

*Once upon a time...*



# Distributed Software Development Course: Students' Experience

**Mario Žagar, Ivana Bosnić**

**Faculty of Electrical Engineering and Computing  
Zagreb, Croatia**

At the beginning ...there was...

... classical education...



# DSD – What, Why?

- ✓ Software development with people distributed in different locations
- ✓ Global software development
- ✓ Virtual organizations

## Distribution Outsourcing



For students like us I think it's really important to do such a project with different cultures and countries."

# DSD - Who?



- ✓ University of Zagreb
- ✓ Zagreb, Croatia
- ✓ Traditional engineering and computer topics
- ✓ 4 parallel courses
- ✓ 2 semesters

# Partners



- ✓ Mälardalen University
- ✓ Västerås, Sweden
- ✓ Emphasize computer related topics
- ✓ 2 parallel courses
- ✓ 4 periods



## DSD - How?



“The concept as a whole was great. A great experience, fun, lot of new stuff to learn, real life situations, simply great.”

# How to run DSD?

## Presentation of technological background

“At first there were some lectures to introduce us to the whole concept, and later ‘we came to the scene 😊’ ”





# How to run DSD?

Guest lectures from the  
corporate world

"It was very good, the best part of lectures are advices how to manage distance and this type of projects. I really liked that part."



# How to run DSD?

## Distributed students' “real-life” projects

“The best way to learn something is to do it. Now that our project has failed we really understand what the guest lecturers were talking about.”



# DSD Projects

"The idea of making one big project instead of more little exercises sounds much better to me."



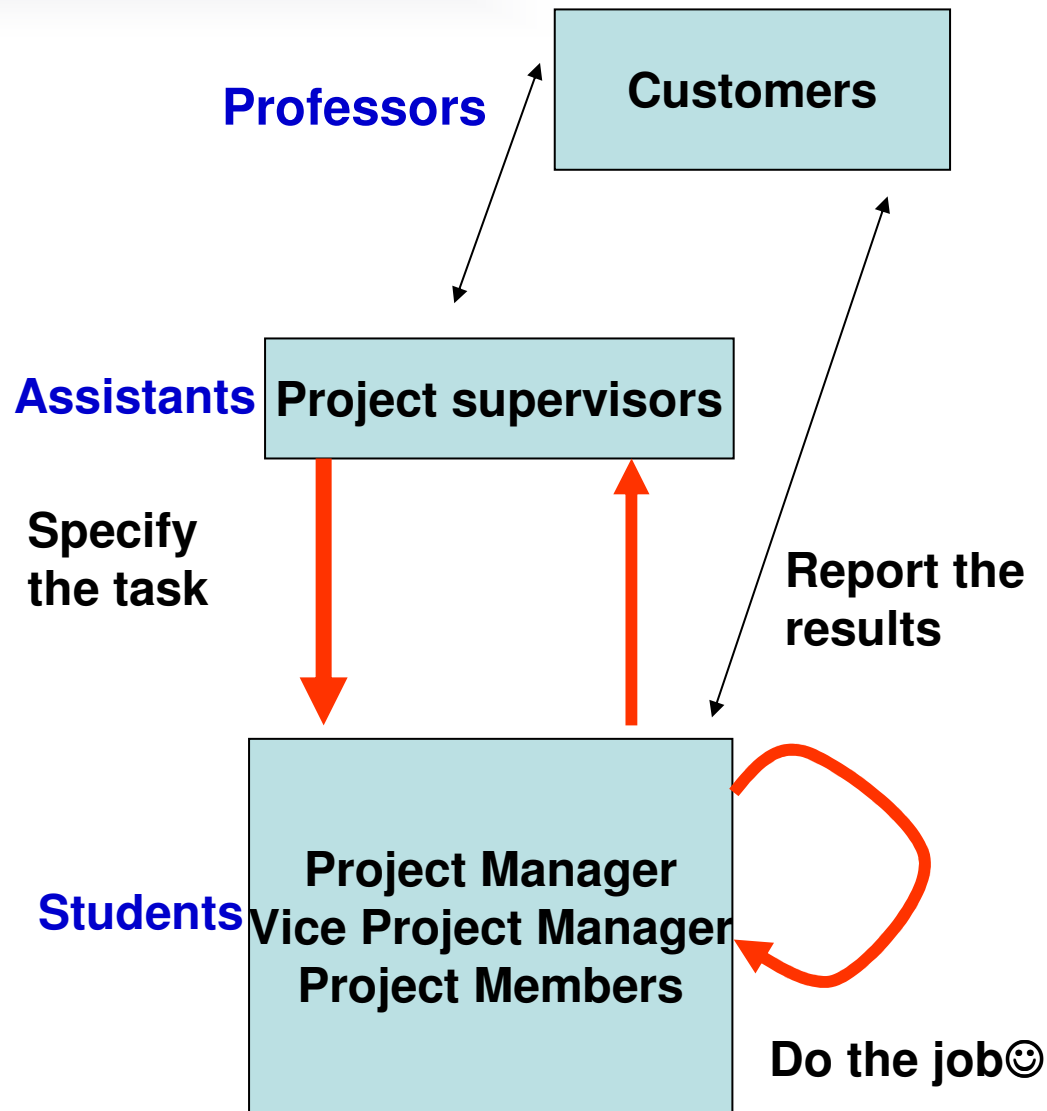
# DSD Projects

## Goals

- ✓ Experiences in DSD project management, communication and collaboration
- ✓ Producing software that helps DSD
- ✓ Producing high-quality project documentation
- ✓ Observe cultural differences
- ✓ Role-playing: real-life projects and responsibilities

# DSD Projects

## Hierarchy

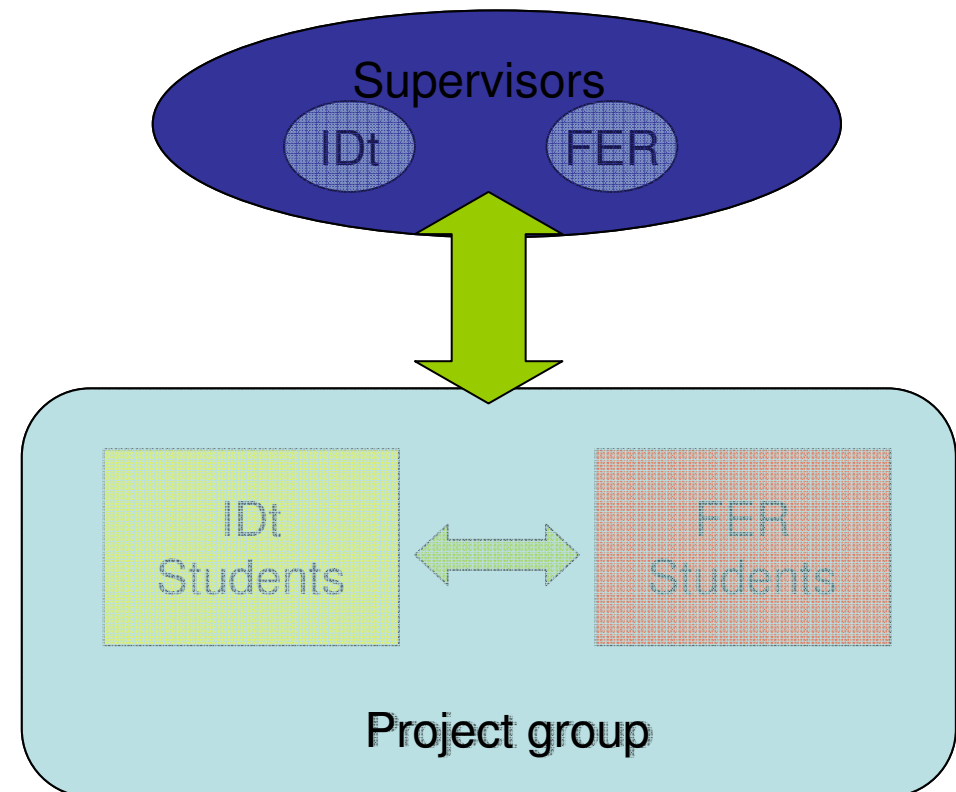


"I didn't expect such type of organization, but it was really great, and I must say that it was extremely good."

# DSD Projects

## Project success

"I liked to learn about different cultures, and experience how difficult it was to coordinate the work between the Swedish and Croatian side."



# DSD Projects

## Groups

"Solving 'human' problems in a team was a hard one, but is surely important for the future work."



# DSD Projects

## Projects

"Experience in 'selling' the project to the customers was a new one to me, and it was worth to try it."





# Project examples

“The idea looked better  
and better with time  
☺ Not much at the  
beginning, but at the  
end...”



# Project examples

## ✓ 2003/2004

- CVS SQL
- CVS Reporting
- Project management
- Chat sessions
- Bluetooth

## ✓ 2004/2005

- CVS SQL2
- CVS Report
- Chat sessions

## ✓ 2005/2006

- VLab
- Project management
- Component Composition
- Software Merge

## ✓ 2006/2007

- Virtual Museum
- Course Builder
- Student's companion

# Project examples

## CVSQL

- ✓ Mission - enable access to the CVS repository using the SQL queries from JAVA
- ✓ 2004 - 7 participants (5 from Croatia, 2 from Sweden)
- ✓ 2005 - 7 participants (4 from Croatia, 3 from Sweden)



# Project examples

- ✓ Mission - enable planning and tracking using the most popular project management techniques today
- ✓ 2003 - 5 participants (only from Croatia)
- ✓ 2005 – 8 participants (4 from Croatia, 4 from Sweden)
- ✓ 2005 – 6 participants (only from Sweden)

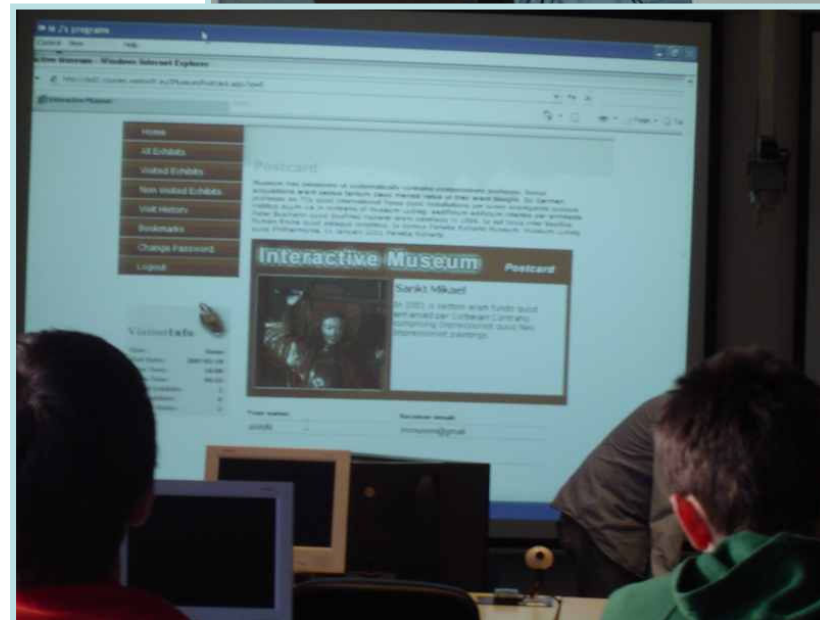
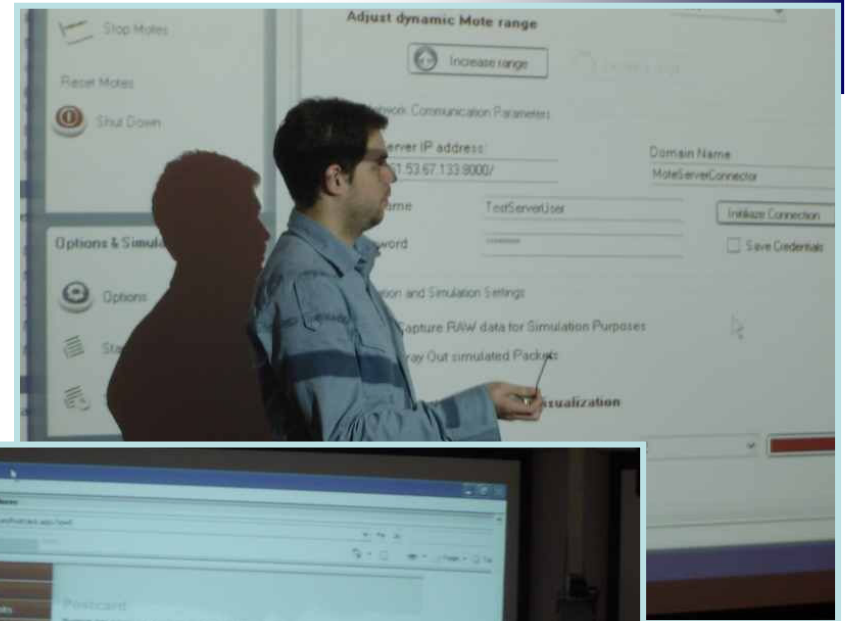
## Project Management



# Project examples

- ✓ Mission – enhance exhibition experience with PDA's and sensor network
- ✓ 2006 – 8 participants (4 from Croatia, 4 from Sweden)

## Interactive Museum



# Project evaluation

- ✓ Documentation
- ✓ Project work
- ✓ Presentations
- ✓ Software product

	M	D	C	P
20	Presentations			
21		Milestone - technical issues	1	3
22		Milestone - project status	1	3
23		Product Presentation - presentation material	1	3
24		Product Presentation - live presentation	1	3
25		Product Presentation - presentation of produ	1	3
26				
27		<i>Total</i>		15
28				
29				
30	Deadlines			
31		Vision	0	
32		Project Plan	1	5
33		Risk Assessment	0	
34		Software Design	1	5
35		Weekly Reports	0	
36		Test Plan	0	
37		Project Documentation	1	5
38		Milestones	1	5
39		Project Acceptance	1	5
40				
41		<i>Total</i>		25
42				
43				
44	Product Quality			
45		Installation	1	5
46		Requirements compliance	2	3
47		Usability	1	3
48		Product quality (stability, functionality etc.)	2	3
49		Robustness	1	3
50		Code quality and in-code documentation	1	3
51		GUI	1	3
52		Development Process	0	
53		Communication with customers	1	5
54		Customer Satisfaction	1	3
55				
56		<i>Total</i>		37
57				
58				
59		Total points:		108
60				
61		Average group grade:		3,7241379
62				
63		Total points for project:		28

# Communication



"Great. We really talked a lot, and then some more... 😊"



# Communication

## Synchronous virtual environment

"Very useful, it was really cool to have them. It was really cool organization that we have one hour of meeting. I think that without that part our team would never make it."





# Communication

# Asynchronous Web-based environment

## News

NEWS - SUGGEST/PUBLISH/EDIT

Change Preview

Title  
Experience

Lead image  
Browse... Upload image

Lead

I kindly ask you to contribute with your experience, recommendations, suggestions...How? Simply - write it down and share with the other team members :-).

Good luck!

Content

Detailed news content  
 Show news content instead of lead

Format Veličina

## Content

INSTRUCTIONS

Title:  
Instructions

Content:

Format Veličina

**How to create an XML document from MS Word?**

1. create a document based on WebPublish template
2. save it as an **RTF** document
3. compress it using **ZIP** compression
4. In **"Upload RTF"** section of the module "XML knjiige" (on this page) enter the document title and upload the ZIP file

The document will be put in queue for conversion (in the **"Current tasks"** list). More detailed document conversion status can be retrieved by placing the mouse pointer over the Status field of the document


After a successful conversion, the document will appear in the **"Current books"** list, where original RTF and created XML can be downloaded. XML is bundled together with images, XSL transformation file and a CSS stylesheet into a ZIP archive.

Submit Cancel/Back

# Communication

# Asynchronous Web-based environment

## Repository



REPOSITORY

- Documentation (3)
  - User's manual - English language [1,65 MiB]  
A detailed guide for creating XML books in MS Word, based on the RasipBook template  
Published: Ivana Bosnić ( 30.05.2006. at 11:32 ).
  - User's manual - Croatian language [1,36 MB]  
A detailed guide for creating XML books in MS Word, based on the RasipBook template  
Published: Ivana Bosnić ( 26.05.2006. at 11:01 ).
  - User's manual - English language (XML version) [780,9 KiB]  
An example of conversion from MS Word to XML format  
Published: Ivana Bosnić ( 30.05.2006. at 11:35 ).
- Templates (1)
  - MS Word Document template [495 KiB]  
A template for creating XML books from MS Word application  
Published: Ivana Bosnić ( 26.05.2006. at 10:58 ).

[ Add: Folder File Link ]

“It is a great source of communication between the group members.”

## Forum



Komentiraj

▼ Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine Danko Bundalo (20.05.2006. u 10:25) [ Odgovori ]

▼ Re: Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine PILIF (20.05.2006. u 10:34)  
Di ce se podizat na stud. sluzbi?? [ Odgovori ]

▼ Re: Re: Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine ds40823 (20.05.2006. u 13:51)  
Valjda na stuslu...bas me zanima kak ce to izgledati s tim smart karticama. Mislim da je ideja odlicna (malo fancy) 😊. Bas me zanima i koliko ce vremena trebati da kartica zamijeni indekse i iksice u potpunosti. Sto ce onda biti s indeksima? Vracamo ih natrag ili nesto drugo??? Sve u svemu super ideja. Mozda cemo jednog dana imati sustav koji ce traziti otisak prsta ili scan oka...to bi bilo ludo, ko u SF filmovima. 😊 [ Odgovori ]

▼ Re: Re: Re: Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine touche (20.05.2006. u 15:30)  
da to bi bilo super. mozda cemo morat vadit krv na ulazu u fakultet za DNA test tako da bi stvarno znali tko ulazi. A ne da netko posuduje svoje oko ili smart karticu uljezima s drugih fakulteta. I jos da dovedemo i rodbinu pa da se njih analizira. =) [ Odgovori ]

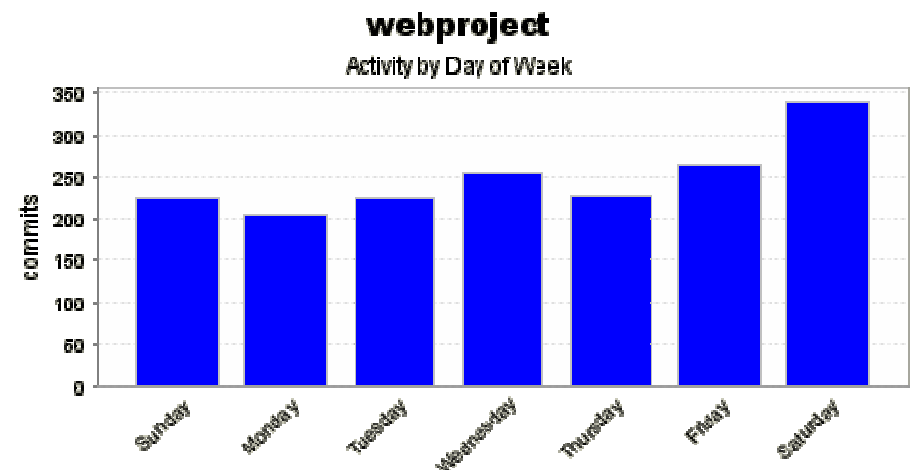
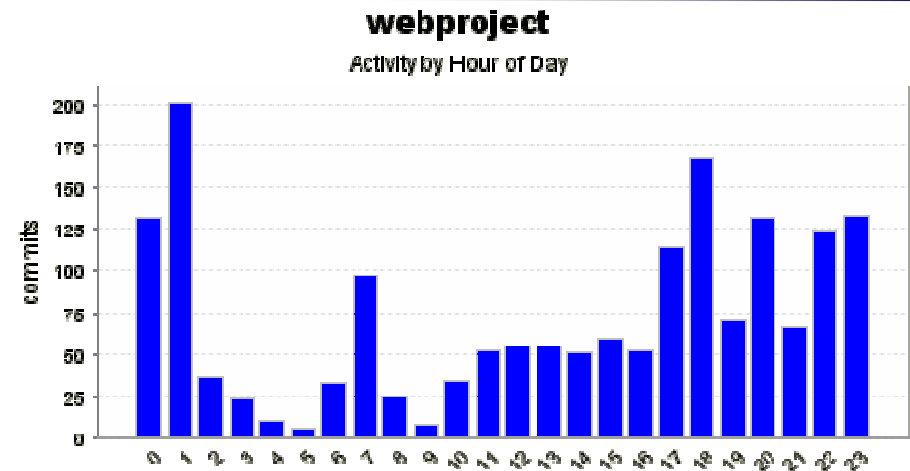
▼ Re: Re: Re: Re: Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine bb119120194 (20.05.2006. u 20:32)  
Ovo je najbolja ideja za nastavu do sada. Neznam kako ce to jos raditi, ali mislim da bi bilo super, kada bi se iz smartcard jos koristio i otisak prsta za prijavljivanje na predavanje, jer ovako bi moglo biti puno onih kojima ce drugi "provlačiti" kartice. I neznam zašto se puno studenata buni protiv toga. Govore kako je to zadiranje u privatnost. Ali to ce najviše pomoći nama. [ Odgovori ]

Eksperimentalni rad sustava pametnih kartica za studente prve nastavne godine Loxo (21.05.2006. u 12:53)  
Poštovane kolegice i kolege..... polako nam odlazi ona čar studiranja!!  
Nema više kombiniranja ispita i predavanja, nema vise slobode. U jednu ruku to je i dobro. Neki si ne znaju organizirati vrijeme pa ih bolonja pritišće. No ipak ljudi su slobodna bića i bolje bi bilo sa se uče u životu nositi se sa bogatvom slobode!

# Communication

## Software engineering tools for code control

"I found out that it takes a lot of work to make something work as you want it to work."



# Experiences

"I was scared at the beginning, but now I feel lucky what I had been a member of this course."



# Experiences

- ✓ New environment
- ✓ Building trust
- ✓ Abilities estimation
- ✓ Knowledge sharing
- ✓ Planning, responsibility
- ✓ Communication
- ✓ Cultural differences
- ✓ Milestones

# Problems experienced

*"I was able to predict some of the problems, but others arose that I had not prepared to handle."*

# Experiences

## Benefits gained

- ✓ Quick cooperation
- ✓ Forming and maintaining virtual teams
- ✓ Maintaining small groups
- ✓ Working on abilities
- ✓ Improving knowledge
- ✓ Distant communication using Web tools
- ✓ Real-life simulation of work on distributed project

"A challenging but rewarding experience."

# Experiences

## Course evaluation

- ✓ Anonymous survey
- ✓ Questionnaire

2003: **4.23**

2004: **4.53**

2005: **4.75**

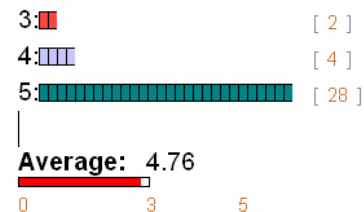
2006: **4.14**

"I liked this course a lot, very different from the rest of the courses i have taken in the past.  
hot hot hot!"

### Evaluation Summary [ Distributed Software development 2006 ]

Number of evaluations: 34

1 As whole the course was (bad=1, excellent=5)



- [ 5 ] The Over course is exelent we have learnt a lot about the distributed software development. Offshore development i.e. developmetn from cheap countries is hot topic today. in this course we learnt how to organize the whole work. it is great
- [ 5 ] The course is different from many others.
- [ 5 ] it was fantastic!

## Typical DSD conclusion

"Quite hard but I guess that's what the real life is like."





- <http://www.fer.hr/rasip/projekti/rpi/en>
- <http://www.fer.hr/rasip/dsd>



[mario.zagar@fer.hr](mailto:mario.zagar@fer.hr)

[ivana.bosnic@fer.hr](mailto:ivana.bosnic@fer.hr)