

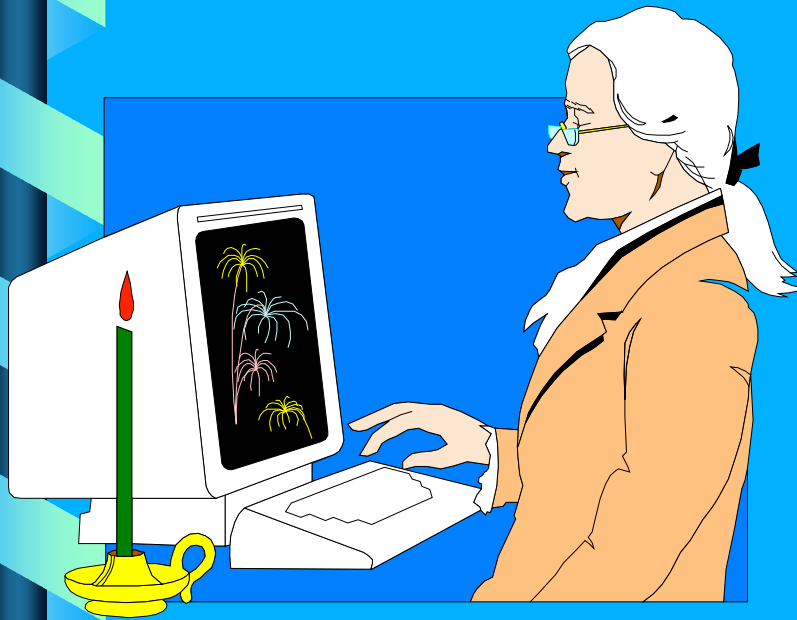
COMPUTER CLASSROOM
A PLACE WHERE
CHILDREN ACQUIRE
BASIC COMPUTER SKILLS
AND KNOWLEDGE

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Elementary School "Davorin Trstenjak"

Zagreb - Croatia

New computer technologies



- **fast development**
- **vast field of application**
- **phenomenon unique by**
 - **its proportions**
 - **its implications**
- **specially relevant to educational activities**

Impact of technologies on everyday life

Particularly relevant in the process of learning

- **possibilities of systematizing various informations**
- **transformation into sources of knowledge and process of acquiring knowledge**
- **large variety of technologies for pedagogical needs**

Educational activities crucial tasks

- **pointing towards new forms of links between positive models in mankind development history and the shapes of modern ways of life and work**
- **giving young generations the knowledge and individual abilities aiming towards social integration**

Computer Science Optional Classes

- **started school year 1993 /94**
- **today 180 pupils grades 4th – 8th**

CARNet



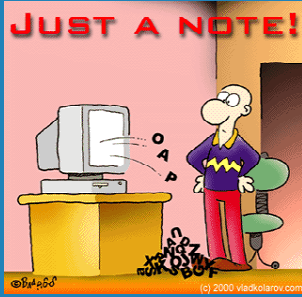
- **connected as temporary member in 1998**
- **a dedicated line permanent connection in the classroom**



Our Computer Classroom

Hardware and Software

- **Installing**
- **Maintenance**
- **Upgrading**
- **Use**



Primary School “Davorin Trstenjak”

- **how did we start ?**
- **how did we go on ?**
- **things we have today ?**
- **our wishes and future plans ?**



how did we start ?

school year 1992 /93

- **parents contributions**
- **companies donations**
- **teachers personal involvement**

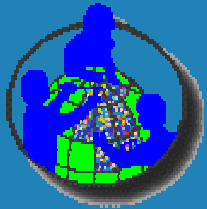


help on our way?

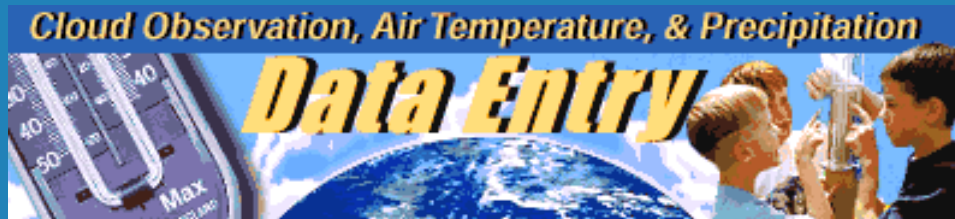
- 1. Ministry of Education's projects**
 - **buying computer equipment**
 - **employing computer science teachers as computer classroom administrators**
- 2. tax deductible donations**
- 3. great personal involvement of teachers and parents**



GLOBE program



The GLOBE Program



01.01.1994. situation

No.	Type	Processor	MHz	RAM	HDD	Monitor	OS
1	Kostel	286	12	2	42 Mb	b/w	Novell DOS 7
2	Kostel	286	25	4	70 Mb	color	N.DOS 7/WIN 3.1
3	ITS	286	22	2	44 Mb	b/w	Novell DOS 7
4	ITS	286	22	1	44 Mb	b/w	Novell DOS 7
5	ITS	386	33	2	41 Mb	b/w	Novell DOS 7
6	ITS	386	33	1	41 Mb	b/w	Novell DOS 7
7	Apple MacIntosh		---	1	10 Mb	b/w	YU Mac Write
8	Olivetti M24	8086	8	1	-----	mono	MS DOS 6.22

Classes started 1993/94 – 2nd semester

- **168 pupils grades 4th – 6th**
- **computer using basics**
- **operating system MS DOS**
- **programming language LOGO v.1.0**

How did we go on ?

- **schoolyear 1994 - 95**
- a new class room
- 7th grade pupils join the classes

- **schoolyear 1995 - 96**
- new functionaly designed furniture
- installing security electricis
- 8th grade pupils join the classes

How did we go on ?continued

- **schoolyear 1996 - 97**
 - buying new computers
 - building Local Area Network
- **schoolyear 1997 - 98**
 - teaching over LAN
 - connected to CARNet
 - using Internet in classes

Server zagreb.ostrest.hr

- **starting 23.02.1998.**
 - *web server*
 - *ftp server*
 - *e – mail server*

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Primary School "Davorin Trstenjak"
Zagreb - Croatia

01.01.2001

No.	IP address	Type	Processor	MHz	RAM Mb	HDD	CDROM	Monitor	Printer	Modem	OS
1	zagreb.ostrst.hr		Pentium	166	32	2.1 Gb		color	Epson LX 400	US Robotics 56Kbps	Debian Linux
2	dt01.ostrst.hr	IBM	386SX	20	12	154 Mb		b/w	Fujitsu DL3400		Win 3.11
3	dt02.ostrst.hr	ITS	486SLC	33	8	250 Mb		b/w			Win 3.11
4	dt03.ostrst.hr	ITS	6x86L	166	8	250 Mb		b/w			Win 95
5	dt04.ostrst.hr	ITS	6x86L	166	8	175 Mb		color			Win 95
6	dt05.ostrst.hr	ITS	486SX	33	16	250 Mb		b/w			Win 3.11
7	dt06.ostrst.hr	ART	486DX2	66	8	420 Mb		color	Star LC 24-10		Win 95
8	dt07.ostrst.hr	ART	486DX2	66	8	420 Mb		color			Win 95
9	dt08.ostrst.hr	IBM	486DX2	66	8	540 Mb		color			Win 95
10	dt09.ostrst.hr		Pentium	166	8	1.0 Gb		color	Epson LQ-100+		Win 95
11	dt10.ostrst.hr		Pentium	166	8	1.0 Gb	20x	color		ZyXEL 14.4 Kbps	Win 95 / Linux
12	dt11.ostrst.hr		Pentium	166	8	1.0 Gb		color			Win 95
13	dt12.ostrst.hr	ART	486DX2	66	8	420 Mb		color	Fujitsu DL 700		Win 3.11
14	dt13.ostrst.hr	ITS	486SX	33	8	250 Mb		b/w			Win 3.11
15	dt14.ostrst.hr	ITS	6x86L	166	8	250 Mb		b/w			Win 95
16	dt15.ostrst.hr	ITS	6x86L	166	8	250 Mb		b/w			Win 95
17	dt16.ostrst.hr	ITS	486DX4-S	33	16	250 Mb		b/w			Win 3.11
18	dt17.ostrst.hr	ITS	486SLC	33	16	250 Mb		b/w			Win 3.11

Local Area Network

No.	Type	Processor	MHz	RAM Mb	HDD	Monitor	Modem	OS
1		Pentium	166	32	2.1 Gb	color	US Robotics 56Kbps	Debian Linux
2	IBM	386SX	20	12	154 Mb	b/w		Win 3.11
3	ITS	486SLC	33	8	250 Mb	b/w		Win 3.11
4	ITS	6x86L	166	8	250 Mb	b/w		Win 95
5	ITS	6x86L	166	8	175 Mb	color		Win 95
6	ITS	486SX	33	16	250 Mb	b/w		Win 3.11
7	ART	486DX2	66	8	420 Mb	color		Win 95
8	ART	486DX2	66	8	420 Mb	color		Win 95
9	IBM	486DX2	66	8	540 Mb	color		Win 95
10		Pentium	166	8	1.0 Gb	color		Win 95
11		Pentium	166	8	1.0 Gb	color	ZyXEL 14.4 Kbps	Win 95 / Linux
12		Pentium	166	8	1.0 Gb	color		Win 95
13	ART	486DX2	66	8	420 Mb	color		Win 3.11
14	ITS	486SX	33	8	250 Mb	b/w		Win 3.11
15	ITS	6x86L	166	8	250 Mb	b/w		Win 95
16	ITS	6x86L	166	8	250 Mb	b/w		Win 95
17	ITS	486DX4-S	33	16	250 Mb	b/w		Win 3.11
18	ITS	486SLC	33	16	250 Mb	b/w		Win 3.11

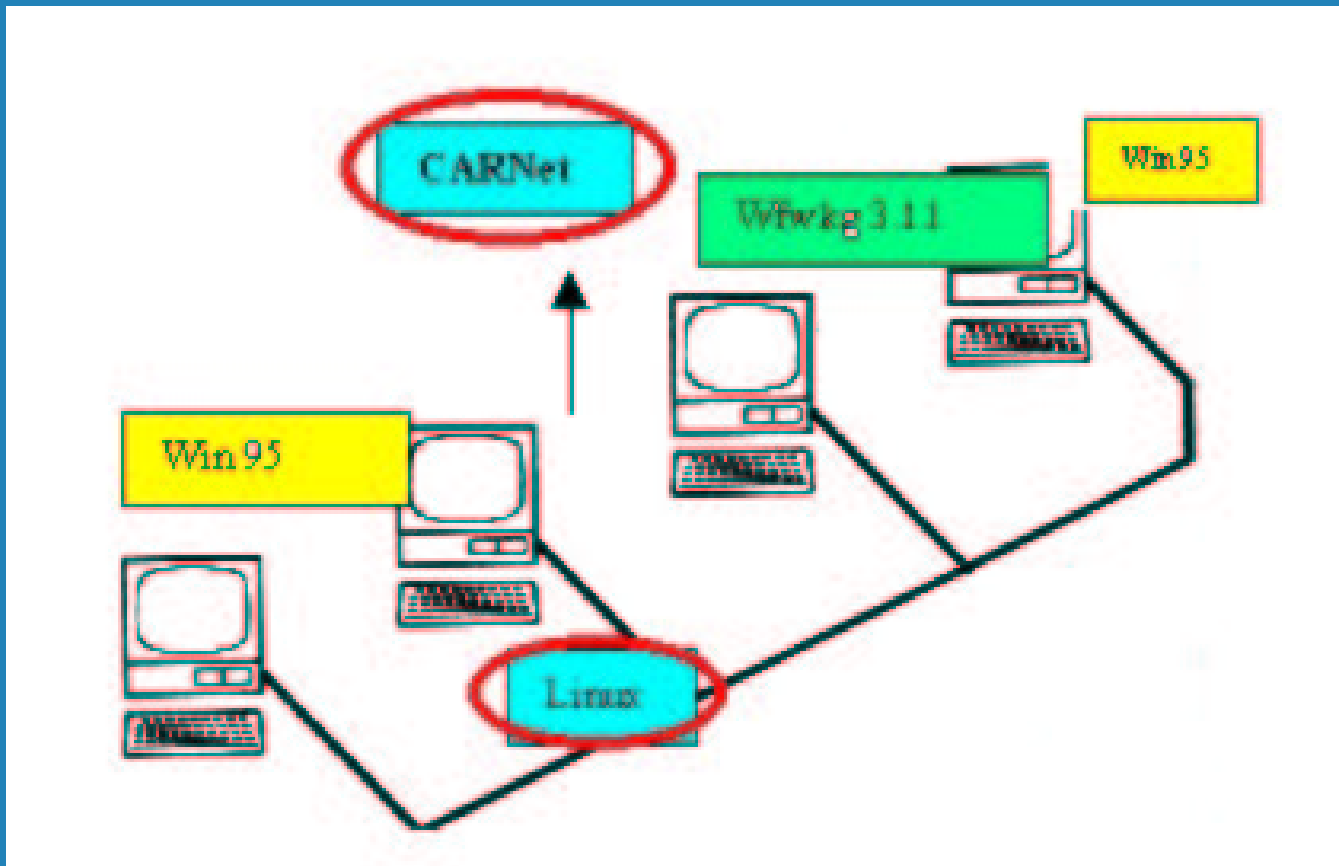
H W Technical Characteristics

- **Ethernet Network Technology**
- **Compex RL2000A-PnP Cards
NE2000 (16bit) Compatible**
- **thinnet 10Base2 cables + BNC**
- **bus topology network**

S W Technical Characteristics

- **Windows 95**
- **Windows for Workgroups 3.11**
- **Debian Linux**
- **TCP/IP – SLIP protocols**

LAN Technical Characteristics



Local Area Network improvements

No.	Type	Processor	MHz	RAM Mb	HDD	Monitor	Modem	OS
1		Pentium	166	32	2.1 Gb	color	US Robotics 56Kbps	Debian Linux
2	IBM	486SX	66	16	154 Mb	color		Win 95
3	ITS	486SLC	33	8	250 Mb	b/w		Win 95
4	ITS	6x86L	166	16	250 Mb	b/w		Win 95
5	ITS	6x86L	166	16	175 Mb	color		Win 95
6	ITS	486SX	33	16	250 Mb	color		Win 95
7	ART	486DX2	66	16	420 Mb	color		Win 95
8	ART	486DX2	66	16	420 Mb	color		Win 95
9	IBM	486DX2	66	16	540 Mb	color		Win 95
10		Pentium	166	32	1.0 Gb	color		Win 95
11		Pentium	166	16	1.0 Gb	color	ZyXEL 14.4 Kbps	Win 95 / Linux
12		Pentium	166	16	1.0 Gb	color		Win 95
13	ART	486DX2	66	8	420 Mb	color		Win 95
14	ITS	486SX	33	8	250 Mb	b/w		Win 95
15	ITS	6x86L	166	16	250 Mb	color		Win 95
16	ITS	6x86L	166	16	250 Mb	color		Win 95
17	ITS	486DX4-S	33	8	250 Mb	b/w		Win 95
18	ITS	486SLC	33	8	250 Mb	b/wr		Win 95



we did it our way – why....?

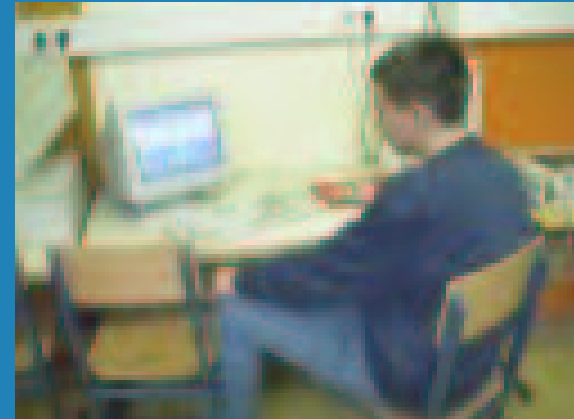
- **reducing cable "crowding"**
 - **pupils security environment**
- **number of active computers meeting actual needs**
 - **work goes on even by individual "fallouts"**

Win - Linux why... ?

- **simple installation procedures**
- **easy network administration**
- **no “dedicated” server**
- **“non dedicated” server as needed**
- **Debian distribution stability/security**

Our current activities ?

- **PC LOGO v.4.0**
- **Turbo PASCAL v.6.0**
- **MS Mail Office – LAN**
- **online “ Help Desk ”**
- **24 hours Internet**
www – ftp – mail
NOAA GLOBE server
- **competitions**





problems, problems

- **limited capacities**
 - **memory 8 Mb**
 - **hard disk 250 Mb**
- **sound cards & speakers**
- **graphics cards & color monitors**

serious problems

- **modern applications**
- **multimedia over LAN & Internet**
- **multiuser & multitasking**
- **interactive processing**



real troubles

- **security and protection**
 - **antivirus**
 - **firewall**
- **Linux server backup**
- **regular maintenance & upgrade**
- **sw licensing**



The aim of our work

using even limited hw/sw resources

1. By choosing and adapting appropriate solutions we succeeded

- **create an environment for individual work for all pupils**
- **motivate the students to acquire basic computer knowledge**
- **encourage student's individual considering of applying computers in various fields of their everyday life and work**

our experiences

2. Waiting for “best up-to-date” equipment permanently postpones the opening of a computer classroom due to permanent increase of

- **technology development speed**
- **multiplication of implementation and usage problems**

our future plans

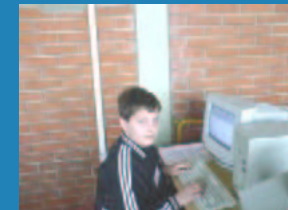
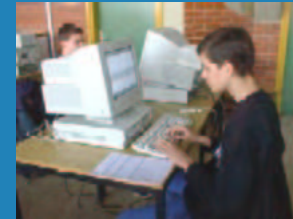
3. all stages of development of a computer classroom should include

- companies donations and parents assistance / involvement**
- taking part in “non-computer” projects**
- reasonable and functional use of available hw/sw resources**
- a strong conviction that high educational performances can be achieved even out of hw below the minumum required**

Instead of a conclusion



Hall of Fame



Primary School "Davorin Trstenjak"
Zagreb - Croatia

D M I H

National Primary & Secondary Schools Computer Science Championships

RYAN RAVI ŠKON

1995-96 LOGO 14th place
1998-99 LOGO 28th place
1996-97 LOGO 15th place

RELJA MEDIĆ 11th place

1999/00 DoGO (6th grades) School (USA)
1999/00 DoGO (6th grades) School (USA)

TOTAL ACS 17th place (USA)
participant ACS 3rd place

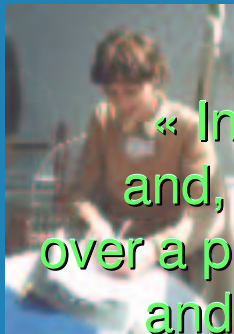
2002 SEPASCAL (7th grades)

1997/98 DoGO 5th place
TOMISLAV ŠTEFANEČ 6th place

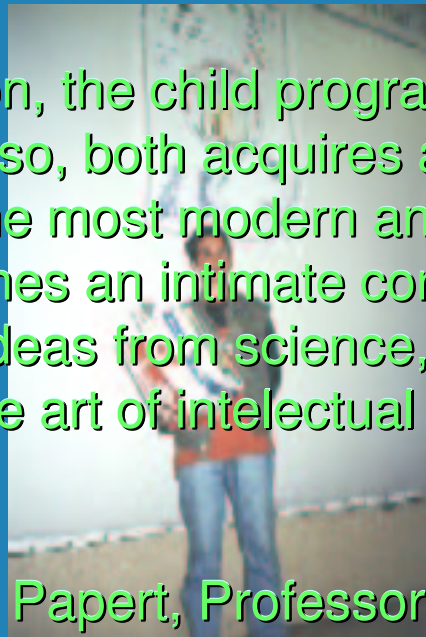
1999/00 student High School
2001/02 student High School Zagreb
1998/02 LOGO 40th place "Lucijan Vranjanin"

2002/03 student 15th / High School

Hall of Fame



« In my vision, the child programs the computer and, in doing so, both acquires a sense of mastery over a piece of the most modern and powerful technology and establishes an intimate contact with some of the deepest ideas from science, from mathematics and from the art of intellectual model building »



Seymour Papert, Professor of Mathematics at MIT,
Author of LOGO Children's Learning Environment

