circuitArduino Documentation

This is a circuit simulator derived from the java circuit simulator developed by Paul Falstad. (https://www.falstad.com/circuit/)

It essentially includes all the features of that simulator. Later, Paul Falstad and collaborators ported the java simulator to javascript and much more features have been added since, which are not included in the present simulator.

As this simulator closely follows the P. Falstad version, the instructions of use he provides mostly apply here. These can be found in https://www.falstad.com/circuit/directions.html

1. UI features

circuitArduino user interface differs from the original simulator in the following:

- When a component is dragged connections to other components are kept. In order to break connections, double click the component before dragging.
- To exit the component insertion mode you can simply double click anywhere on the background, in addition to the standard method of pressing 'esc'.

2. Arduino simulation

2.1 Selecting the sketch

circuitArduino supports simulating Arduino sketches. To do so, you must first create a sketch in your favorite IDE and compile it to an .hex file. In the official Arduino IDE this is accomplished by selecting 'Sketch'->'Export compiled binary'. This will create a .ino.hex file in the sketch folder. To simulate this sketch, in circuitArduino do:

> go to 'Arduino' menu -> 'Select sketch' and browse and select your .hex file

2.2 Setting up ports

The arduino catalogue in circuitArduino consists of Digital ports and Analog ports. You insert these as you do with any other component in the circuit model, i.e., open the context menu (right-click), select the 'Arduino' category and choose the desired item. These components are displayed as other 1-terminal components of the simulator, such as 1-terminal voltage sources and logic inputs/outputs.

While an arduino Digital port can act as a voltage source or a voltage reading depending on how it is configured in the sketch, an arduino Analog port is always a reading port. You can choose the ports address by editing the component properties.