WifiBlock 101
Your first Wifi Controlled Robot
Aim of the project:
The aim of the project is to build a Wifi remote controlled NXT based robot.

What you need:
- Lego Mindstorms NXT
- WifiBlock
- Wifi access point or router
- PC with the following software: NXT-G, Easy PHP
STEP 1: Build the robot

Build a Tribot inspired robot with a WifiBlock attached to a sensor port.
STEP 2: Set up the server side

$m.php

```php
<?php
$role = $_GET['role']; // We handle the role of the client that can be 'robot' or 'remote'

switch ($role) {
  case "robot": // For the case 'robot', we fetch the command from the data.txt file
    $fp = fopen("data.txt", "r");
    $order = fgets($fp, 255);
    fclose($fp);
    echo $order;
    break;

  case "remote": // For the case 'remote', we write the command passed by the 'order' variable in the data.txt file
    $order = $_GET['order'];
    $fp = fopen("data.txt", "w");
    fseek($fp, 0);
    fputs($fp, $order);
    fclose($fp);
    break;
  default: echo 'Ooops, there is a problem'; // We should never arrive here :)
}
?>
```

For Windows based PC, you can use **easyPHP**
STEP 3: Set up the remote control side

Remote.html

```html
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>RXT Command Center</title>
<script type="text/javascript" src="https://ajax.googleapis.com/ajax/libs/jquery/1.6.1/jquery.min.js"></script>
<script type="text/javascript">
$(document).ready(function(){
  $('"#FORWARD"').mousedown(function(){
    $.get('/m.php?role=remotecorder=1') //for items with the ID Forward, we send '1' on mousedown
  });

  $('"#BACKWARD"').mousedown(function(){
    $.get('/m.php?role=remotecorder=2') //For items with the ID Backward, we send '2' on mousedown
  });

  $('"#LEFT"').mousedown(function(){
    $.get('/m.php?role=remotecorder=3') //For items with the ID Left, we send '3' on mousedown
  });

  $('"#RIGHT"').mousedown(function(){
    $.get('/m.php?role=remotecorder=4') //For items with the ID Right, we send '4' on mousedown
  });

  $('"#STOP"').mousedown(function(){
    $.get('/m.php?role=remotecorder=0') //For items with the ID Stop, we send '0' on mousedown
  });

  $('".remoteControl"').mouseup(function(){
    $.get('/m.php?role=remotecorder=0') //For all items with the class remoteControl, we send 0 on mouseup
  });
});
</script>
</head>
<body>
<--

Each Button has an ID allowing to perform the associated action on mousedown.
All buttons have the same class 'remoteControl' in order to send a STOP command on the mouseup event
-->

<button id="FORWARD" class="remoteControl">FORWARD</button>
<button id="BACKWARD" class="remoteControl">BACKWARD</button>
<button id="LEFT" class="remoteControl">LEFT</button>
<button id="RIGHT" class="remoteControl">RIGHT</button>
<button id="STOP" class="remoteControl">STOP</button>
</body>
</html>
```
STEP 4: Set up the NXT-G program

Writing the Wifi information
- IP for the WifiBlock
- IP Mask
- Gateway
- SSID (name of the Wifi network)
- Security type
- Password

Querying the WifiBlock
- Wifi Connected?
  - Reply is a boolean True or False

Doing a GET request with the WifiBlock
- IP Address, Port, Expected size of the returned data, URL
  - This part does a request as follows:

The reply is a file containing one character

Using a Commutator:
- We move the A and C motors according to the received order.
  - Case 1: forward
  - Case 2: backward
  - Case 3: left
  - Case 4: right
  - Case 0: stop
Useful links:

Run a webserver on your PC:
http://www.easyphp.org/

Rotacaster wheels for NXT:

Flexible Sensor for NXT:

Building instructions for the Tribot robot:
http://cache.lego.com/upload/contentTemplating/Mindstorms2BuildingInstructions/otherfiles/download4BF4733F2932BCFA4F0C537E796B12CB.pdf

Get cool sensors and accessories for your NXT:
http://www.generationrobots.com/indexus.cfm
Get it touch with us:

www.humarobotics.com