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Web-based Real Time Monitoring with HTML5

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Experiments in nuclear and plasma physics require real-time monitoring. In the past, dedicated control applications have been written for graphical display of process parameters. Modern web technologies allow nowadays the control and monitoring of real-time processes directly from any browser. This has the advantage that no software has to be installed, software updates are automatically reflected in the browser, and mobile devices with web browsers can be used to control experiments.

This paper describes a set of techniques which make this easily possible. A minimal web server based on the Mongoose Server is used to connect directly to the hardware for monitor and control. JavaScript Object Notation (JSON) is used to exchange data between the server and the browser, and Typed Arrays are used for high-speed waveform transfer.

The browser side uses Asynchronous JavaScript Extensions (AJAX) together with Remote Procedure Calls (JSON-RPC) to retrieve data from the web browser. The HTML canvas element is then used to render any graphics. Features of an oscilloscope implementation inside a web browser are shown and indications are given how to use these techniques for other applications.

Minioral

Yes

Description

Json

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