

Lesson title: Drawing with dwengo

General Information: Program the dwengo to draw random shapes

Source: Adapted from: The use of Assistive Technology in Education: A guide for teachers and Schools, UNICEF

Time:	40 minutes
Grade/Level:	Secondary 1 - 2
Main Objectives: (formulated (having in mind the principles of UDL))	<p>Students should be able to:</p> <ul style="list-style-type: none"> • Connect the dwengo controller to the PC. • Open the dwenguinoBlockly webpage. <p>Download a code to the dwengo. Create a basic program that will make the motors move</p>

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<p>Brief Classroom Description and prior knowledge and experiences of students</p>	<p>Number of Children 12</p> <p>Children that are in the spectrum 2</p> <p>Other details No prior knowledge of coding and using dwengo controllers</p>
<p>Materials/Equipment: (including AT and other technologies)</p>	<p>dwengo controllers</p> <p>USB-A to micro-USB cables</p> <p>Computer with Internet connectivity</p>
<p>Tips:</p>	<p>Have the students work in groups of two but make sure to monitor the groups to ensure that both students can spend time programming and downloading code to the controller. It is important to have a team so that communication occurs and students learn about teamwork.</p> <p>Children in the spectrum may have difficulty working with other children so have a talk with children to stress the importance of working together.</p>

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Learning Activities	Design and approach	Technology / Materials	UDL Principles	Classroom organization
Introduction: Learn how to connect the dwengo controller to the computer and how to download code to it		Dwengo controller, USB cable, Internet connectivity		Groups of 2 students per dwengo

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Activity 1 Write a simple program that will control the motors to move		dwenguinoBlockly, Dwengo		Groups of 2 students per dwengo
Activity 2 etc (description)				
Assessment (description) (formative / summative)	Questioning, observation, plenary classroom activities, and dialogue with students. Each group presents their project.	Dwengo		All students from each group mas present their part

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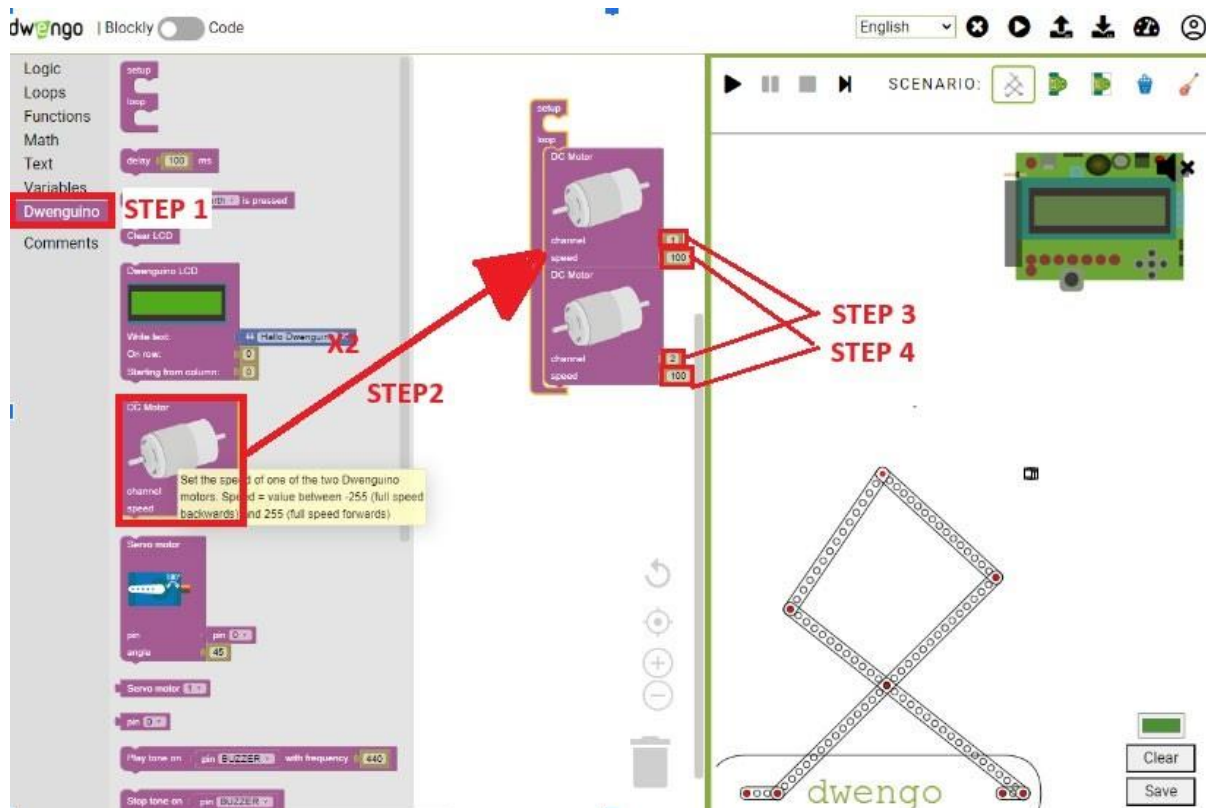


Fig. 1

Navigate to the **Dwengo group**, where you will find the “**DC motor**” block which by default is on **channel '1' and speed '100'**, and that’s what we are going to use for this project. Drag and drop 2 of these blocks on the canvas and set the one of two **motors channel to 2**. (see Fig. 1)



Fig. 2

Now connect the dwengino board with the cable in your computer, press **RESET + SOUTH**, then **release the reset button ONLY** (see Fig. 2) a folder will open, and you can close it.

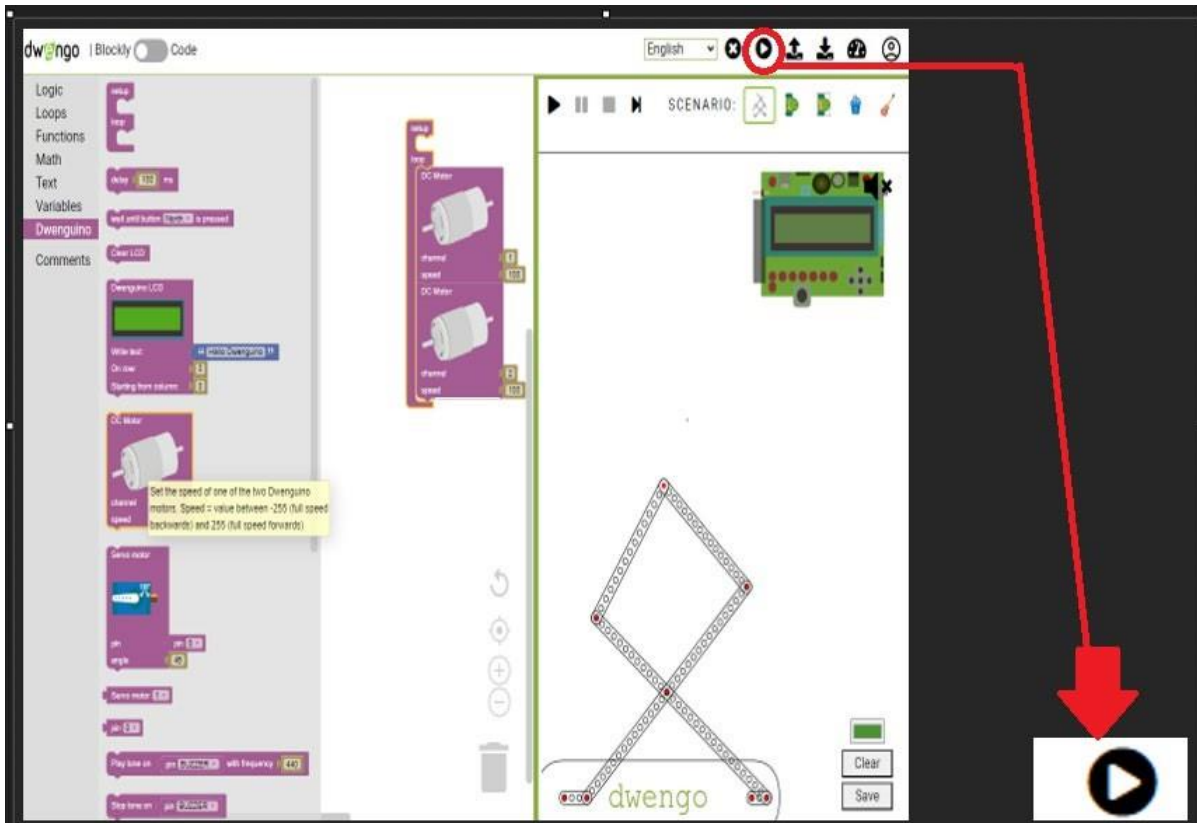


Fig. 2

Fig. 3

On the top right side of the screen, you can see a white arrow in a black circle and click on it (see Fig. 2 and Fig. 3).

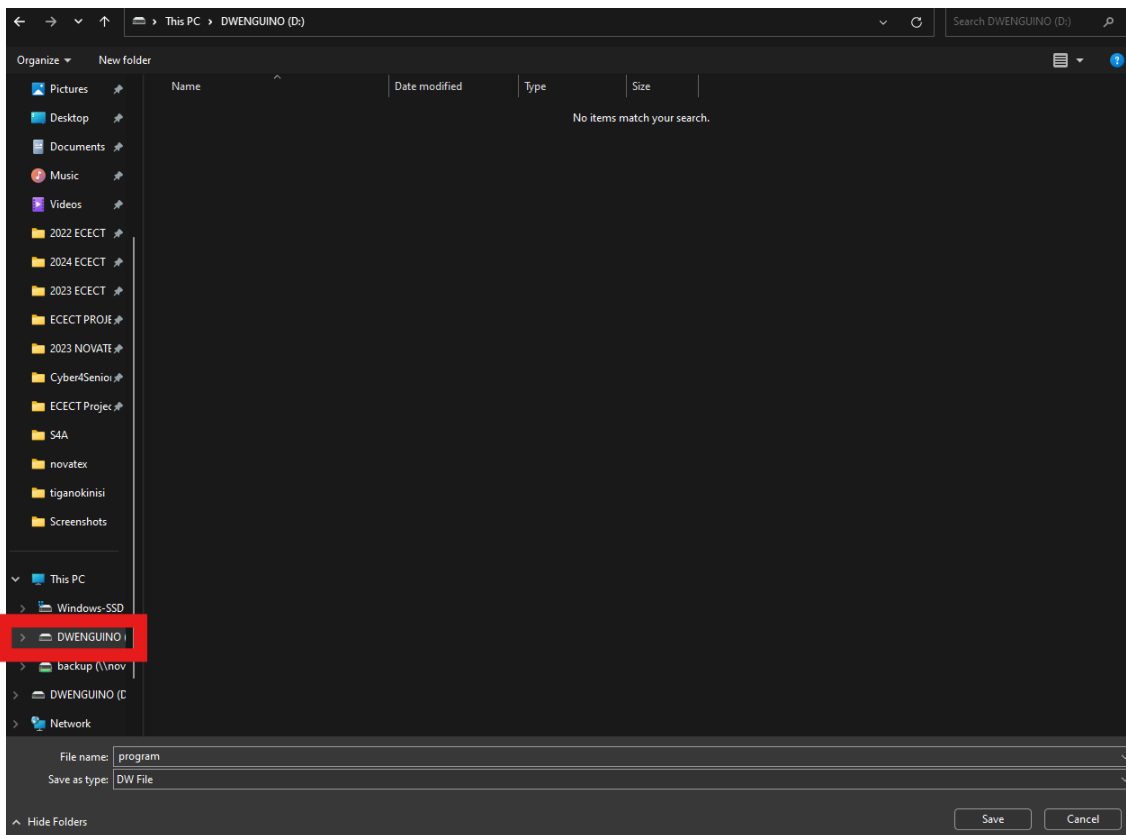


Fig. 4

Finally, after the code is ready, a window will open (see Fig. 4). Go to the **dwenguino** folder and click **save**. then click the reset button in dwenguino (see Fig. 2)