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EDICAM fast video diagnostic installation on the COMPASS tokamak

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Abstract

A new camera system “event detection intelligent camera“TM (EDICAM) is being developed by the Hungarian Association and has been installed on the COMPASS tokamak in the Institute of Plasma Physics AS CR in Prague, during February 2009. The standalone system contains a data acquisition PC and a prototype sensor module of EDICAM. Appropriate optical system have been designed and adjusted for the local requirements, and a mechanical holder keeps the camera out of the magnetic field. The fast camera contains a monochrome CMOS sensor with advanced control features and spectral sensitivity in the visible range. A special web based control interface has been implemented using Java spring framework to provide the control features in a graphical user environment. Java native interface (JNI) is used to reach the driver functions and to collect the data stored by direct memory access (DMA). Using a built in real-time streaming server one can see the live video from the camera through any web browser in

the intranet. The live video is distributed in a Motion Jpeg format using real-time streaming protocol (RTSP) and a Java applet have been written to show the movie on the client side. The control system contains basic image processing features and the 3D wireframe of the tokamak can be projected to the selected frames. A MatLab interface is also presented with advanced post processing and analysis features to make the raw data available for high level computing programs. In this contribution all the concepts of EDICAM control center and the functions of the distinct software modules are described.



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Keywords

Video diagnostic; Fast data processing; CMOS sensor; Image processing

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