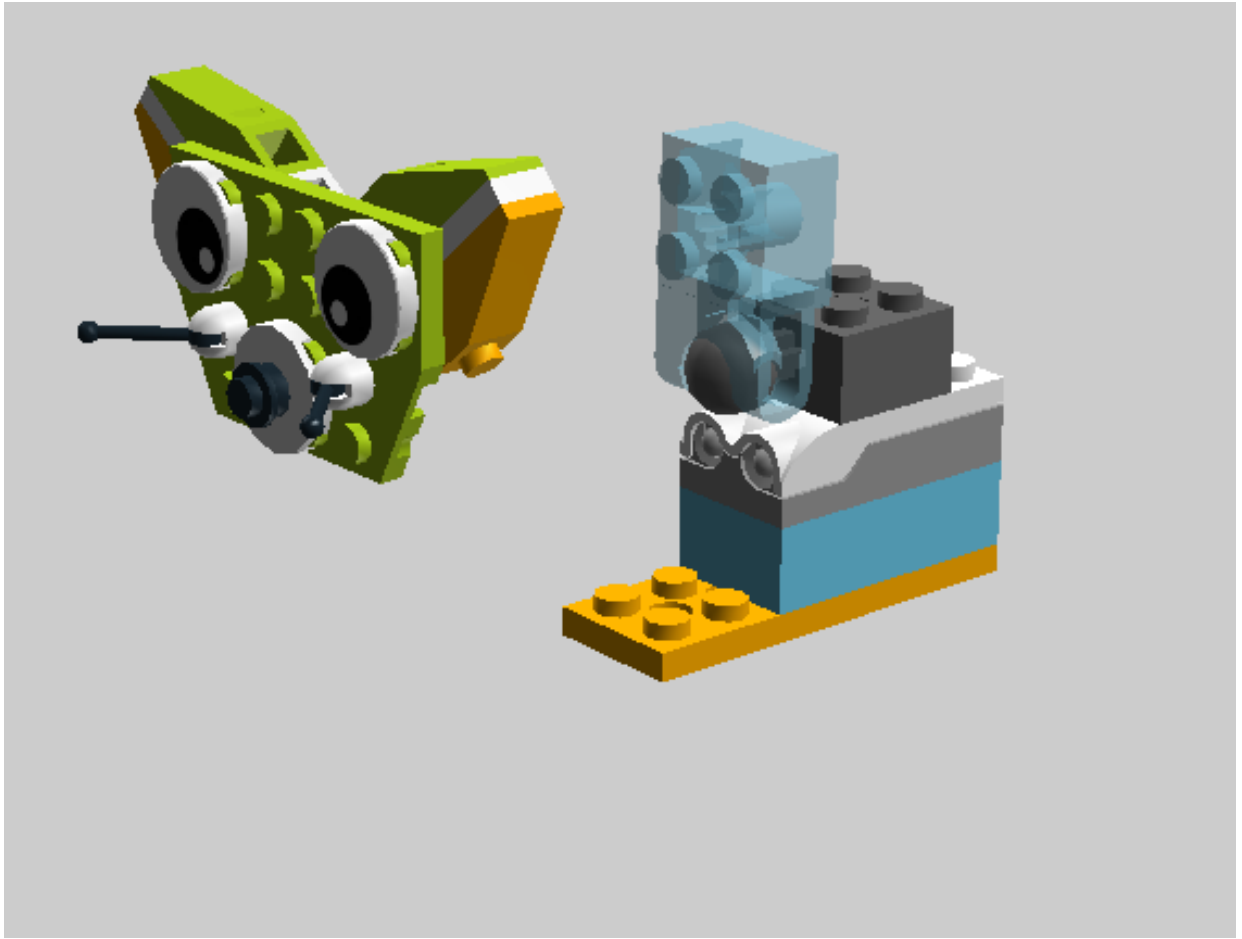
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

27

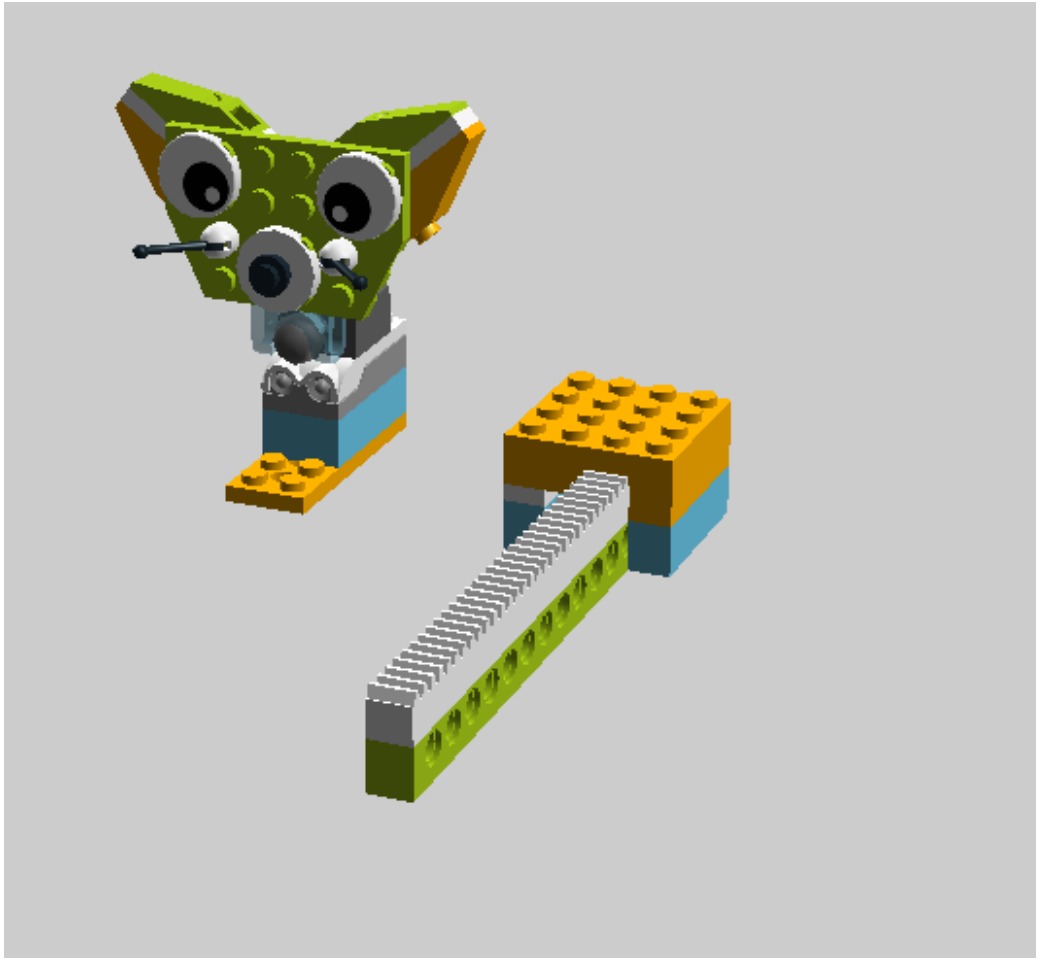


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

28

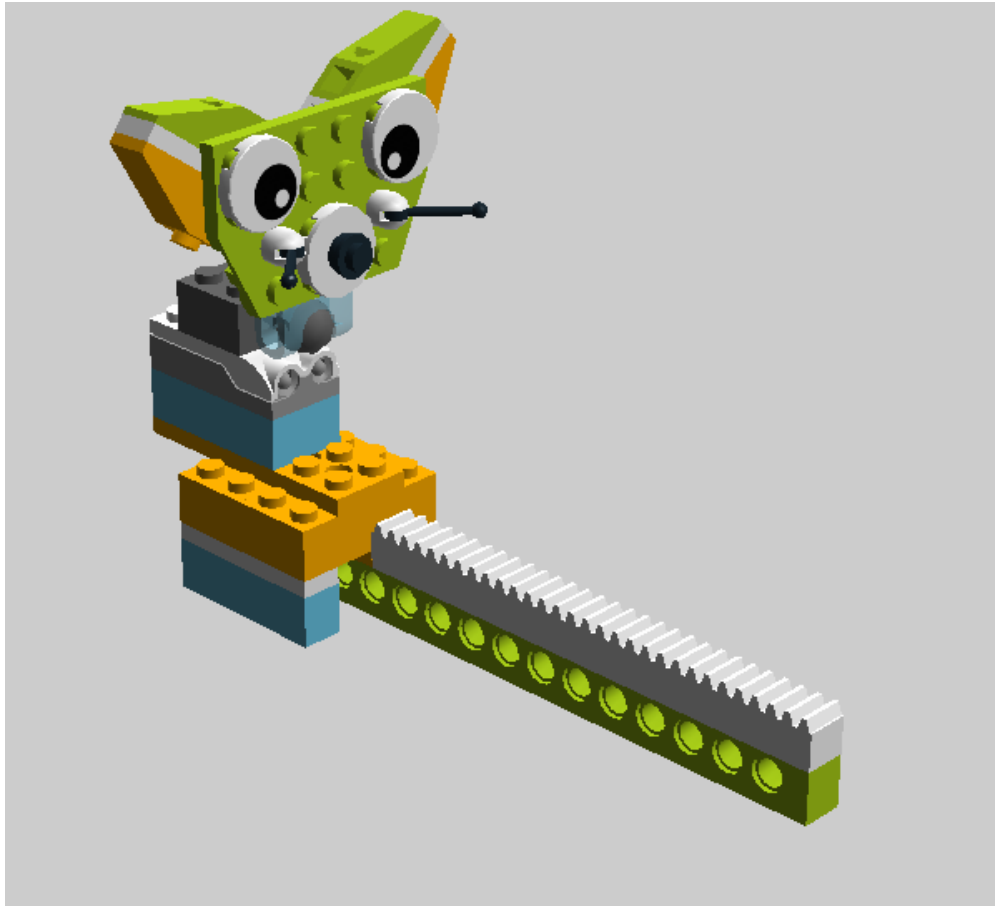


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

29

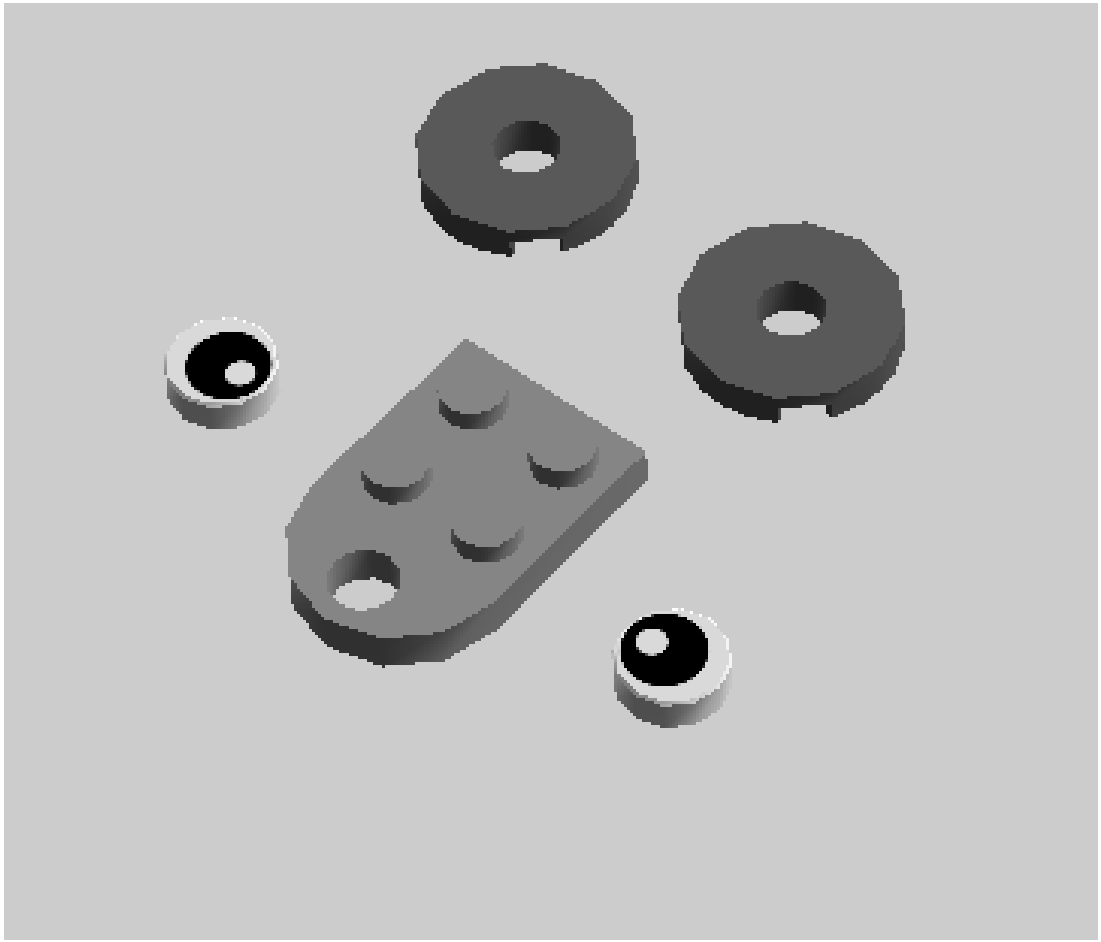


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

30

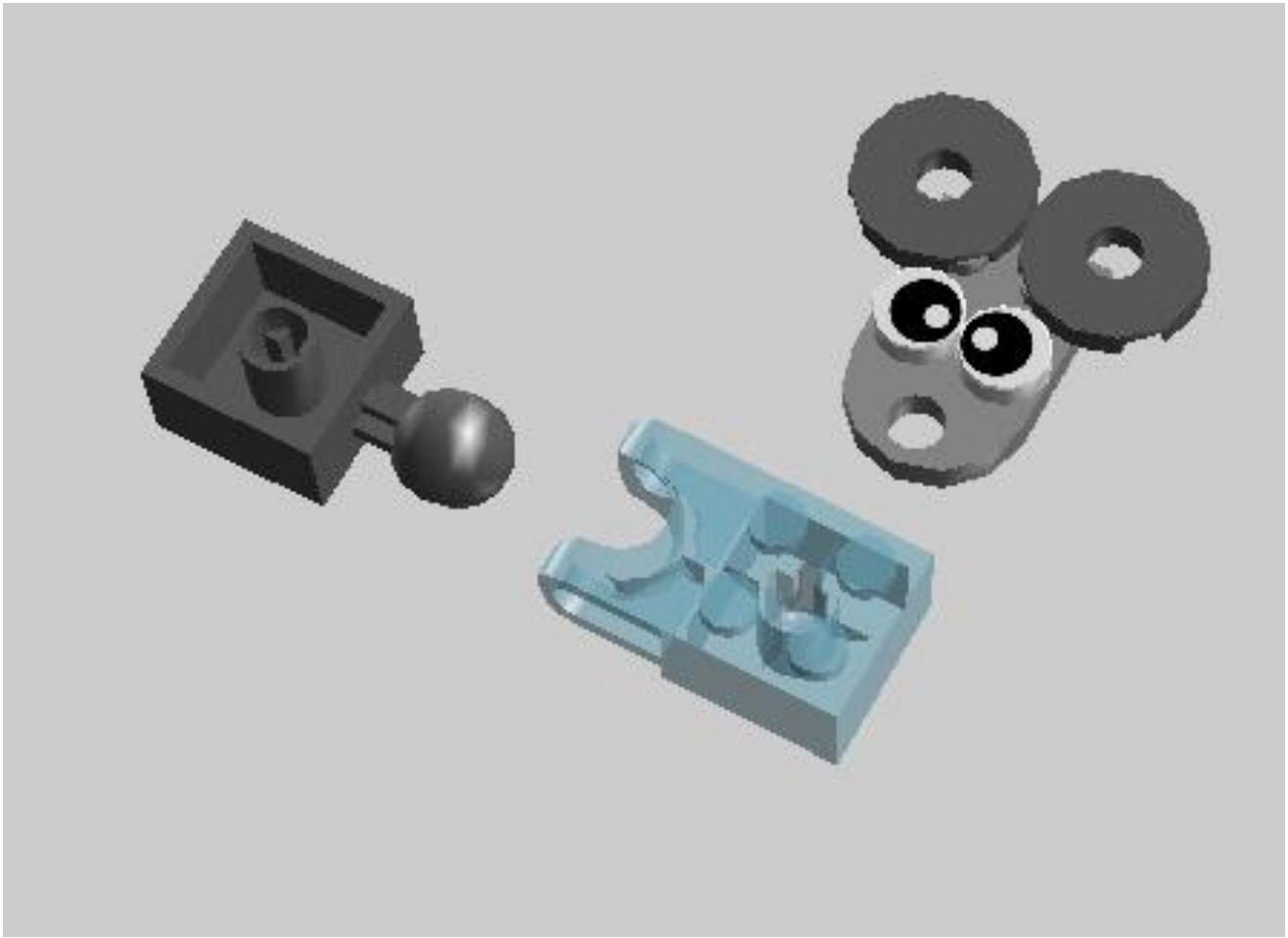


Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

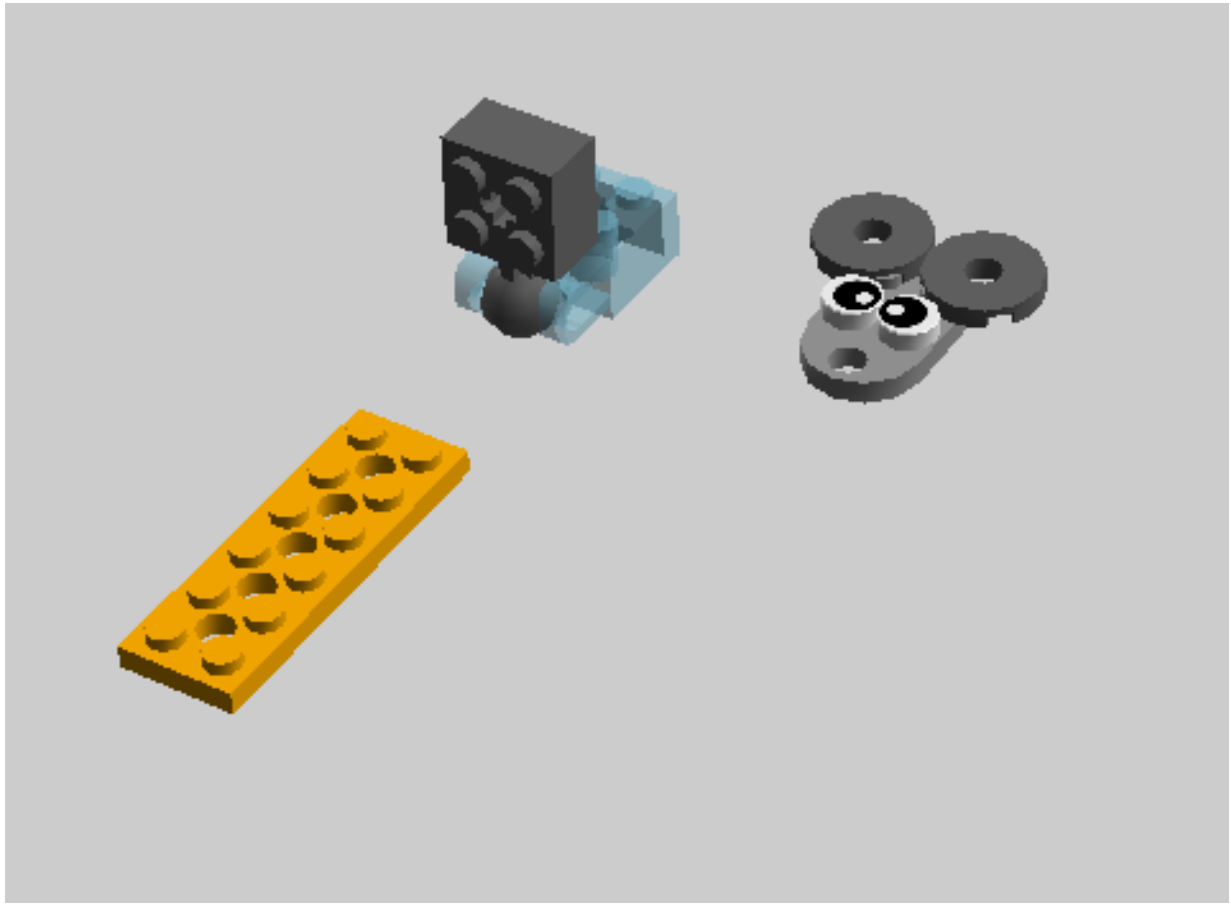
Transfer to the screen

31



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

32



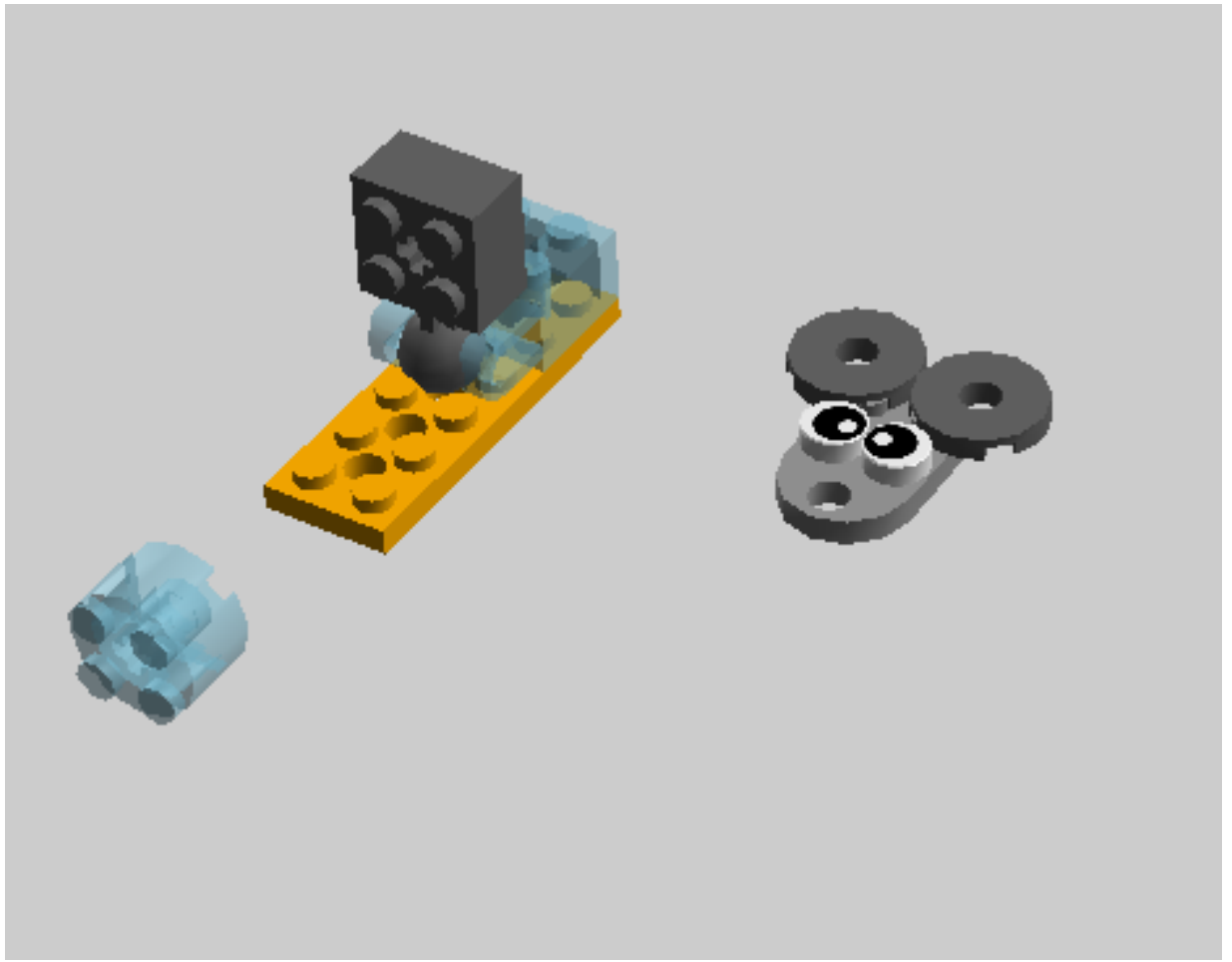
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

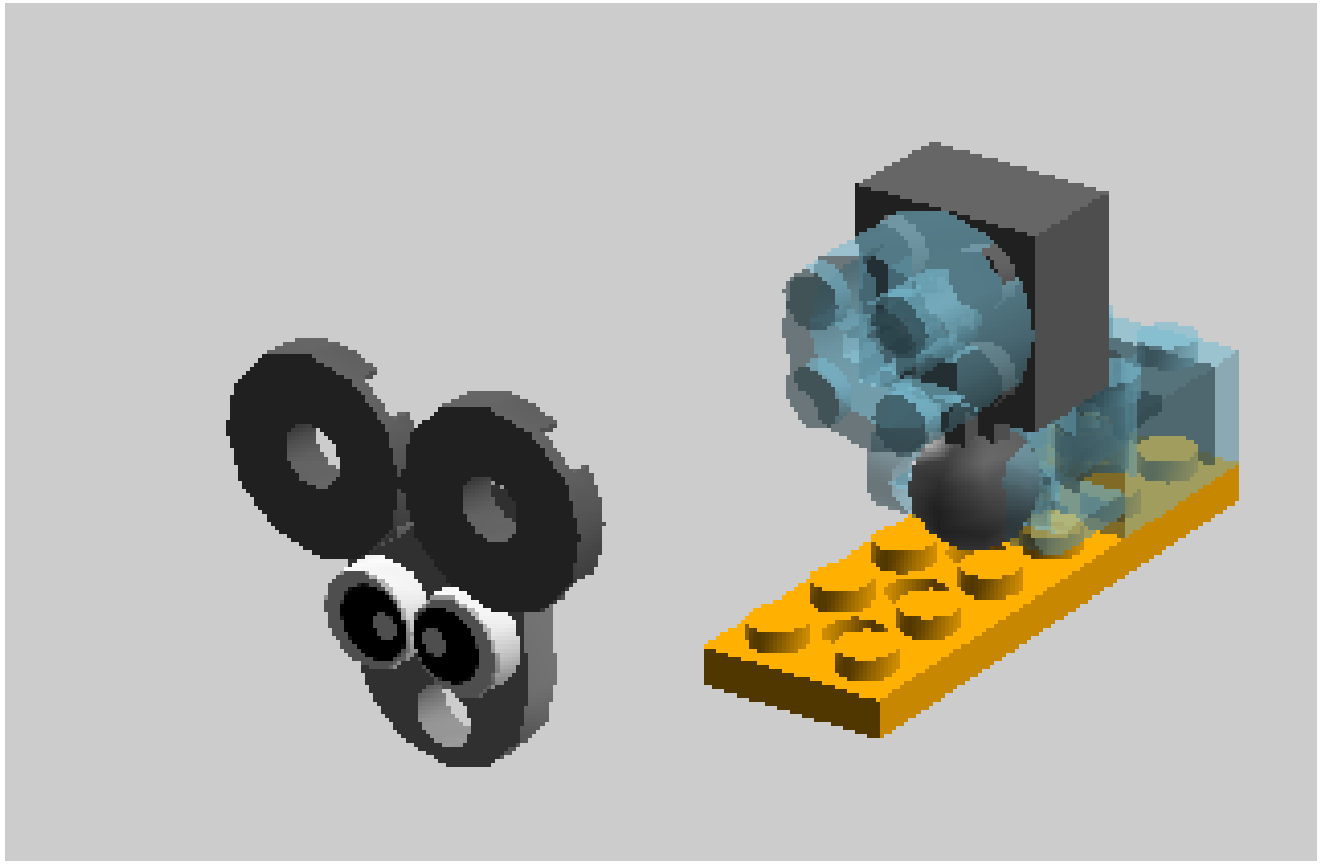
Transfer to the screen

33



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

34



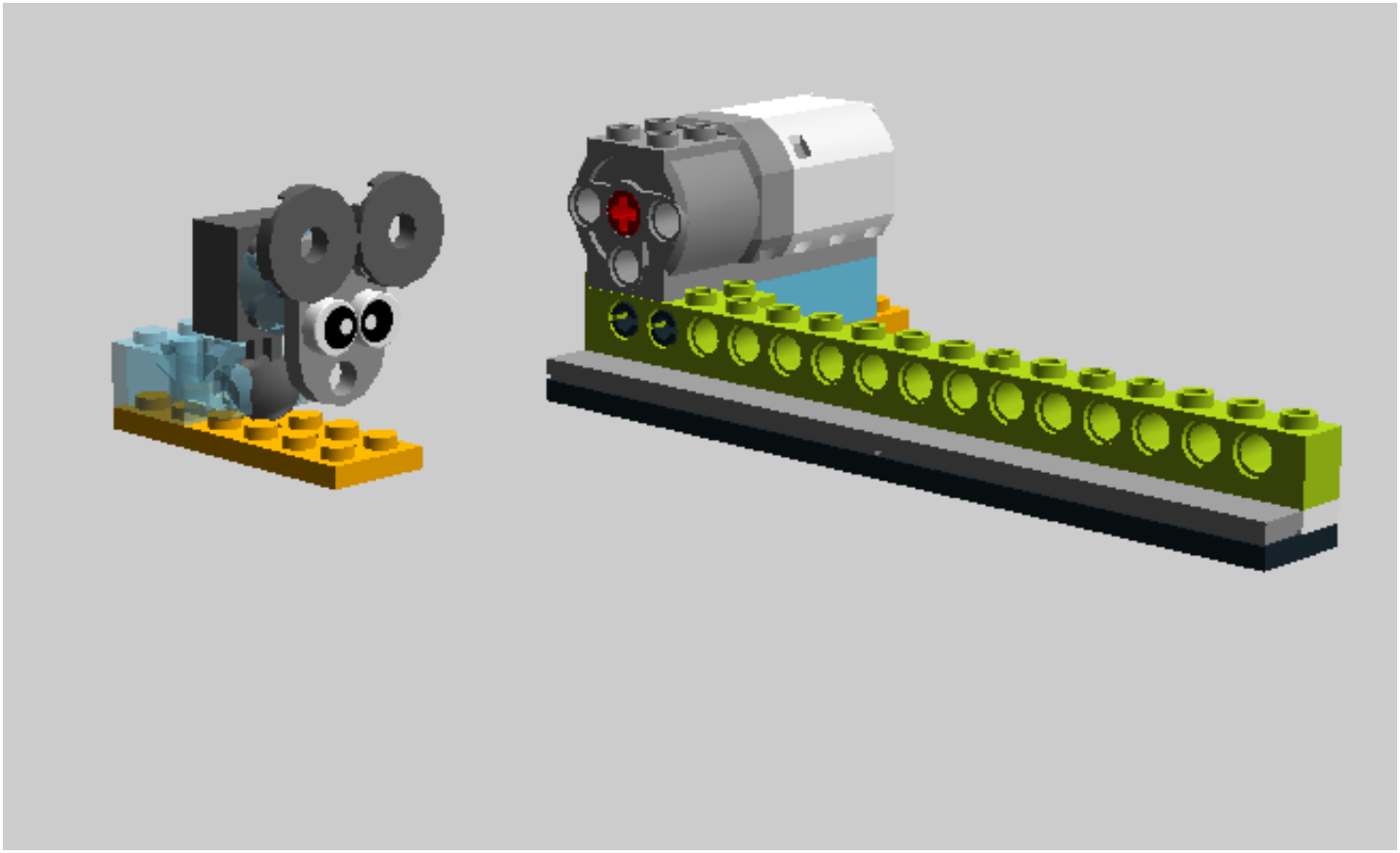
Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

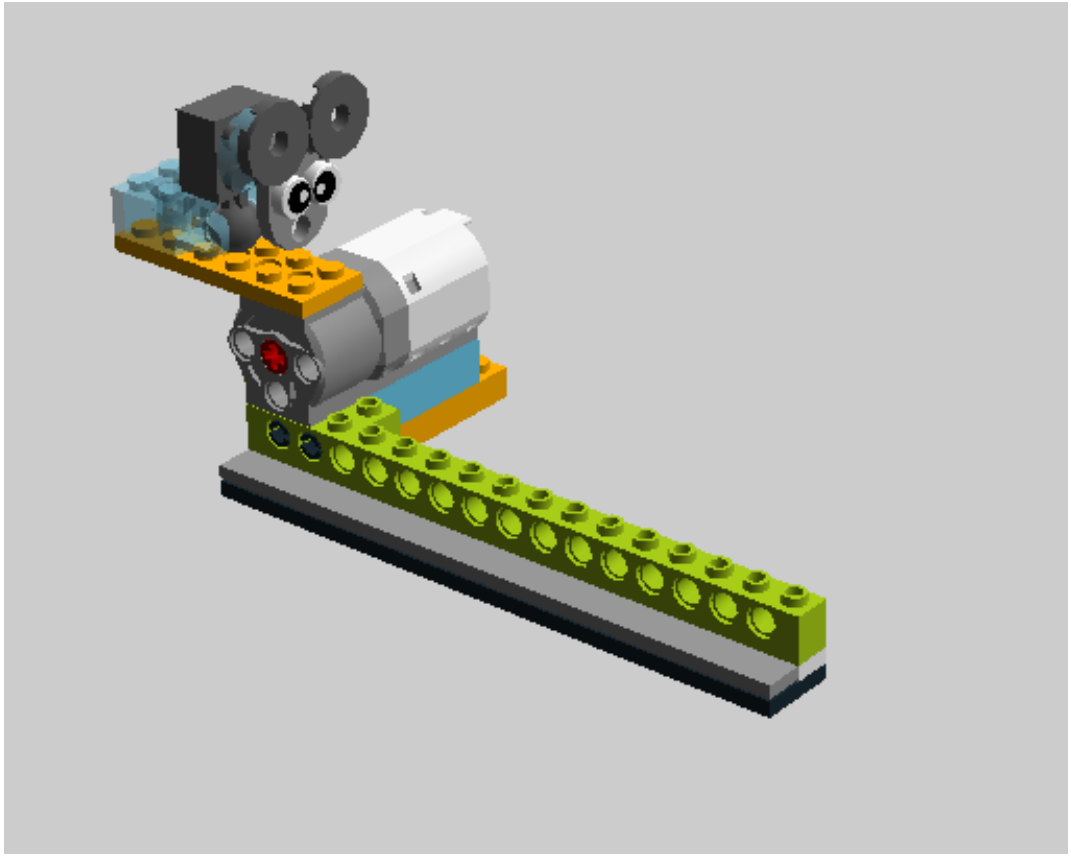
Transfer to the screen

35



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

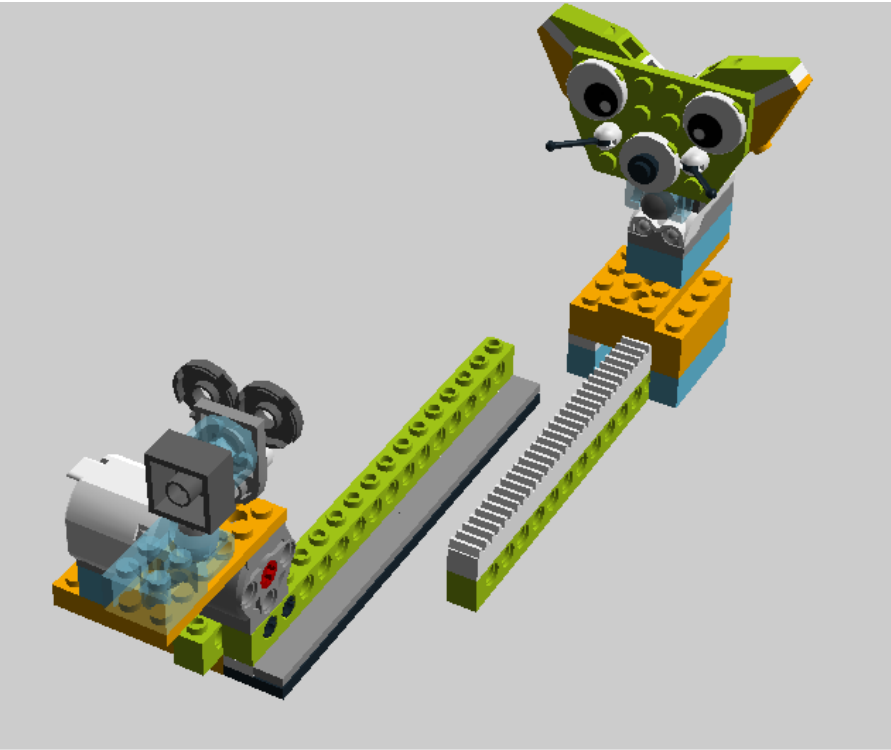
36



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

37

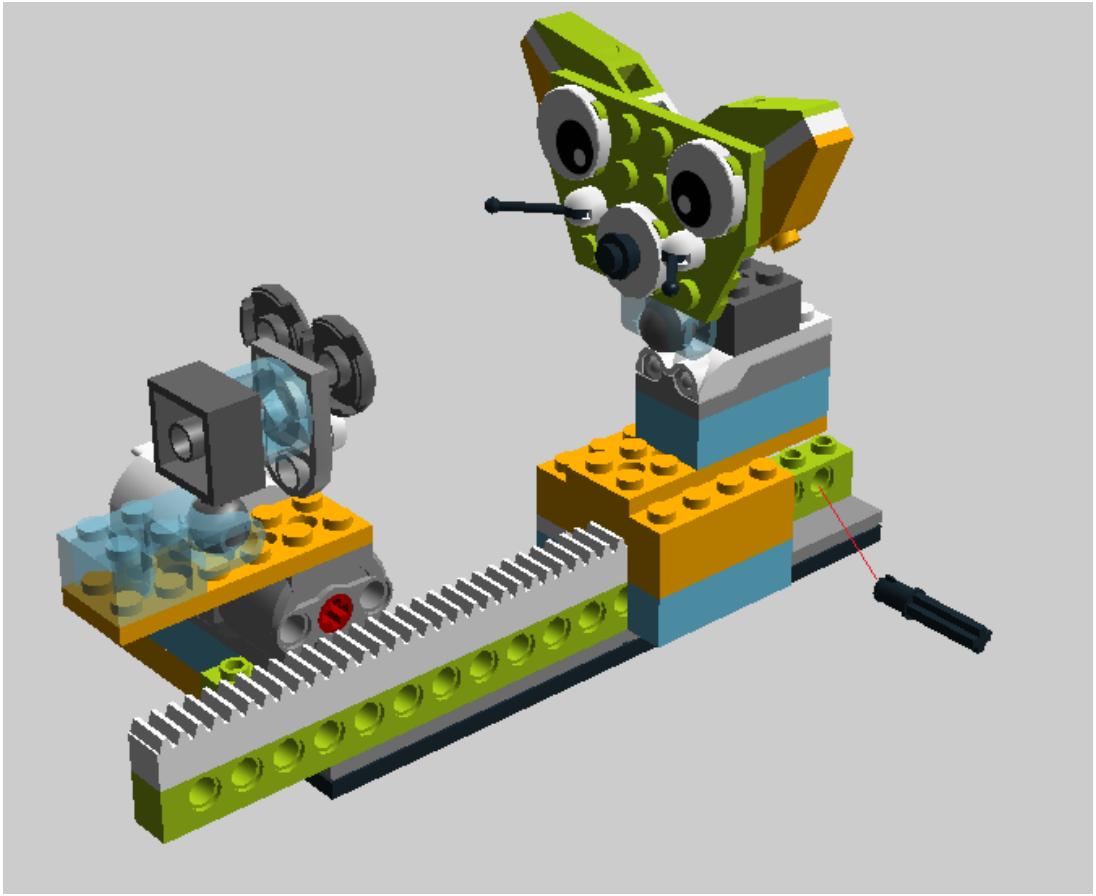


Connect the two parts, so the toothed part slips into the grey one.

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

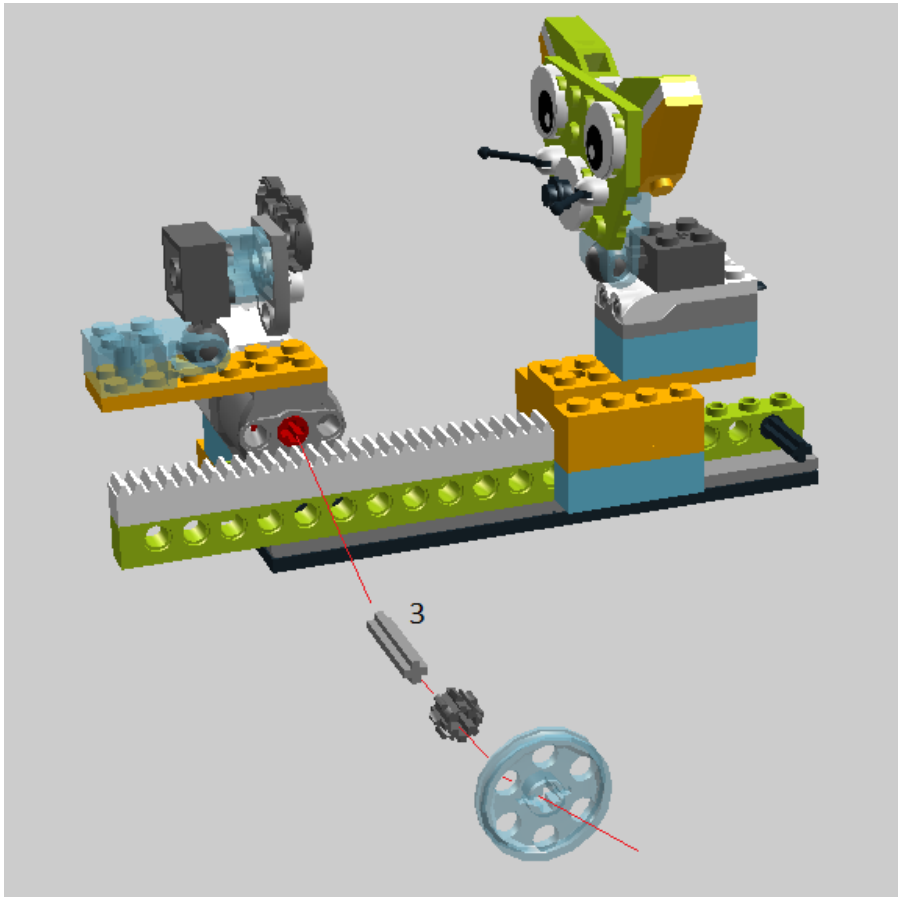
38



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

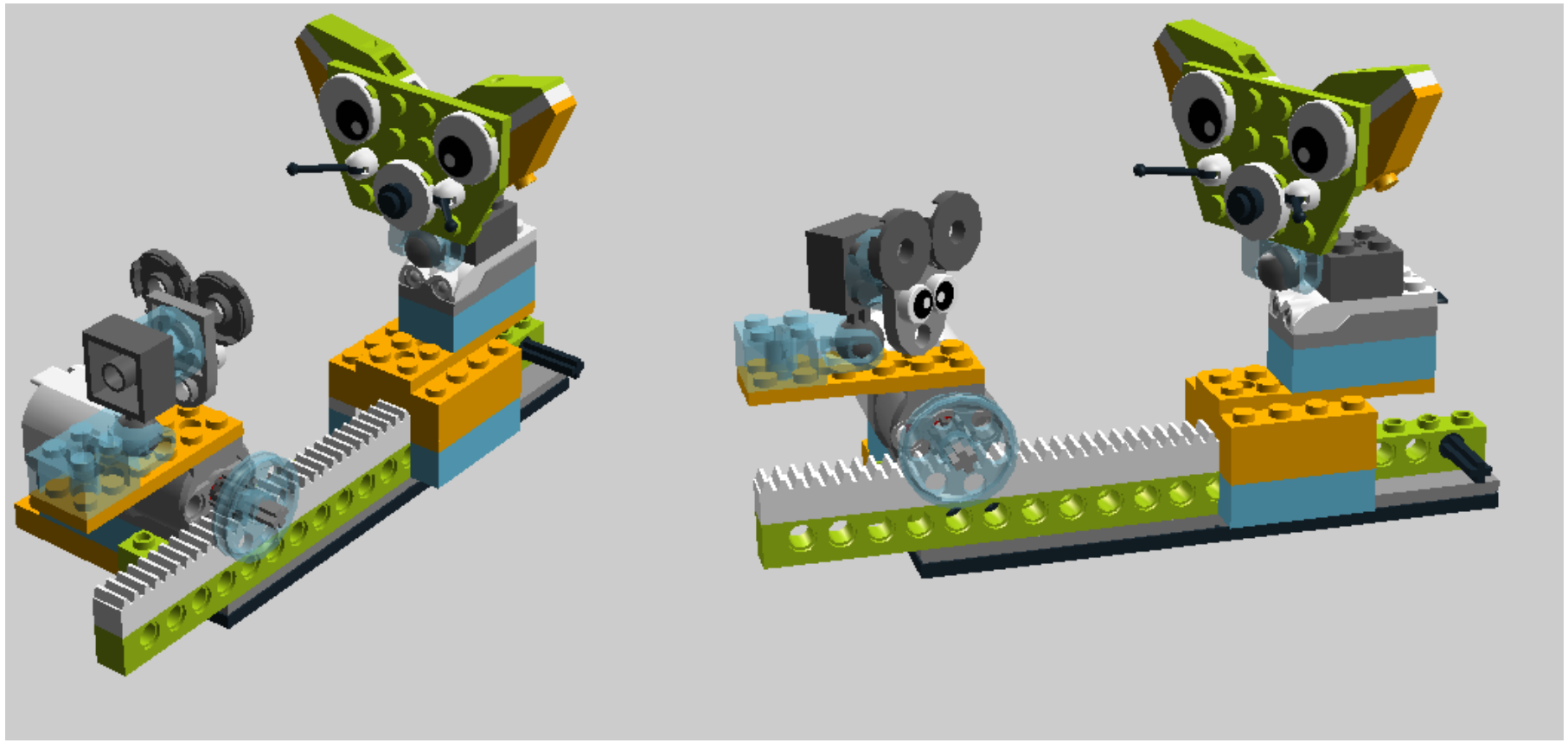
39



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

40



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967

Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Observe the mechanism you used in the build.
The **rotational** motion gets **linear** when we use the toothed bar.
How many times does the gear rotate the bar?



Can you find applications of this modification?

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen



Open Scratch 3 from the activity's file and answer the worksheet.

Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters

Automation Engineers

Transfer to the screen

When you finish the worksheet

disassemble your build

and put every piece in its right place.



Erasmus+
Project No.: 2021-1-EL01-KA220-SCH-000023967
Call 2021 Round 1 KA2
KA220-SCH - Cooperation partnerships in school education
STEM Education for Primary Schools
STEM for Youngsters