

Documentation for Autolab-plot

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1 Introduction

A website to demonstrate the figures and trajectories of different robots in Autonomy Lab at Simon Fraser University. It has been rewritten into libraries in order to facilitate extension. It is written in HTML, Javascript, PHP, and a little of C++.

2 framework

The framework is as Figure 1. I split the plot library and the method library apart in order to avoid large computation on webpage. The plot library is in charge of generating plots on a webpage, and the method library is for computation on a server.

2.1 Client Webpage Level

Client webpages demonstrate plots with javascript plot libraries. It can be written in HTML and Javascript by users of Autolab-plot. When a canvas is reserved in the layout of HTML, an object of a plot class is instantiated, and show function is called, a plot is generated.

In the directory, index.html and test.html belong to this level.

2.2 Plot Library Level

Plot Library is utilized to generate various of plots and functional modules of Autolab-plot. It is called by client webpages. phpComm is used to communicate with php program, and retrieve data from the server. The library is written in Javascript as a js file.

Lets take “staticPlot” class in plot_methods.js as an example. First, create a new HTML file. To include the library, add the following code into `< head >< /head >`.

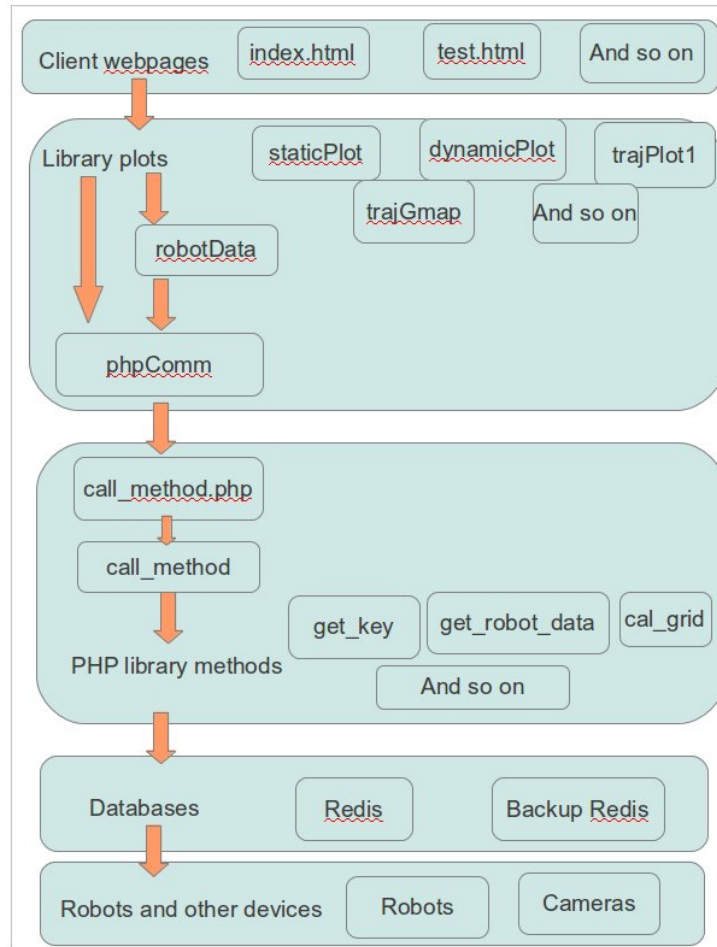


Figure 1: Hierarchical chart

```

    < scriptlanguage = "javascript" type = "text/javascript" src = "./flot/jquery.js" ><
  /script >
    < scriptlanguage = "javascript" type = "text/javascript" src = "./flot/jquery.flot.js" ><
  /script >
    < scriptsrc = "plot_methods.js" >< /script >
    To reserve space for this plot, add the following code into < body ><
  /body >.
    < divid = "staticPlot" >< /div >
    To create a new static plot, add the following code into < script ><
  /script >.
    var sp = new staticPlot();
    To show the plot on a webpage, add
    sp.show();
    Now, you can see the plot on this webpage.

```

2.3 Method Library Level

The method library is utilized to connect with databases and do some computation on the server. It is written in PHP.

3 Installation

Autolab-plot is developed in Ubuntu 11. Compatibility with other platforms is not tested.

Install Apache and PHP first. Put the entire directory of Autolab-plot into the base directory for the web documents (default as /var/www). Open a browser and lead to the corresponding url (default as localhost/autolab-plot). You can see a variety of plots there.

If you want to connect with database and communicate with robots, please install Redis and configure the IP address of Autolab-plot.

4 Files

4.1 connect_redis.php

It contains all the service functions that can be called by javascript

4.2 call_method.php

It is called by javascript programs, and calls "call_method" method in order to parse the "method" parameter and call the corresponding function in PHP.

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