Abstract

The purpose of this project is to implement a portable solution for configuring and real-time monitoring an embedded control system, by a simple webpage interface. The reader of this thesis is going to get a review of the used technologies, programming guidelines, the architecture of the system, the performance of the application and the communication process. Furthermore, some implementation tricks, and future development opportunities are discussed.

The example application was created as desired, and its proper functioning has been verified.

The frame of the application is the communication flow of Javascript with a custom embedded HTTP-server that runs on the DSP. The client starts the communication periodically with an AJAX query. The server parses the request, initiates the configuration of itself based on the data received. Afterwards, the server sends the requested data or status information. In addition, the measurement of the parameters of an analog audio signal and other configuration processes were added to demonstrate the capabilities of the system. Moreover, a direct data (spectrum of the audio signal) visualization module was added to the client webpage.

This solution could be part of any medium-high performance industrial embedded project due to its fairly low resource need. The user can access the hardware and software resources of the system by a very easy-to-use webpage, which is a much more convenient way than using a separate program, because only a web browser is needed with a Javascript engine on the client machine.