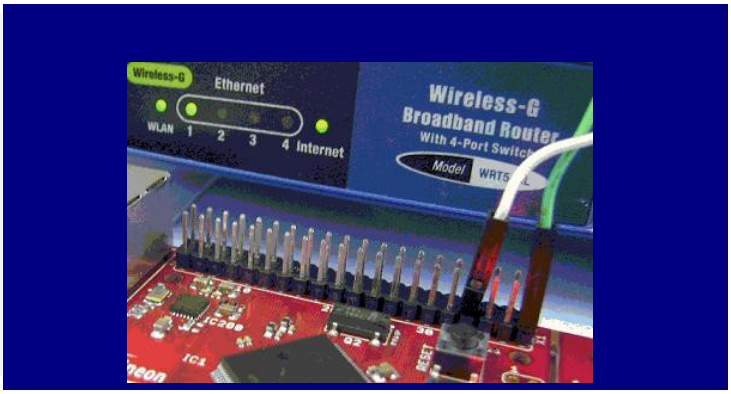
ARM XMC - experiment No. 9



- **E9.1 Name:**

Infineon Realax Kit - Embedded Web Server

- **E9.2 Overview and purpose:**

The experiment exploits the DAVE resources to build a Web server using XMC 4500 Infineon Relax kit. Infineon server application is used for remote switching an I / O pin to which is attached an interface for controlling a 220V. This feeds an AC / DC converter to power an 10 W LED light sources. At the end of the experiment will have detailed information about how remote control power LEDs using web server and browsers.

- **E9. 3 Resources:**

Hardware: Infineon Relax kit, Router Linksys Internet connected ; ac/dc converter, optotriac Siemens , LED 10W.

Software : Infineon DAVE 3.x , "Relax kit web server" Infineon application.

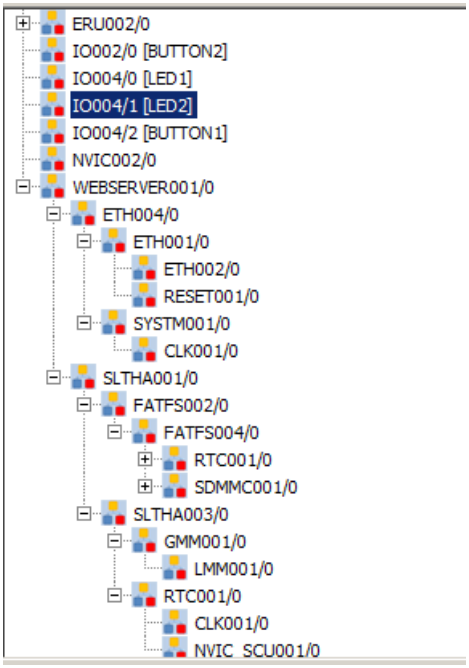
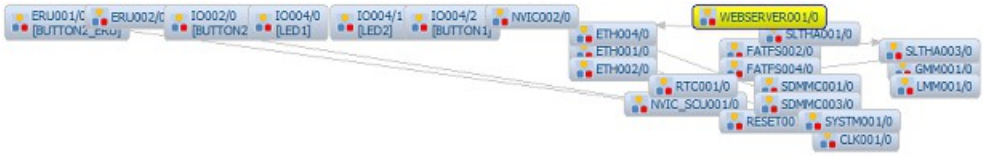


Fig. 9.1 Web sever DAVE Components

- **E9.4 Software example:**



- **E9.5 Method of running the experiment:**

Using Relax Kit platform , at P0.1 port bit kit connects the input of the optocoupler controlling outlet 220V according to the scheme:

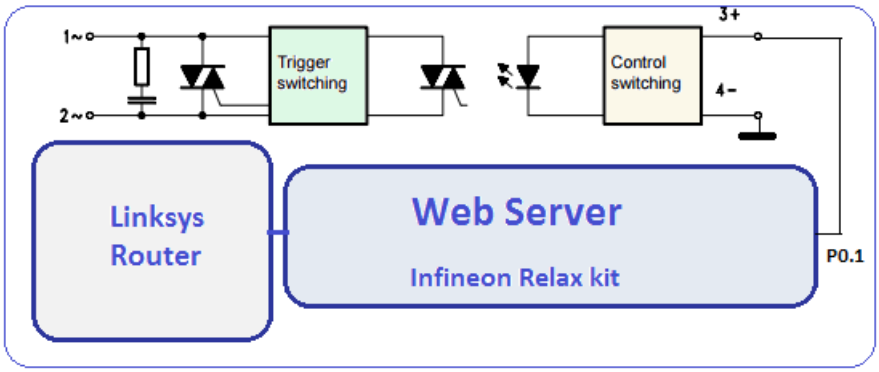
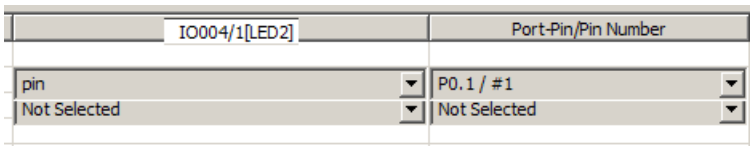
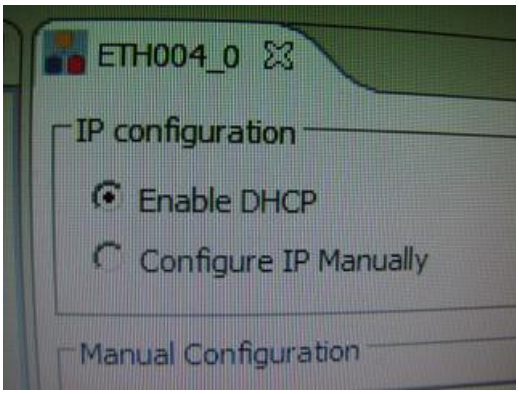


Fig. 10.1 Web server for power control

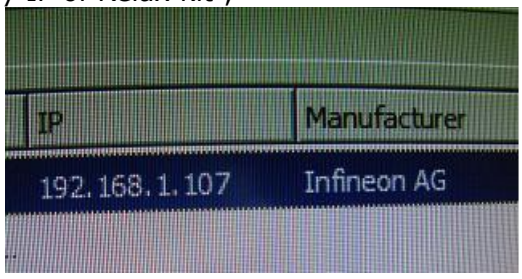
- The ad/dc converter power with 30V the 10 W LED ;
- The demo web server application is imported from DAVE environment;
- IO0004 is configured to run with P0.1 port bit;



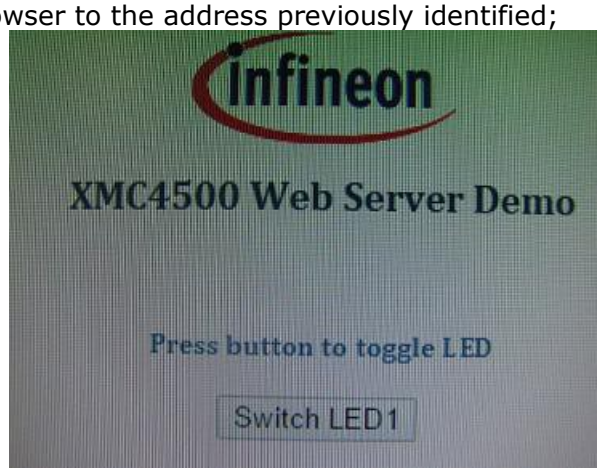
- Eth0001 Ethernet interface is set to DHCP mode;



- Compile the project and obtain the fille * .elf , using DEBUG transfer it on Relax kit platform;
- Relax kit must be connected to the Internet connected Linksys router;
- Using IP Scan identify IP of Relax kit ;

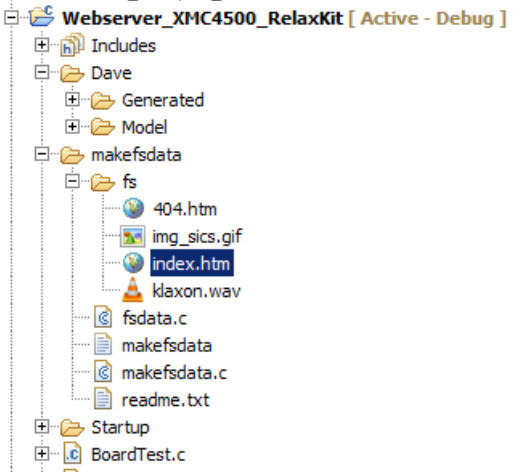


- Connect a web browser to the address previously identified;



- Check functioning web server control function for power for 10 W LED ;

- Examine how to make the web page stored in index.htm file.



- Solve proposed problems.

- **E9.6 Problems proposed:**

1.Developed a solution to control 220V power lines using classical relays according the diagram:

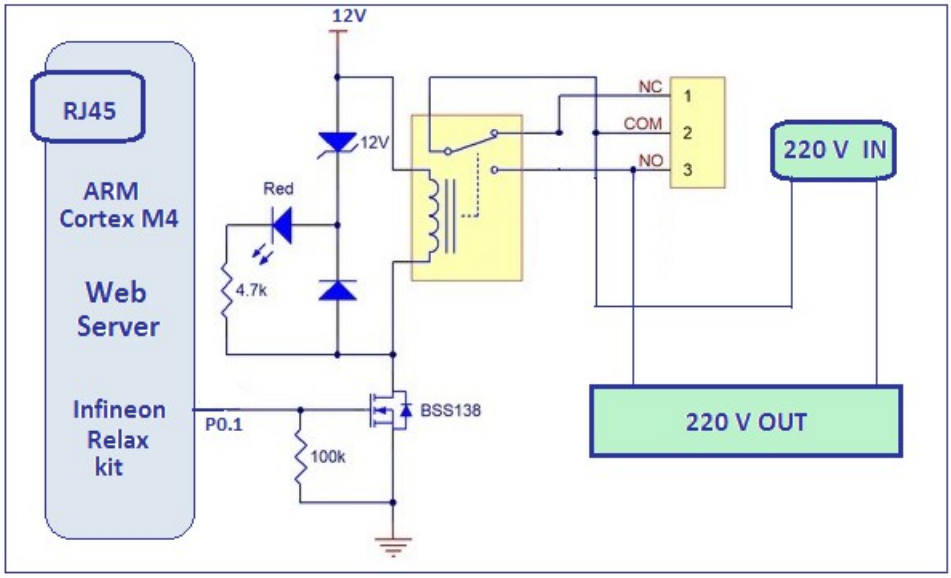


Fig. 9.2 Web server with clasic relay

2. Develop a solution that allows precise control of 10 W LED current using Infineon components;

3. Create a web page to controll via Internet a supply 220v outlet;

4. Develop an application that will allow Internet activation of a function that will send a message on a Blue Tooth interface;

5. Make an application that lets you control a servo using Internet.

- **E9.7 The experiment can be extended to be used for:**

- Making web servers for instrumentation;
- Making elements such as the Internet of Things;
- The implementation of web services for homes / smart processes;
- Making public lighting systems controlled through the Internet;

Fig. 9.3 Siemens optotriac

- **E9.8 More helpful information:**

- Infineon web server tutorial - https://www.youtube.com/watch?v=8atIzaQyrDg
- Web page on Relax - https://www.youtube.com/watch?v=a5dgsMiBowQ
- Aplicatii pentru Infineon DAVE - http://www.infineon.com/cms/en/product/promopages/aim-mc/dave_downloads.html
- Siemens static relay - http://www.farnell.com/datasheets/27638.pdf
- LAN pentru Instrumentatie - LAN pentru Instrumentatie
- Wiki LAN extention for Instrumentation - https://en.wikipedia.org/wiki/LAN_eXtensions_for_Instrumentation
- Embedded Web Servers- http://www.mosaic-industries.com/embedded-web-server.html
- Infineon AC/DC converter for LED - http://www.infineon.com/cms/en/applications/lighting/led-lighting/led-power-supplies-ac-dc-switch-mode-led-driver/
- Embedded web server cu Wi-Fi incorporat - http://electronicdesign.com/iot/internet-chip-connects-almost-anything-using-wi-fi

- Infineon LED Lighting - http://www.infineon.com/cms/en/applications/lighting/led-lighting/
- Scheme Infineon pentru ac-dc converter - AC_DC_scheme_infineon.pdf