CDIO Projects in DTU's B.Eng. in IT Study Program
Since the fall 2008 all B.Eng. study programs at the Technical University of Denmark have been based on the CDIO concept. The adoption of the CDIO standards and principles resulted in new or significantly revised study programs. As part of this effort design-build projects have been introduced on each of the first 4 semesters, and each semester-project spans several courses. The aim of this paper is to describe the four CDIO semester projects in the B.Eng. in IT study, and – along with similar papers describing the other six B.Eng. programs – to provide documentation to accompany an exposition with stands providing additional information and with students demonstrating their projects. The paper is narrowly focused on the IT-study program. At the time of writing this paper the students enrolled in 2008 have completed all four semesters in the new CDIO-based study plan, and the students enrolled in 2009 are currently in the process of finishing the 4th semester. Consequently, the paper is reporting on curriculum development which has been implemented, and for which experiences have gained.

General information
State: Published
Organisations: Embedded Systems Engineering, Department of Informatics and Mathematical Modeling, Algorithms and Logic, Software Engineering, Language-Based Technology
Publication date: 2011

Host publication information
Title of host publication: Proceedings of the 7th International CDIO Conference, Technical University of Denmark, Copenhagen, June 20 - 23, 2011
Place of publication: Lyngby
Publisher: Technical University of Denmark (DTU)
Main Research Area: Technical/natural sciences
Best-effort Support for a Virtual Seminar Room
This paper describes the RTMM Virtual Seminar Room, an interactive distributed multimedia application based on a platform with a simple middleware architecture, using best effort scheduling and a best effort network service. Emphasis has been placed on achieving low latency in all parts of the software system, so that as large a margin as possible is available for the transfer of data through the network. This approach gives good user acceptability for the transfer of audio and video over distances of several hundred kilometers within the high-bandwidth Danish Research Network. The design of central parts of the system is presented, and the performance offered by this approach is discussed.

General information
State: Published
Organisations: Computer Science and Engineering, Department of Informatics and Mathematical Modeling
Authors: Sharp, R. (Intern), Todirica, E. A. (Intern)
Publication date: 2002

The RTMM Toolbox for DMM Applications
This paper describes an approach to implementing distributed multimedia applications based on the use of a software toolbox. The tools in the box allow the designer to specify which components are to be used, how they are logically connected and what properties the streams of data to be passed between the components are to have. Examples are given of system components for handling audio, video and networking, and the performance offered by this approach is discussed.

General information
State: Published
Organisations: Computer Science and Engineering, Department of Informatics and Mathematical Modeling
Authors: Sharp, R. (Intern), Todirica, E. A. (Intern)
Publication date: 2002

Video Conferencing for a Virtual Seminar Room
A PC-based video conferencing system for a virtual seminar room is presented. The platform is enhanced with DSPs for audio and video coding and processing. A microphone array is used to facilitate audio based speaker tracking, which is used for adaptive beam-forming and automatic camera-control. Recently the system was demonstrated between two geographically separated universities in Denmark. The communication was based on the use of UDP/IP. Results are reported and an overview of the system is given.
Streams and Sockets in DTU-RTMM

Projects:

**SafeCores InfinIT Mini Project**
To investigate the business potential and technical feasibility of Safe Programmable Intellectual Property (IP) Cores

Department of Applied Mathematics and Computer Science

Embedded Systems Engineering

Department of Informatics and Mathematical Modeling

Embedded Systems Engineering

Siemens A/S

Confiware ApS

Danfoss A/S

Period: 01/06/2012 → 31/01/2013

Number of participants: 4

Acronym: SafeCores

Project participant:

Pop, Paul (Intern)

Todirica, Edward Alexandru (Intern)

Petersen, Bjarne (Ekstern)

Project Manager, academic:

Stassen, Flemming (Intern)

Financing sources

Source: Public research council
Name of research programme: InfinIT
Amount: 216,000.00 Danish Kroner
Year of approval: 2012
Source: Other private funding (private)
Name of research programme: Siemens A/S
Amount: 107,100.00 Danish Kroner
Year of approval: 2012
Source: Other private funding (private)
Name of research programme: Sauer-Danfoss
Amount: 48,000.00 Danish Kroner
Year of approval: 2012
Source: Other private funding (private)
Name of research programme: Confiware ApS
Amount: 85,200.00 Danish Kroner
Year of approval: 2012
Source: Other private funding (private)

**Functional Safety for Industrial Components**
To investigate the technical feasibility of Safe Programmable Intellectual Property (IP) Cores realized on safe FPGAs.

(Project mhp ansøgning om støtte under HTF-programmet)
Department of Applied Mathematics and Computer Science
Embedded Systems Engineering
Confiware ApS
Danfoss A/S
Siemens A/S
University of Southern Denmark
Period: 01/02/2012 → 31/01/2013
Number of participants: 4
Acronym: SafeCores
Project participant:
Stassen, Flemming (Intern)
Todirica, Edward Alexandru (Intern)
Pop, Paul (Intern)
Petersen, Bjarne (Intern)

**QoS-based Systems Design for Real-Time Multimedia**
Department of Informatics and Mathematical Modeling
Period: 01/02/1999 → 20/01/2004
Number of participants: 2
Phd Student:
Todirica, Edward Alexandru (Intern)
Main Supervisor:
Sharp, Robin (Intern)

**Financing sources**
Source: Internal funding (public)
Name of research programme: Forskningsrådsfinansiering
Project: PhD