Final Year Project

MBS Benchmark Project:
System for Information Management

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Introduction

- The aim of the project
- Necessity
  - Multi Body Systems (MBS) Simulations
- Current state of the problem
  - No comparison systems
MBS Benchmark

- **Purpose:** a standard set of problems and procedures for performance evaluation
- **Comprises:**
  - Problems repository – description, model files, reference solution
  - System for information management – results submission and review, comparison
Information Management

- Information repository database
- Application for:
  - Information submission
  - Review
  - Comparison
  - Removal
- Binding web interface for instant access
Database

- Stores all necessary information
- In 3rd nominal form
- Relational connections
- The design closely follows the information
Application

- Users management
- Information submission
- Information review
- Deletion of information
Information Submission Workflow

Four step process
- Problem, Platform, Software
  - Adding a new one
- Build & Method
  - Adding a new one
- The actual results
- Optional confirmation
- Database entry
Result Review

- Three comparison techniques:
  - Basic Query
  - Aggregated performance on many problems
  - Two simulators
- Detailed information
- Auxiliary functions
Basic Query

- All results for a problem
- Ordered
- Textual information
- Graphical Comparison
Aggregated Performance

- All simulators on number of problems
- The averaged performance
- Ordered
- Interactive graph
Comparison of Two Simulators

Two step process:

- Selection of the simulators
- The result:
  - Details about each simulator
  - The performance of each under every problem
  - Relative comparison
Detailed Result Information

All available information about a result

- User information
- Software
- Hardware
- Actual results
- Submission date
Graphics

- SVG based
- Dynamic; produced by XSLT
- Four types:
  - Simple
  - Interactive
  - Relative Comparison
  - Work-precision
MBS Benchmark Website

- Content Management System - Apache Forrest
- Automatic creation
- Final look
Conclusions - Used Technologies

- Database – MySQL
- Application – Java & JavaServer Pages
- Graphics – SVG, XSLT
- CMS – Apache Forrest
- Server – Apache HTTP Server

Total Cost: 0.00 €
Conclusions - Comparison

- Better database design, more information
- New features:
  - Two new comparison techniques
  - Graphical representation
  - Information deletion
  - Other techniques – limiting factor, windowing, etc.
- Performance increase of 300%
- Usage of CMS
Final Conclusions

- Allows comparison of MBS software products
- Helps LIM and University of Sevilla for the development of MBSengine
- Minimal Total Cost of Ownership (TCO)
Thank You for your Attention!