

Asynchronous Javascript PDA client for mobile remote experimentation

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Mobile devices such as notebooks and PDAs are very interesting tools for web-based teaching and distant teaching today. We have adapted Web-based remote laboratory environments to mobile devices like PDAs and smartphones to remotely control a Pioneer 3 AT mobile robot. Since not all implementations of PocketPCs are supporting the Java integration to a web page without installation of commercial software an alternative solution is required for student usage with their own devices.

To overcome these restrictions, a new approach that works 'out of the box' based on asynchronous Javascript is realized. The newly developed asynchronous Javascript client sends user requests (button events) to the server without a reload of the web page, because each reload will stop the video stream and has to be avoided.

With asynchronous Javascript an application behavior like Java applets or interactive Flash movies can be established. In combination with the exchange of XML based messages between client and server, these techniques are well known under the term 'AJAX'. Windows Mobile does not support an AJAX framework directly, but asynchronous HTTP requests are possible in Javascript.

The new asynchronous web client operates on each Windows Mobile device without any additional installed software. To support the mobile student in their experimentation practice a podcast variant of the required teaching material was derived automatically out of text based e-learning material by the use of text-to-speech techniques.

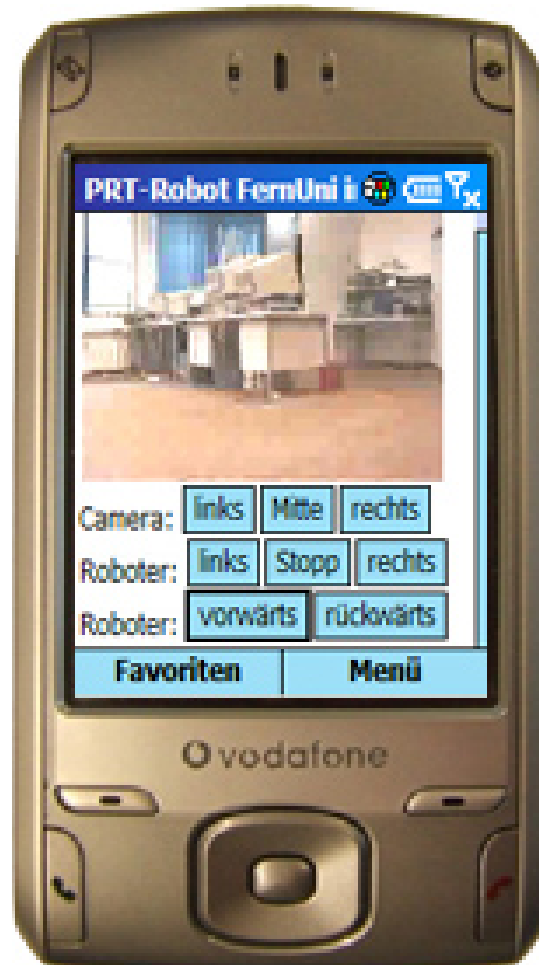


Figure 1: Windows Mobile 5 asynchronous Javascript client

- [1] M. Gerke, I. Masár, A. Bischoff, Practical Education of Control Systems Engineers in a Virtual University, 8th International Conference 'Virtual University' VU'07 Bratislava, Slovak Republic, December 2007