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Display Popup Tutorial.

This tutorial will guide you through the setup and various uses for using one of the available plugins that can be found on then EZ-Robot website. The display plugin displays your robots response in a text format on a computer or tablets screen.
This is a great option if you have a computer display installed on your robot, as this plugin control can be used where speech synthesis is not an option for people with hearing difficulties, and allows them to interact with your robot. This is also useful if you have a robot that does not speak, much like R2-D2, as this can act as a translator of sorts.

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Step 1. Installation.

To get started with this tutorial which accompanies the video tutorial made by DJ Sures, we first need to install the plugin to enable it to be added to EZ Builder.
1.) Open the latest updated EZ-Builder, then click "**Project**", then click on "**Add Controls**". On the bottom of the "Add Controls" menu, you will see a tab called "Get Plugins" which you need to click on.

2.) This takes you to the "Plugins" page on the EZ-Robot website. Scroll down to the "Display Popup" control and click "**Download**".

3.) Click on "**Open with**" on the popup window, then select EZ-Builder plugin manager. Click "**OK**, then click on the download file on your browsers download tab.
4.) Once the download is successful (it only takes a second or two), a popup dialogue will show confirming this. Simply hit key on the keyboard to close it.

Next we will load up the new control to your new EZ-Builder project.

Step 2. Setup.

1.) Back on the EZ-Builder menu ribbon, click "**Project**" and "**Add Controls**" again.

2.) On the "Add Control" menu, click on "**Misc**" and then select the "**Display Popup**" tab to add this to your project.

3.) The new control for the display has three options... "Help", "Delete", and "Config". Click on the "**Config**" tab to open the controls menu.

You will now be presented with six options...
Default Timeout: This is where you can choose the length of time (in seconds) to display the text popup before it closes.
Text Colour: Choose what colour you want the text to be.
Background Colour: Changes the background colour of the popup window.
Font: Change the text to
A choice of font, font styles, size, effects, and script.
Save and **Cancel:** Saves or cancels any recent settings changes made.
Now that we have our control set up, we now need to make it work. That's in the next step.

Step 3. Displaying your Robots Response.

To start with a simple example of how to display your robots response, we will use a simple line of script.
1.) From the EZ-Builder menu ribbon, click "**Project**", "**Add Controls**", "**Scripting**", and "**EZ-Script**". Once the script control has been added, click on the "**Script Config**" tab to open the script editor.

2.) In the script text input field, right click to bring up the cheat sheet menu, click on "**Display Popup**" and select "**ControlCommand("Display Popup", Display, Text)**" command.

3.) At the end of the control command is the word "text". This is where we enter the robots response. Delete the word "Text" then add your robots response, making sure that it starts and ends with speech brackets as seen below. Then click "**Save**".

4.) Now when you press "**Start**" on the displays control, the robots response will appear for the amount of time you set it for in the configuration menu. If you want to get rid of the display before the "timeout" has been reached, simply press a key on your keyboard or touchscreen.

To get a little bit more advanced, the next step will show you how to display the robots text response from the "Pandorabot" control.

Step 4. Using Display with Pandorabots.

This example will display any spoken response from the Pandorabot control. More information on setting up and using the Pandorabot control in EZ Builder can be found by clicking on the link below...
Pandorabot Control Tutorial
1.) With a "Display Popup" control already added to your project, click "**Project**", "**Add Control**", "**Audio**", and "**Pandorabot**". Now click on the Pandorabot control configuration tab (small gear icon).

2.) Double click on the click "**Response Variable**" command and copy it by holding down "CTRL" then pressing "C" on the keyboard. Then click on the "pencil" icon, on the "**Response Script**" field.

3.) Right click to bring up the speech popup control commands, and click on **ControlCommand("Display Popup", Display, Text)**
to add it to the script. What we do next is a little different to the last step where we added the robots response.
4.) Delete the word "Text" from the command, then in it's place, paste the "Response Variable". In front of the "$pandoraResponse" variable, add two speech marks and a plus sign so the control command looks like the following...

```
ControlCommand("Display Popup", Display, ""+$pandoraResponse)
```

5.) Once done, click "**Save** to save the script, then **Save** again to save the control changes.

6.) Now you're ready to test the display responses. Simply say or type in a phrase in to the Pandorabot control, and the robot should respond with a verbal response as well as displaying it in a text format.

OPTIONAL:
If you do not want your robot to respond to you with a verbal response, you can simply add another line of script to turn the speech volume down to zero...

```
speakvolume(0)
ControlCommand("Display Popup", Display, ""+$pandoraResponse)
```

The next step covers another example of what you can display on the "Display Popup".

Step 5. Another Display Example.

This step will use what we have learned about displaying text, and using a variable to do so. This example will display the time, date, EZ-B battery voltage, and CPU temperature.
1.) With the "Display Popup" control already added to your EZ-Builder project, we will configure it to change the background and font colours, along with the font size and and style. After the changes are made, click "**Save**".

2.) Add a new "**Script Manager**" control to your project, then add a new script.

3.) Edit the new script, rename it "Display Time" or something of your choosing, then add the following script...

```
ControlCommand("Display Popup", Display, "" + $time)
```

Notice it is very similar to the Pandorabot command, with the difference being the variable has changed to "**$time**".

After you save the new script, you can test it by clicking "**Run**" on the script control.

4.) Save this new script, then add another one, this time naming it something like "Display Date" then add the following script...

```
ControlCommand("Display Popup", Display, "" + $date)
```

5.) Add another script, naming it "Display CPU Temp". This script will be a little different to the other two, as we need to set a variable. The script should look like the following...

```
$cpu = getcputemp()
ControlCommand("Display Popup", Display, "" + $cpu)
```

6.) Add a further script and add the following for battery voltage...

```
$voltage = getvoltage()
sleep(100)
ControlCommand("Display Popup", Display, "" + $voltage)
```

7.) Add a final script, and name it "Display all" or something of your choice, then add the following control commands for all of the above scripts...

```
$voltage = getvoltage()
sleep(100)
ControlCommand("Script Manager", ScriptStart, "Time Display")
sleep(2000)
```

```
ControlCommand("Script Manager", ScriptStart, "Battery Display")
sleep(2000)
ControlCommand("Script Manager", ScriptStart, "Date Display")
sleep(2000)
ControlCommand("Script Manager", ScriptStart, "CPU temp Display")
```

8.) Connect your EZ-B to EZ-Builder. What you can do now is display one script at a time by clicking "**Run**" on the relevant script control, or click "Run" on the "Display All" script control, which will scroll through all four scripts at 2 second intervals. (Note: the time and date scripts do not need the EZ-B connected as this info is taken from the computer running EZ Builder).

Conclusion.

That brings us to the end of this short tutorial. There are two versions of this text display floating around... the plugin explained in this tutorial, and another one called EZ-Display which was very kindly created by one of EZ-Robots resident forum members **WBS0001**. There is a zip file that you can download, and instructions on how to install and use the control can be found by clicking here. EZ-Display was the first of the two available text displays that are available, and has a few extra options that can be used with control variables that lets you decide what you want the display to do.
As always, if you have any questions, comments, or ideas to create your own Plugins, the EZ-Robot Community Forum is just a click away.

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