

A JAVA-BASED FRAMEWORK FOR REAL-TIME CONTROL SYSTEMS

Alexander Blum, Vaclav Cechticky, Alessandro Pasetti, Walter Schaufelberger

*Institut fuer Automatik. ETH-Zurich, Physikstr. 3, CH-8092, Zurich, Switzerland,
ablum@ee.ethz.ch, cehti@control.ee.ethz.ch, pasetti@pnp-software.com, ws@control.ee.ethz.ch*

Abstract: This paper presents the Java version of the AOCS Framework. The AOCS Framework is an object-oriented software framework for real-time satellite control systems. It provides a set of design patterns, an adaptable architecture, and a set of configurable components that support the instantiation of satellite control applications. It was originally implemented in C++ but has now been ported to Java. The paper advocates the use of framework technology as the best way to promote software reuse in the control systems domain and discusses the precautions that must be taken to use this technology with Java as an implementation language in the presence of real-time constraints. It also presents two examples of instantiations of the AOCS Frameworks with two different Real-Time Java implementations. *Copyright © 2003 IFAC*

Keywords: Software Frameworks, Real-Time Java, Embedded Control Systems, Satellite Control Systems, Software Reuse.