



Educational information  
relative to  
the “Discover”  
projects.



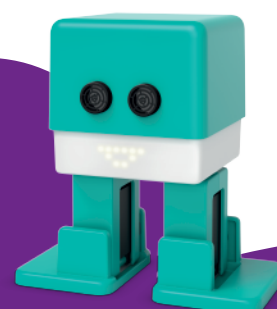
Zowi

**Zowi's projects** are ordered by their level of complexity. They have been designed as a route, thus facilitating the progressive learning of programming and electronics.

A project is only unlocked once the child has finished the one immediately previous: on completing a project the child must pass a test to demonstrate the objective has been reached and that they are ready for the next. This process is necessary given that the knowledge obtained in each project helps comprehension of subsequent ones.

| PROJECT No. | TOPIC                | OBJECTIVES                                       | RATIONALE  |
|-------------|----------------------|--|--|
| 1 and 2     | Discovering the app  | Explore Zowi's games.                            | Both projects show the child the games included in the Zowi application.   |
| 3, 4 and 5  | Getting to know Zowi | Understand its design and electronics.           | Through these projects the child discovers the components in a robot and, by extension, in other electronic products.  |
| 6           | What else can it do? | Discover that Zowi can be reprogrammed.          | The child realises that an endless amount of programs can be made for Zowi.  |
| 7 and 8     | Hacking your Zowi    | Learn to create programs.                        | Once they discover that it obeys their orders, the child learns how to program Zowi.   |
| (Others*)   | Learning with Zowi   | Use Zowi as a tool for discovery-based learning. | In these projects Zowi becomes a tool through which the child, in an experimental and contextualised way, learns about science, technology, art and mathematics (STEAM). |

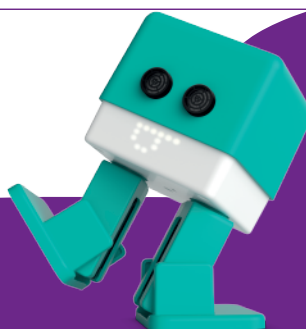
\* **Difficulty level: medium.** Involves concepts usually taught as of fourth grade (9-10 years) and which are new for Zowi's minimum usage age (8 years).



# First projects.

# Zowi.

| No | PROJECT                | AREAS OF DEVELOPMENT<br>(if studied)                                   | DIFFICULTY<br>LEVEL | STEAM METHODOLOGY                      |
|----|------------------------|--|---------------------|--|
| 1  | Move objects           | (1) Software-hardware interaction.<br>(2) Remote control by Bluetooth. | Low                 | Telecommunications (E)                 |
| 2  | Choreography           | (1) Introduction to software.<br>(2) Software-hardware interaction.    | Low                 | Informatics and telecommunications (E) |
| 3  | The shape of a robot   | (1) Introduction to design.<br>(2) Introduction to hardware.           | Low                 | Industrial design (A) (E)              |
| 4  | Zowi's eyes            | (1) Hardware: ultrasonic sensor.                                       | Low                 | Science (S)                            |
| 5  | Zowi's legs            | (1) Hardware: servos.<br>(2) Mechanics and mechanisms.                 | Low                 | Technology (T)                         |
| 6  | Zowi, the alarm robot  | (3) Software-hardware interaction.                                     | Low                 | Industrial design (A) (E)              |
| 7  | Bitbloq I: Hello World | (1) Introduction to software.  | Low                 | Informatics (E)                        |
| 8  | Bitbloq II: Sensors    | (1) Programming: software.   | Medium              | Informatics (E)                        |
| -  | Divinewi (+6)          | (1) Software-hardware interaction.                                     | Medium              | Mathematics (M)                        |
| -  | Gravity (+5)           | (1) Design and gravity.  | Medium              | Science (C)                            |



# Areas the child will work on through experimentation.

Zowi.

| PROJECT                | PROJECT CONTENT  |
|------------------------|--|
| Move objects           | <ol style="list-style-type: none"><li>1. Zowi GamePad: try out all the possibilities.</li><li>2. Gamepads: history and functionality.</li></ol>                                |
| Choreography           | <ol style="list-style-type: none"><li>1. Algorithms as instructions for robots.</li><li>2. The consequences of omitting steps.</li><li>3. The importance of details.</li></ol> |
| The shape of a robot   | <ol style="list-style-type: none"><li>1. Disassembling the head.</li><li>2. Parts of a robot, with Zowi.</li></ol>   |
| Zowi's eyes            | <ol style="list-style-type: none"><li>1. Ultrasound and nature (bats).</li><li>2. The ultrasonic sensor and other sensors.</li></ol>   |
| Zowi's legs            | <ol style="list-style-type: none"><li>1. Articulations and movement.</li><li>2. Servos and other actuators.</li></ol>  |
| Zowi, the alarm robot  | <ol style="list-style-type: none"><li>1. How the mainboard works: its "memory" must forget.</li><li>2. Reprogramming: what is it and why is it done.</li></ol>                 |
| Bitbloq I: Hello World | <ol style="list-style-type: none"><li>1. Programming and the Bitbloq environment.</li><li>2. Programming of the setup and loop in Bitbloq.</li></ol>                           |
| Bitbloq II: Sensors    | <ol style="list-style-type: none"><li>1. Control instructions: conditionals and the WHILE loop.</li><li>2. Programming via sensor data.</li></ol>                              |
| Divinewi (+6)          | <ol style="list-style-type: none"><li>1. Randomness.</li><li>2. Probability.</li></ol>   |
| Gravity (+5)           | <ol style="list-style-type: none"><li>1. Newton, gravity and the centre of gravity.</li><li>2. Movement and balance.</li></ol>   |

