Bionic Controller
Connecting instructions

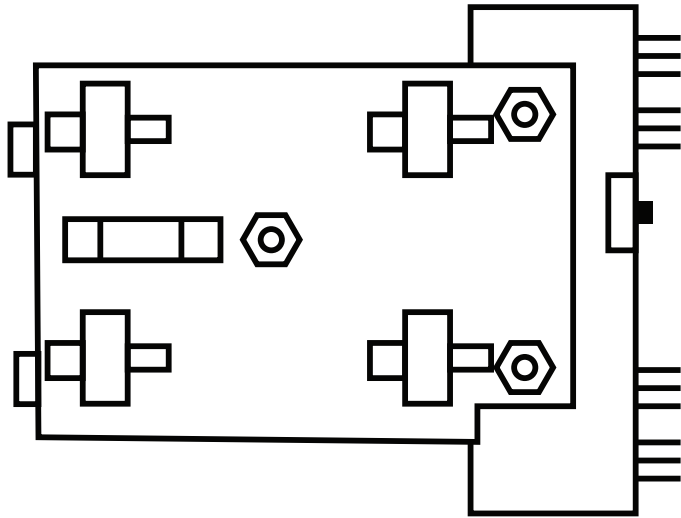**FESTO**

Equipment and Supplies

Required items from the Bionics Kit

1. Controller

1
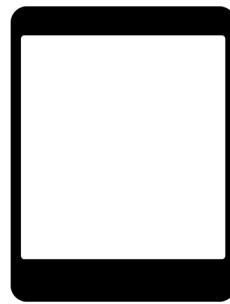
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Equipment and Supplies, continued

Additionally required: (one of the following devices is necessary for the control)

1. Smartphone
2. Tablet
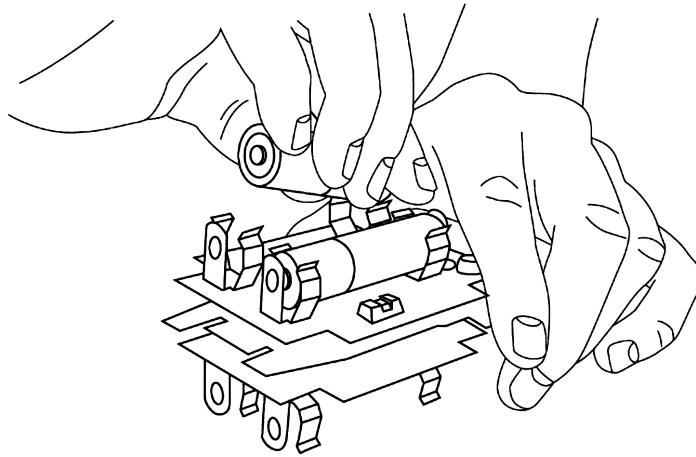3. Laptop
4. Computer

1

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Connecting instructions

<table>
<tr><td>1</td><td>

Required items: Controller, 4-AA batteries
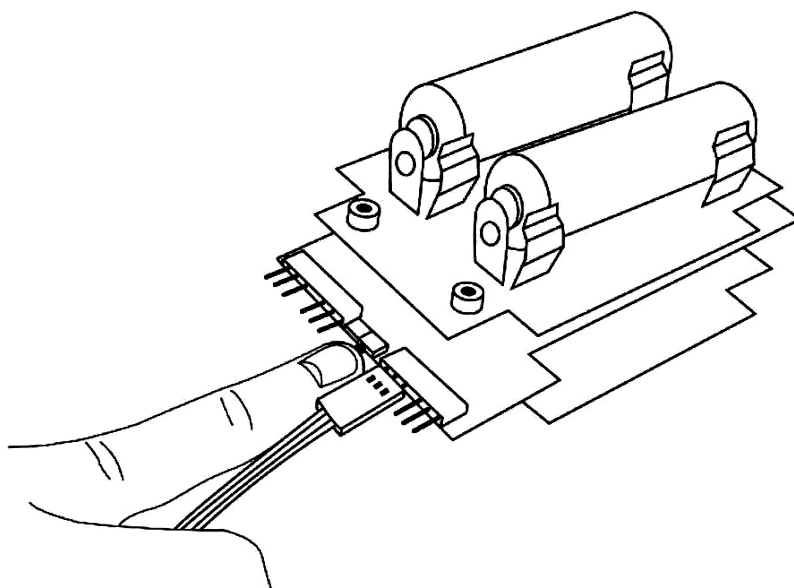
Insert 4 batteries, 2 on each side of the electronic board with microcontroller.

</td></tr>
</table>

<table>
<tr><td>2</td><td>

Required items: Controller

Turn on the controller. Two LEDs light up. One green LED (power supply) and one LED red (WLAN connection)

</td></tr>
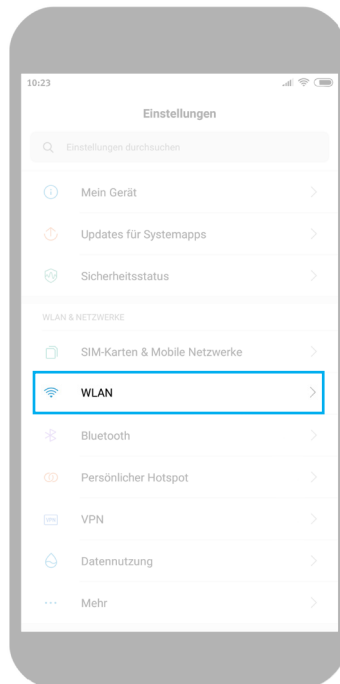</table>

3

Required items: Controller and smartphone

Unlock the phone and go to the settings.

4

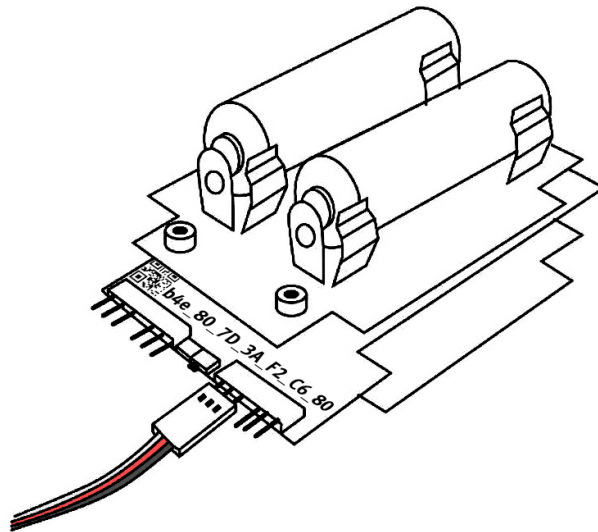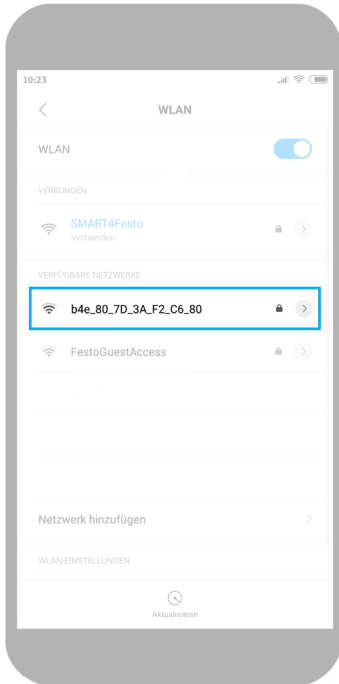**Required items: Smartphone**

Select the WLAN menu in the settings.
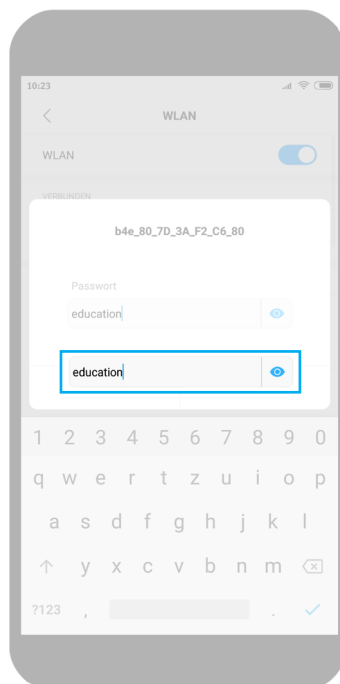
5

Required items: Smartphone

The WLan menu displays all available networks. There you can find the network of the controller with the name written on the board. Connect your smartphone to this network.

6

Required items: Smartphone

The password is always „education" (everything written in small letters)
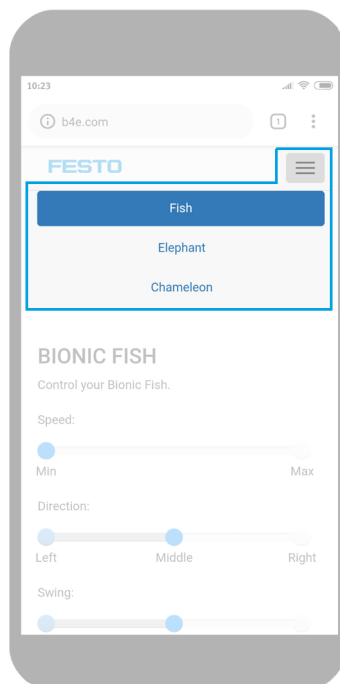
7

Required items: Smartphone

When you're connected to the controller's network, open your smartphone's browser. Enter the address „www.b4e.de". If no website opens, make sure that there is no „https" in front of the „www". If this is the case, delete the „s" so that only „http" remains. If this does not work, delete the entire history of the browser.

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Required items: Smartphone

On the home page of the site are the controls for the bionic fish. All animals can be found in the drop-down menu in the top right corner. Choose the right animal.

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Technical background

What is a microcontroller?

Microcontrollers are integrated in almost every electrical product, from the washing machine to the vacuum cleaner to the airbag in the car. They are also called single-chip computer systems. A microcontroller contains a processor, as well as main memory, program memory and other peripheral functions.
A microcontroller has the following typical properties:

- main memory (ROM)
- data memory (RAM)
- process unit (CPU)
- digital input / output ports (GPIO)
- analog input devices (ADC)
- communication port (COM)
- sometimes components for special tasks

How to program a microcontroller

The programming of microcontrollers often takes place in the programming languages Assembler or C. The programming languages BASIC, Pascal, Forth, Ada or C++ are also used. Nowadays there are also other simple possibilities and interfaces to program a microcontroller. An example are graphical programs like Scratch or Open Roberta, with which you can easily program a microcontroller without having to speak the language.