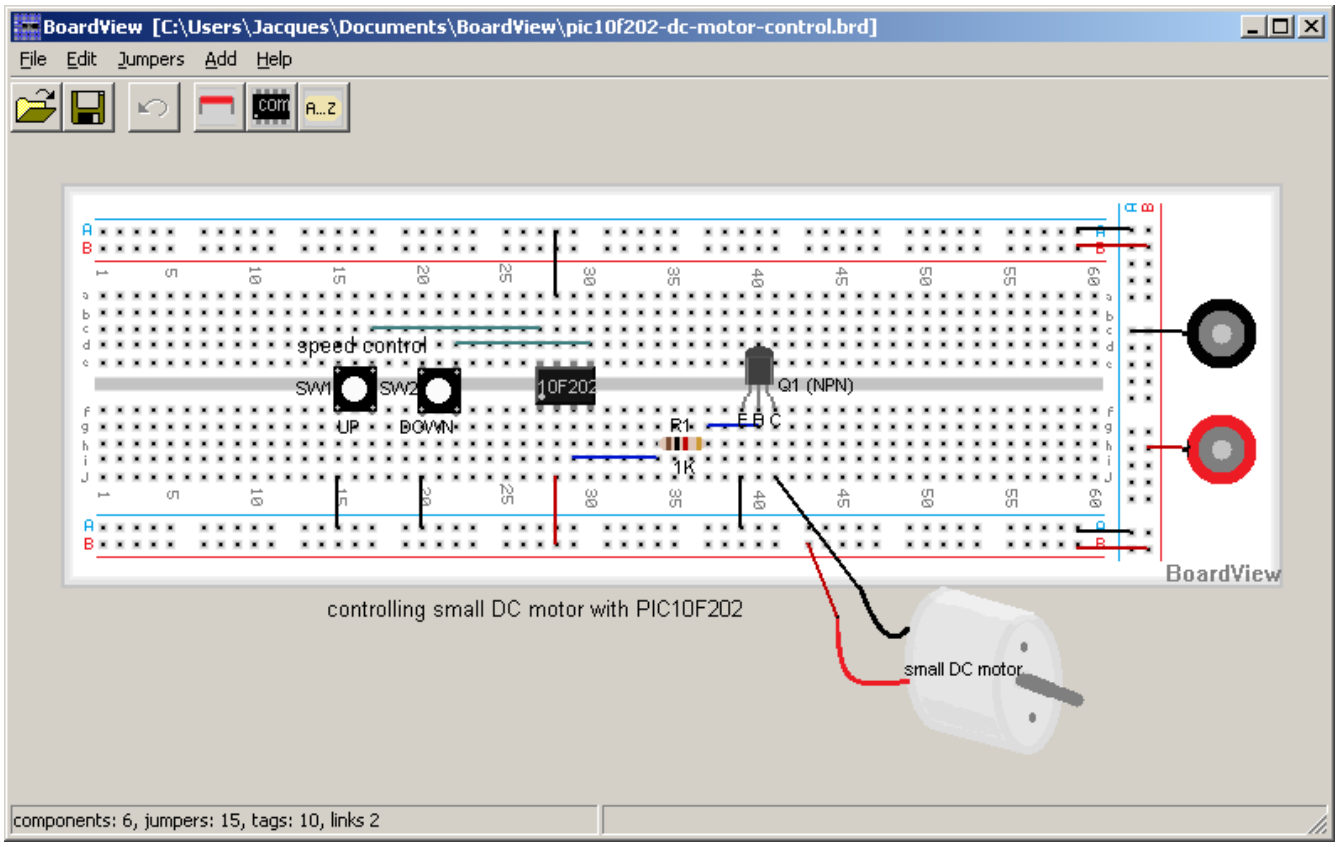
Introduction

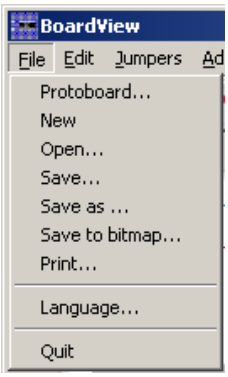
BoardView is a software to draw solderless prototyping board layout. These layouts can be saved as ***.brd** files which are editables or as bitmap files. The bitmap file can be used to communicate the design to others.



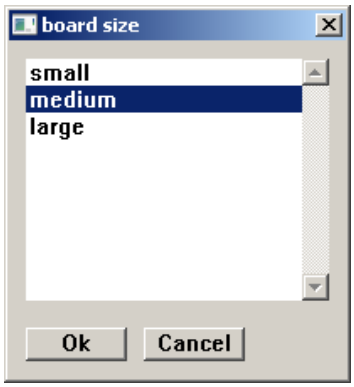
BoardView is so simple and obvious to use this manual is very brief.

Menus navigation

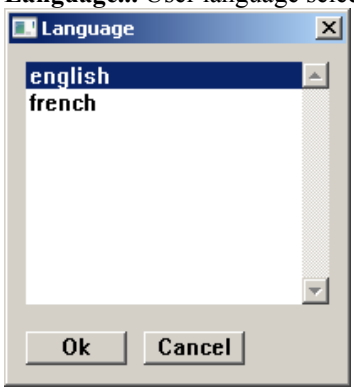
File menu



- **Prototyping board...** Let you select the prototyping board size. Shortcut key: **p**

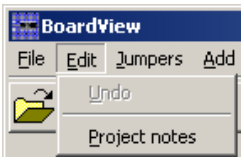


- **New** Begin a new project.
- **Open...** Open a previously saved BoardView "*.brd" file for further editing. Shortcut key: **o**
- **Save...** Save your BoardView design as a "*.brd" file that can be re-open for further editing. Shortcut key: **s**
- **Save as...** Save your design under a new name.
- **Save to bitmap...** Save your design as a bitmap file. That file can't be edited in BoardView.
- **Print...** Print prototyping board to scale 1:1.
- **Language...** User language selection. Currently only english and french are available. Choice saved in config file.

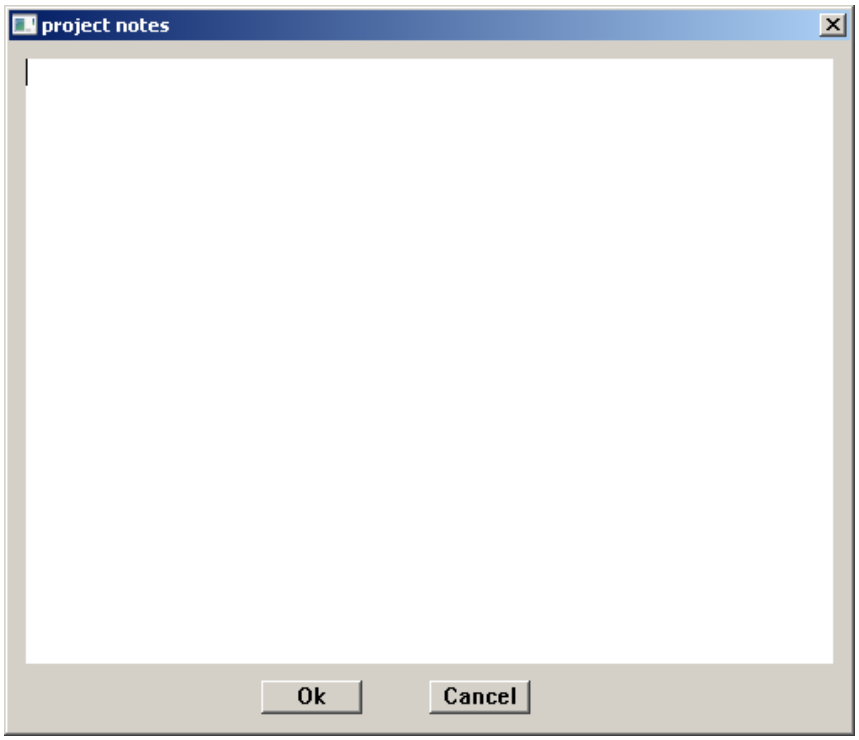


- **Quit** Leave the application.

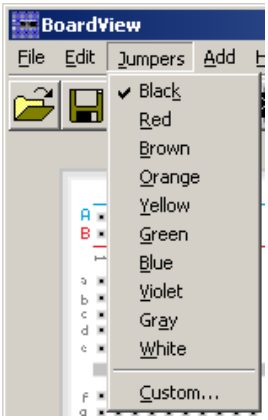
Edit menu



- **Undo** Undo the last change. Shortcut key: <CTRL>-z
- **Project notes** Let you save notes with the project.

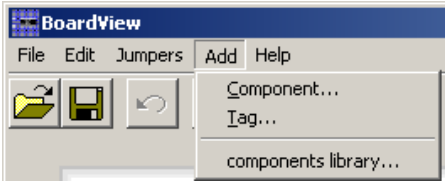


Jumpers menu

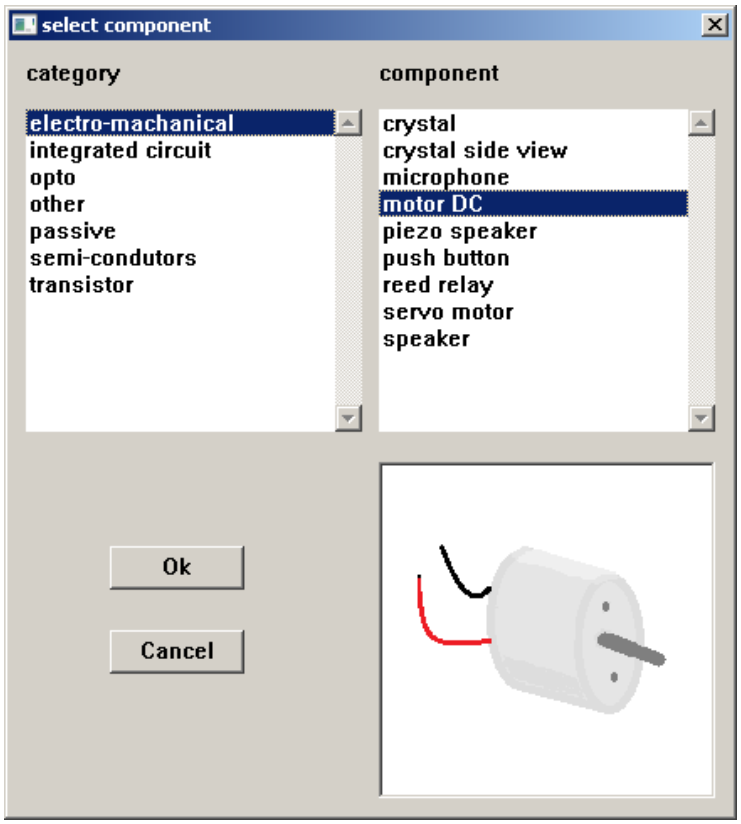


Items in this menu let you choose jumper (wire) color. There is 10 pre-defined colors but you can also customize your own set of colors. The shortcut key: **j** display the color chooser dialog box.

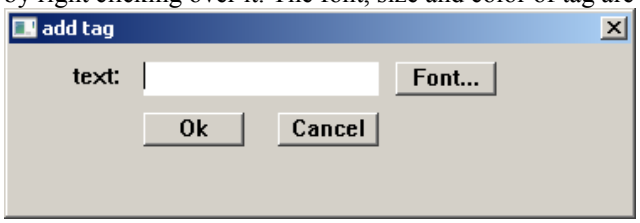
Add menu



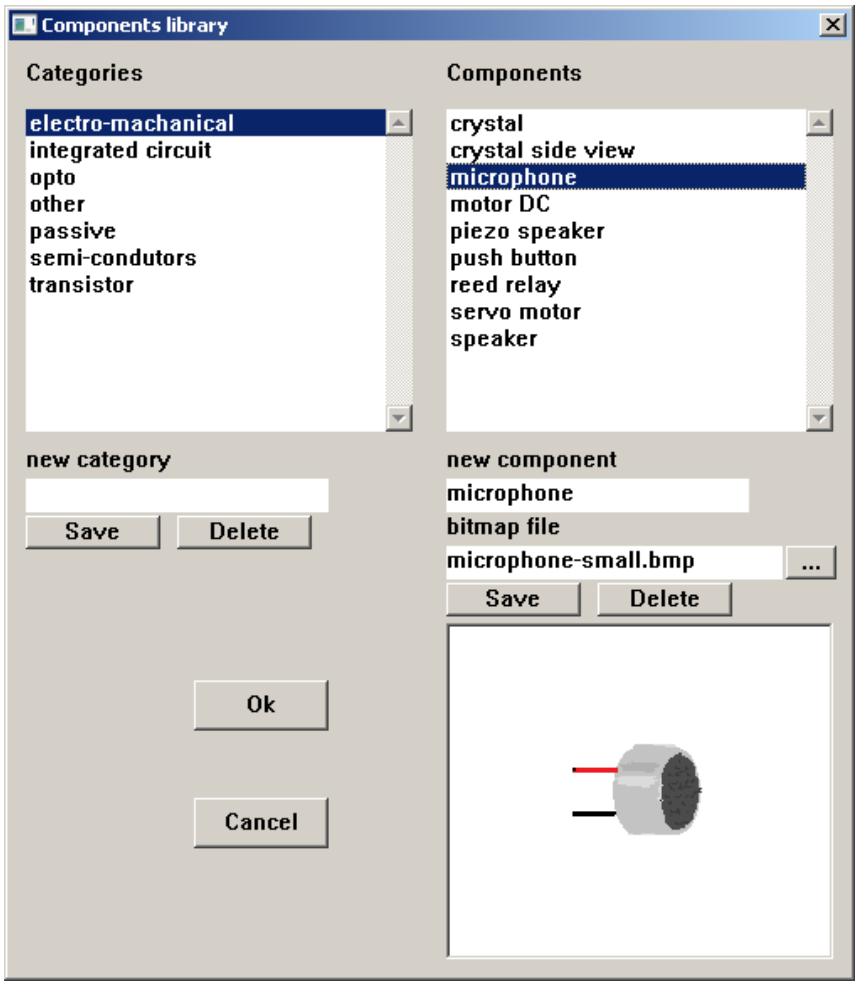
- **component...** Shortcut key: **c** Open the electronic components selector dialog. Components are grouped in categories. Components are represented as bitmap files. You can add component to database, this is explained below.



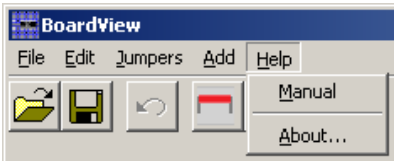
- **tag...** Shortcut key: **t**. Open the **tag** dialog box. This let you add text to identify component. You tag the component by right clicking over it. The font, size and color of tag are all selectable.



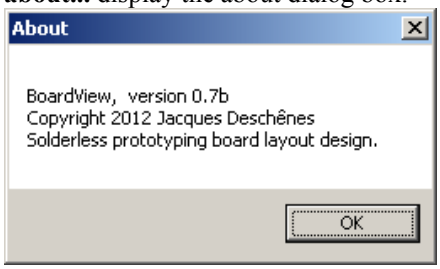
- **components library...** Open components libary dialog box. See details below.



Help menu



- **manual...** Shorcut key: **F1** Open this manual in default web browser.
- **about...** display the about dialog box.



toolbar

The toolbar present the most used menu items as icons. Placing the mouse over an icon will display the corresponding tip in a balloon. Each element of toolbar as a shorcut key as presented above.

statusbar

The statusbar at lower windows is divided in 2 sections. Left section display information about elements placed on the board.

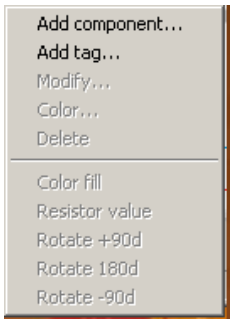
elements types

- **Components** are electronic component making the circuit.
- **Jumpers** are wires that connect components togethers to form the circuit.
- **Tags** are short texts used to identify components or give others indications.
- **Links** are wires like jumpers but used to connect out of board components to the board tie points. A Link is embedded in the component object it is connected to.

The right section of status bar display information about current operation or tie point hit.

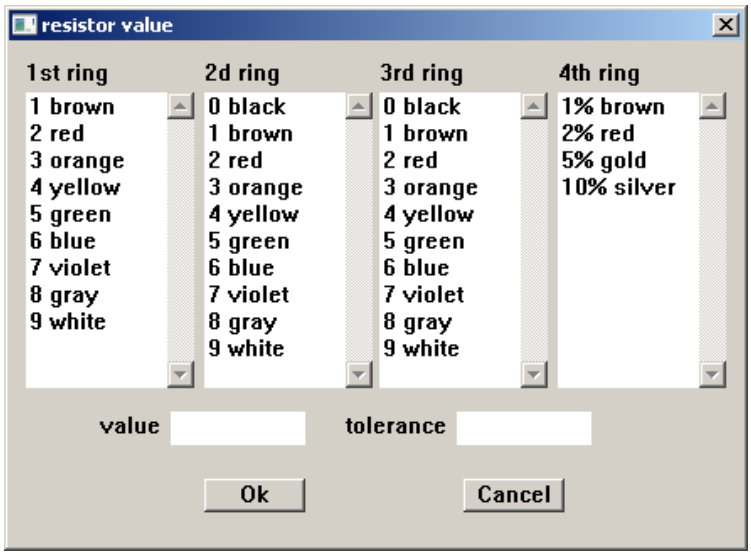
Placing elements on the board

Context menu



The contextual menu pop up when right clicking on the board or around it. It comprise the following items.

- **Add component...** Select a component and place it where you clicked to popup the menu.
- **Add tag...** Define ne new tag and place it where you clicked to popup the menu. if you click over a component the tag will be centered on that component and embedded in it.
- **Modify...** This item let you modify a tag properties.
- **Color...** This item let you change a jumper or link color.
- **Delete** This item let you delete the clicked element.
- **Color fill...** This item is active when the mouse cursor is right clicked over a fill zone an let you colorize that zone.
- **Resistor Value...** this item is active when the mouse cursor is right clicked over a resistor component. It Open the resistor value dialog.



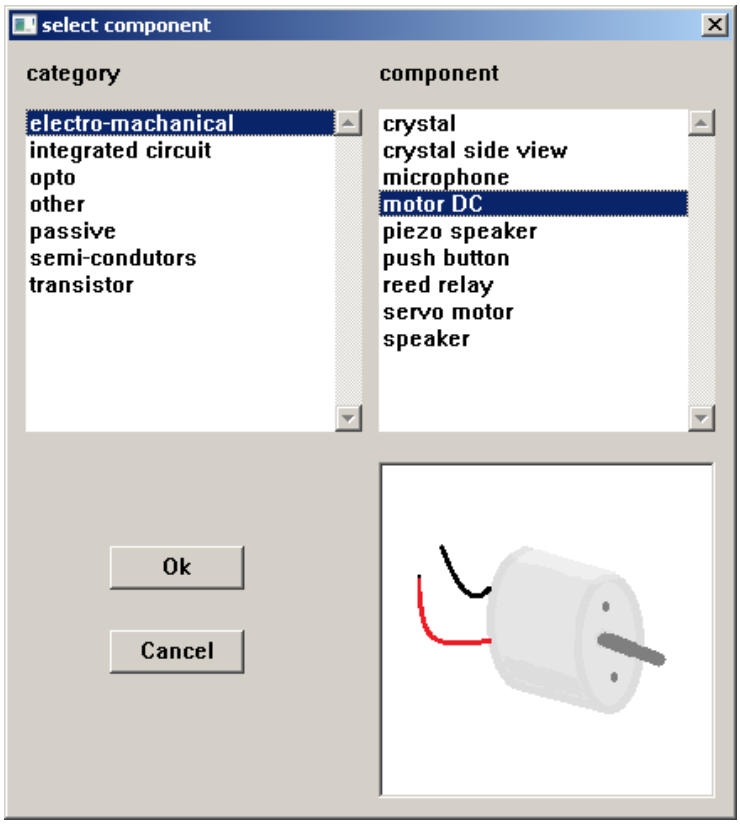
- **Rotate 90d** This item and the following 2 let you rotate the component.This is 90 degrees clockwise rotation.
- **Rotate 180d** Rotate 180 degrees.
- **Rotate -90d** Rotate 90 degrees counter-clockwise.

When the mouse is over a tie point a small circle appear around it and the right section of statusbar indicate if it is a board tie point or component tie point. At that position you can press down the left mouse button and drag the mouse over another tie point and release it. This will place a jumper between the 2 tie points. This jumper has the current selected color. You can change the color of an already placed jumper by right clicking on it and selecting **color...** item in the popup context menu. You can grab any end of a jumper to drag it at another tie point. You can also grab it in the middle to stretch it like a rubber band. The stretch will stay when you release the mouse button.
Links does not work like jumpers. They must be placed by starting at component tie point toward the board tie point. The opposite result in a jumper placing. Jumpers and links have differents properties. Links can't be stretched. Links follow the component when it is moved around, not so for jumpers. To delete a link you must rigth click at its tie point on component. Same to change its color.

You can place a component on the prototyping board 4 ways:

1. Selecting **component...** from **Add** menu.
2. using the shortcut key: **c**
3. clicking component icon on the toolbar
4. right-clicking and choosing **Add component...** from the popup menu.

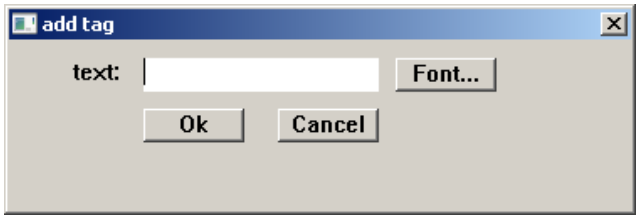
Either way this open **component selection** dialog box.



Select the category then the component and click **Ok** button. For the first 3 ways, the component will appear just under the toolbar on the left side. Drag the component on the board where you want to place it. But if you choose the fourth way, the component will be placed where you right-clicked on the board, This do for faster component placement.

Components that are not designed to be plugged in a solderless prototyping board can be placed outside of it. Increase windows size to make place around the board then place such a component aside the board. Then link it to board with wires. Start links at the component tie point and terminate them at board tie point. A circle appear when the mouse cursor is over a component connexion point to indicate that the mouse button can be released. Tracing a jumper from the board toward the component result in a jumper instead of a link.

Tags can be added 4 ways too with the same result as component placement.



In tag dialog box, the **font** button open a font dialog. Tags, like components, appears under the toolbar at left and must be dragged on the prototyping board. You can also place them by right-clicking on the board. If you right click on a component to add a tag to it the text will be centered on component area and become part of it. Erasing the component erase the tag. This is different from dragging a tag over a component, in that case the tag stay independant of the component and will not move with it nor be erased with the component.

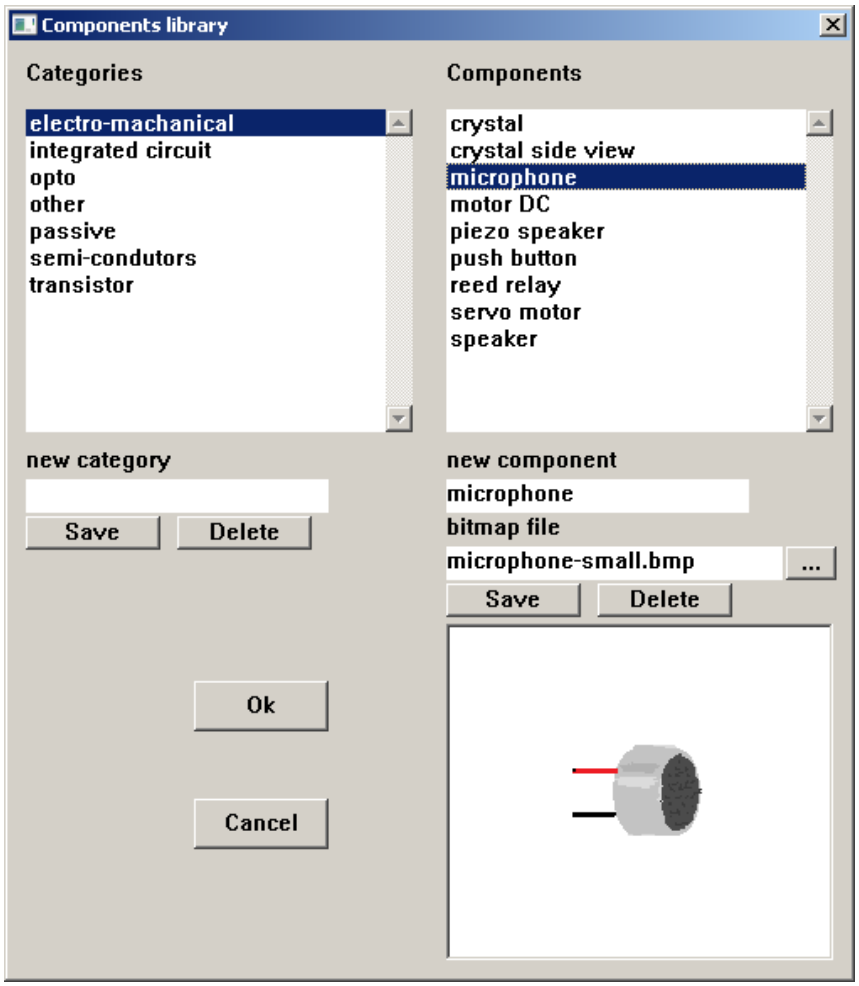
Elements are drawned on the board in the order they are created. If you drag a more recently added element over an other one it mask the older one.

The board can be dragged around in the application windows. All installed elements move with the board.

Cloning component and tag

A component or a tag can be cloned by holding down <CTRL> key before pressing left mouse button on the component or tag, then dragging the clone at desired place. This is a fast way to place many identicals components on the prototyping board.

Adding components to the library



from the **Add** menu click on **components library...** to open the dialog box. From this dialog you can manage categories and components. Selecting a category and clicking the **delete** button under the category listbox will delete that category and all its components. A warning message is displayed before proceeding.

Adding a category is as simple as typing its name in the **new category** field and clicking **accept** button. The new category will appear at the end of the list.

To add a component to a category, first select the category, then type the component name in **new component** field. Components are displayed as bitmaps, so you must specify the bitmap file for that component before clicking **accept** button. The new component will be added at end of list.

When the library dialog is closed categories and components names are alphabetically sorted.

component bitmap

When you create a component bitmap. Don't use special color **BLACK 1** (RGB value 0x010101) as a color except at connexion points. BoardView use that color as target point for prototyping board tie point center. This is how it knows where to place jumper termination. **WHITE** (RGB 0xFFFFFF) may also cause a problem as it is the transparent color. This color should appear only as bitmap background. If other parts of the bitmap have WHITE, use the special color **WHITE -2** RGB 0xFEFEFE.

Other point to consider is that the prototyping boards distributed with BoardView have a tie point grid of 10 pixels. When you draw components with visible tie points, to fit nicely on the board those must be spaced a multiple of 10 pixels. Look at DIL-*.BMP for exemples.

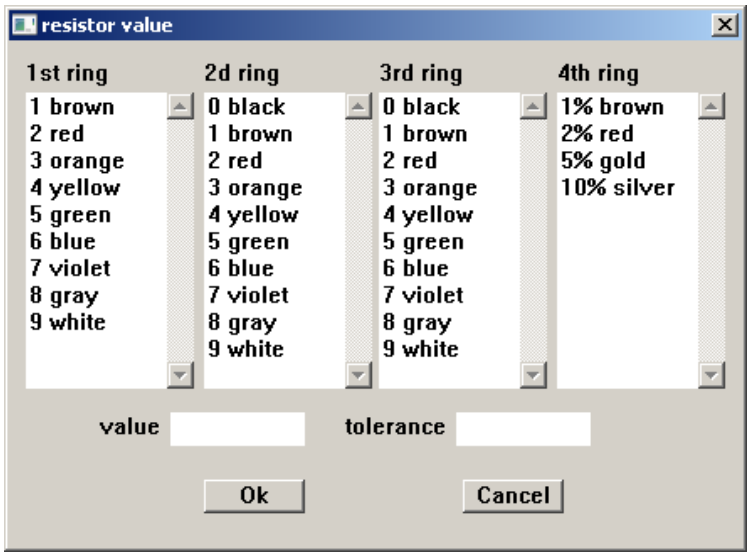
fill zone

There is another special color **BLACK 2** which is used for fill zones. If you create a bitmap with zones filled with that color the user will be able to colorize those zones right clicking on it and using the *color fill* item of context menu.

special colors		
color	**R,G,B composition**	**use**
BLACK 1	01,01,01	tie point
BLACK 2	02,02,02	fill zone
WHITE	255,255,255	transparent color
WHITE -2	254,254,254	visible white

Resistor component

The 4 bands resistor bitmap distributed with BoardView is designed with special information embedded in 4 corners pixels. These pixels contain the coordinates of the center of each fill zone for the color code bands. BoardView use this information to colorize the resistor according with the value selected in the *resistor value* dialog.



To enter the value in the dialog choose the color in the 4 lists. When the 4 lists have an item selected the resulting values are displayed in the edits fields below the lists. Click **Ok** to accept the values.

To conclude ont that subject, BoardView expect bitmaps to be placed in **resources** sub-directory of the application directory. If you add a component which bitmap is not in that directory, it will be asked if the bitmap file should be copied there.

Advanced library editing

The library information is stored in application directory as *BoardView.cmp*. This file can be opened in text editor and modified by hand. One should be carefull before doing it. It is safer to make a backup of the file. This file is an euphoria object. If after hand editing it no more respect euphoria object syntax il will become unusable and break the functionnality of BoardView. It is at your own risk.