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Automatically Using AJAX

Reading Switch Status Automatically using AJAX on the Arduino Web Server

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Part 8 of the Arduino Ethernet Shield Web Server Tutorial

With a slight modification to the HTML and JavaScript code in the Arduino sketch from the [previous part of this tutorial](#), the Arduino web server can be made to automatically update the status of a switch on the web page. The button on

the web page used to make the AJAX call from the previous part of this tutorial is no longer needed.

Before continuing with this part of the tutorial, you will need to have completed the previous part of this tutorial and understand it.

This video shows the Arduino web server displaying the switch status automatically using AJAX.

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Arduino Ethernet Shield Tutorial

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Structure

Reading a Switch Automatically using AJ...

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Arduino AJAX Web Server Sketch

Use the same hardware as the [previous part of this tutorial](#) – a push button switch interfaced to pin 3 of the Arduino with Ethernet shield.

Only three modifications need to be made to the previous sketch (eth_websrv AJAX_switch) to automate the AJAX call that updates the switch status on the web page.

The modified sketch is shown here:

/*-----

Program: eth_websrv AJAX_switch_auto

Description: Arduino web server shows the state of
on a web page using AJAX. The state of
switch is updated automatically.
Does not use the SD card.

Hardware: Arduino Uno and official Arduino Ether



Part 4:
Arduino SD
Card Web
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Introduction

Modification to HTML and JavaScript

The image below shows the modifications that were made to the HTML file that the Arduino sketch sends to the web browser (this file is sent line by line using `client.println()` in the sketch).

```
<!DOCTYPE html>
<html>
<head>
  <title>Arduino Web Page</title>
  <script>
    function GetSwitchState()
    {
      nocache = "&nocache=" + Math.random() * 1000000;
      var request = new XMLHttpRequest();
      request.onreadystatechange = function()
      {
        if (this.readyState == 4) {
          if (this.status == 200) {
            if (this.responseText != null) {
              document.getElementById("switch_txt").innerHTML = this.responseText;
            }
          }
        }
      }
      request.open("GET", "ajax_switch" + nocache, true);
      request.send(null);
      setTimeout('GetSwitchState()', 1000); // new <--- added this line
    }
  </script>
</head>
<body onload="GetSwitchState()"> <!-- new --> <--- modified this line
  <h1>Arduino AJAX Switch Status</h1>
  <p id="switch_txt">Switch state: Not requested...</p>
  <!--<button type="button" onclick="GetSwitchState()">Get Switch State</button>--> removed
</body>
</html>
```

Modified Web Page Code for the AJAX Switch Example - [click for a bigger image](#)

Web Page Button Code

Firstly, the code that creates a button on the web page has been removed as the button is no longer needed. It can be seen commented out in the above image.

Calling the GetSwitchState() Function

The `GetSwitchState()` function that was previously being called each time the button was pressed is now being called when the page is loaded. This is done by calling the function when the page load event occurs by modifying the **<body>** tag of the HTML: **<body onload="GetSwitchState()"**

This is added to the Arduino sketch with the following line of code:

```
client.println("<body onload=\"GetSwitchState()\">");
```

Making the AJAX Call Every Second

Part 13:
Reading a
Switch with
SD Card Web
Server and
Ajax

Part 14:
Reading
Inputs with
Ajax and XML

Part 15:
Analog Value
Displayed on
Gauge

Part 16: Inputs
and Outputs
(I/O)

Part 17:
Accessing
HTML Tags
with CSS and
JavaScript

Part 18: CSS
for
Positioning,
Sizing and
Spacing

**Summary and
Conclusion**

The `GetSwitchState()` function would only be called once when the web page loads, unless we change the code to periodically call this function.

The following line of code is added to the bottom of the `GetSwitchState()` function to make sure that this function is called every second:

```
setTimeout('GetSwitchState()', 1000);
```

What this line of JavaScript code does is call `GetSwitchState()` every 1000 milliseconds (every second). An AJAX call is therefore made every one second which fetches the status of the switch and updates it on the web page.

This code is added to the web page by adding this line to the Arduino sketch:

```
client.println("setTimeout('GetSwitchState()', 1000);");
```

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