

Digital Classbook - Proposal *

M-106 Educational and Management Information Systems
Prof. Dr. Andreas Breiter and Dipl.-Inf. Angelina Lange
Master in Digital Media - Universität Bremen

Ana Carola Lagos
2353856
Digital Media (Master)
Universität Bremen
Bremen, Germany
acaritolb@yahoo.com

Ivana Ebel
30248
Digital Media (Master)
Hochschule für Künste Bremen
Bremen, Germany
ivisebel@gmail.com

Joatan Preis Dutra
261991
Digital Media (Master)
Hochschule Bremen
Bremen, Germany
joatan@gmail.com

e-magister Digital ClassBook



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* Part of a series of Home-works divided in: Market Analysis, Project Plan, Software Requirements Specification, Proposal, Poster Presentation, for the class "M-106 Educational and Management Information Systems", by Prof. Dr. Andreas Breiter and Dipl.-Inf. Angelina Lange.

e-magister

Digital ClassBook

Mobile Solution for
Class Management



Teachers

The e-magister was developed to be a tool on teacher's hand. Easy and user friendly, the software run in any mobile phone with Android platform, and can be also operated trough his web platform, from school or from home. There will be no double work: the system came to simplify the routines and to avoid spending time on calculations and reports.



Staff

One entry information for all the schools routines and reports: that is the proposal of e-magister. Importing existing files, tables, or open simple interfaces for new registers, the software is a powerful interface to control the daily events, to share information and to concentrate and organize the school information.



Parents

e-magister wants to turn the parents more integrating in their son's school life, providing a control interface and a efficient communication tool through the internet. Accessing the web interface, it will be easier follow the contents, help on the homework, and follow their son's development, grades and absences during the year.

Mobile solution for class management

e-magister is a complete solution for schools. More than just organizing the students profiles, classes and other school's routine aspects, it is responsible to simplify and optimize the work. It is a web-based structure that works synchronized with mobile devices and provides up-to-date information for the teacher, parents, and all the school staff.

Advantages and Features



This project is developed for Google's Android™, an open-source platform, adopted by several companies, with different models of devices available on the market, turning it economic accessible.

e-magister is a product which allows the teachers to get used to the technology, being operating through a mobile device and also using a web based platform. This characteristics allows the progressive implementation of the system, with one device per teacher or shared by classes.



Students and teachers profiles - Each user of the system will have his/her own profile, with the information filled by the administration staff, such as: name, contacts, picture, address, birthday, etc. It is an efficient contact list, to order personalized reports and to store formal and official documents.



All the classes, the time and the content of each session will be available in the system. The teachers can access their schedule and add the content they planned to the class through the mobile device, in real time, or input previously the information, editing or adding content and comments.



The Grading Module is more than just a simple digital calculator. It could be associated to different grading systems, contents and offer different weight to each activity and allows generating the final grade and issuing individual bulletins and other reports. The teacher can turn partial or final grades public to the parents.



With the message tool, all the users can share messages. Also the system provides the possibility to send and receive messages from outside of the platform. The message system is combined to the comments section of the classbook, that allows the teacher, for example, sending to the parents directly absence or a discipline problem in the school. The parents also can receive the comments on-line, by e-mail.

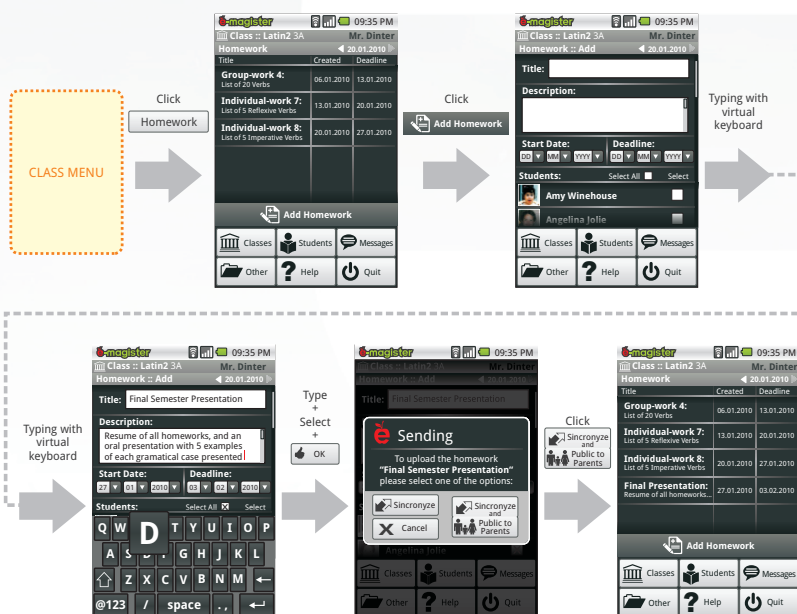
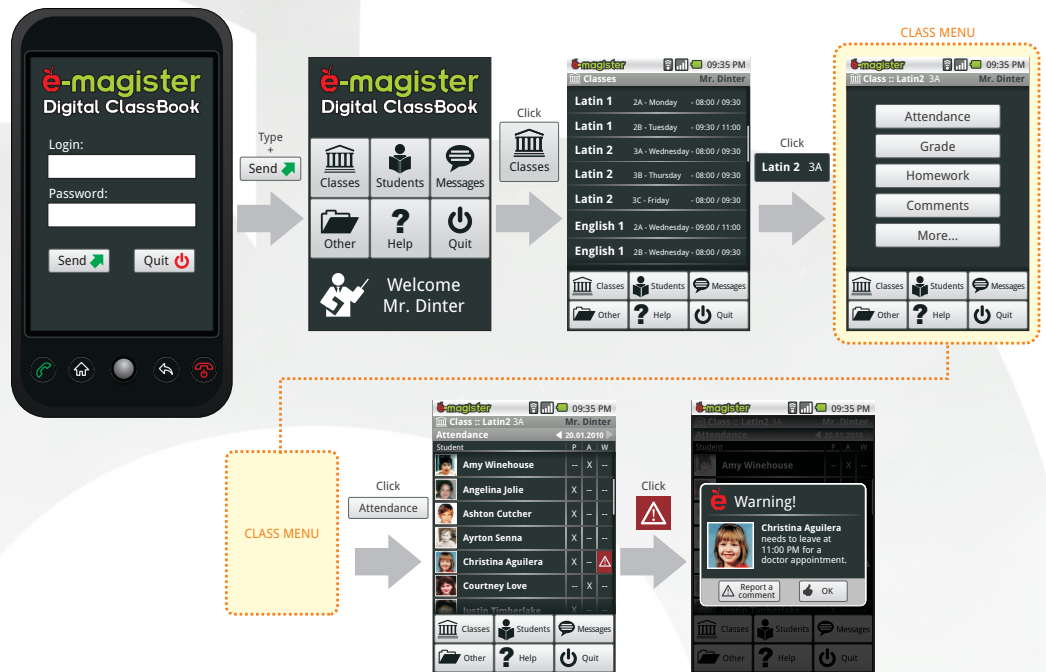


All the data inside the system can be combined in reports. The school, teachers and even the parents can select items to generate printable overviews. Some samples of the classifying criteria are: by student, offering a panorama of the classes, attendance, grades, etc; by class, by subject, or a teacher overview. Other crossings are possible, using single or collective data to determinate the performances and driving the make decision process.

Affordable and Easy to Use

One of the most important advantages of the e-magister comparing with the other products available in the market is the versatility. The web platform allows the integration of different process in the school: the enrollment, the tasks division, the class management and invitation of the parents to follow the children's development. The e-magister is easy to use in both platforms, requiring few hours of training even for user who is no-familiar with mobile technology. Economically, it is also the best solution available: run on freeware mobile platform and can be implemented gradually, according to the financial budget.

The following sample shows the login process and the attendance control. After typing the login/password, the teacher will find his/her subjects and classes in a list. After selecting one, the traditional features of the paper-based classebook are offered. Choosing "Attendance", the list of students enrolled in the specific class will be showed, with a picture of which one. Just clicking on the screen, the teacher can register the presence/absence. In this example, one comment has been sent by another user. Clicking on the advice, teacher can read it. In the case, the warning message has no sender, what means it was added by the administrative staff.



The second sequence shows the "Homework" functionality. Accessing this criteria, the teacher will see the current homework - who were added previously through the web platform or the mobile device - and can add another assignment in real time. A virtual keyboard will be displayed to help to feel the title and description area. In addition, the traditional keyboard of the mobile can also be used for that task. Finalizing the input, the teacher can synchronize the information with the web platform keeping it to the internal school users or sharing with the parents. The "Homework" function also allows checking the accomplishment and/or grading each task with a different weight.

Investment

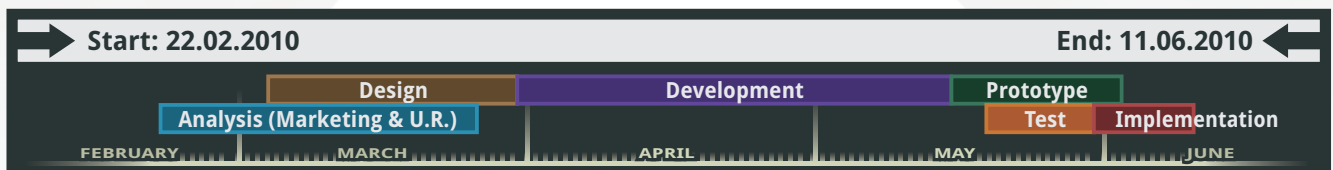
Who will work on the project:

- ➔ An experienced **Project Manager** will lead the team organizing and controlling the progression to track it on schedule.
 - ➔ A **Concept Manager** will be responsible to translate the professors need to a technological development perspective.
- ➔ The **Design team** has the expertise to develop a user-friendly interface, intuitive and clear to turn the system easier to use.
 - ➔ With a **member of the State of Bremen** in the working team, the client can follow the development and control the final product.
- ➔ **Programming team** has experience to deal with the modern programming languages in order to provide the best solution with a reduce cost.

The calendar:

All the development phases will take place in a period less than six months, to turn feasible the installation of the system in the main Summer school break.

The calendar offers the chance to training the teachers before the student's arrival. E-magister will be running since the first day of the new school year.



The costs:


The e-magister is a personalized solution to the State of Bremen, developed considering the specific regional scenario, but adaptable to all Germany and international schools. It is developed to attend the necessities and specific local characteristics, and motivate the teachers to be involved in a process of technology that offer no increasing in the amount of work, but a considerable gain on the optimization of the process and the participation of the parents in the educational activities. For all of that advantages, the BlauSoft can offer for the state of Bremen a package that includes the license and one month of free maintenance, training and support per teacher for just:

€ 30,00*


* Value to a contract that involves a full adhesion of teachers. Licenses for a less amount of users will be available from € 45,00 each. No devices are included in this contract.

About Us

BlauSoft GmbH
Ludwig Van Beethoven Strasse, 13
Bremen - 28777 - Germany
Phone/Fax: +49 (0) 5555-4689 3994
www.blausoft.com / www.e-magister.de

A man with short blonde hair, wearing a dark suit jacket over a light blue shirt, standing with his arms crossed and a slight smile.

BlauSoft GmbH, is an ISO 9001:2008 certified software development company. We are almost 10 years on the software market, mixing the experience and the youth to be always up-to-date and dealing with the new technologies and concepts. We count with a brilliant and committed team of 30 professionals and collaborators, with an exact combination of experience, qualification and motivation.

A woman with blonde hair and glasses, wearing a black blazer and a grey skirt, standing with her arms crossed and a smile.

Based in the state of Bremen, we have a network of collaborators in Germany and consultants around the world, a mix of professionals prepared to deal with multicultural challenges and local specific solutions. Our mission is to develop affordable, scalable, user friendly and customized software, allowing our clients to easily manage data and make informed decisions.

We are an information technology solutions provider, with primary focus on Education software application development. School Information Systems (SIS) and e-learning projects are in our roll of expertise, for public and private schools in several countries. In the recent years, we are developing also solutions for mobile devices, in different platforms, not only for Educational purposes but also for entertainment.

More than provide solutions, our products are developed to offer a nice experience and satisfaction on using. To check our past projects and comments from our customers, visit our web page at www.blausoft.com.

Digital Classbook - Proposal - APPENDIX

1. COST ESTIMATION FOR SOFTWARE DEVELOPMENT

The following document explained detailed the prices components to develop the software e-magister and is an appendix of the final proposal. This chapter is just for academic purposes and the feasibility check, and it will be not delivery to the final client.

1.1 The fictional company

A fictional company – BlauSoft GmbH – was creating in order to offer to this software development a day-by-day scenario, where the project is one of the different projects running in the same time in a 10 years old company, with almost 30 collaborators. This number considers the workers that are a part of the regular staff and special counselors and advisers for specific context project.

The fictional company is based in the state of Bremen, near to University of Bremen – where some companies with the same structure are stabilized - with a network of collaborators in Germany and consultants around the world. The idea of create a company with the international expertise is provide the chance to adapt and sell the products to different consumers, personalizing and delivering customized services. Considering that, the same product – as the one developed for Bremen – can be adapt and offered to the other states or private schools in Germany and around Europe and others, improving the final earning – with not so much investment in customization.

It is important to mention the company has the primary focus on education software application development as School Information Systems (SIS) and e-learning projects, but not only for Educational purposes but also fun and entertainment. The fictional company has a large expertise in software development tools offering the services on different languages , database and platforms, focus on free and open source software (java, JPS, PHP, MySQL, PotgreSQL, Androide), but also on non freeware (ASP.net, C-Sharp, VB,DB2, MS SQL Server, Oracle), adaptable to our clients needs.

Fake information as name, address and quality details was add to the commercial folder in order to validate the idea.

1.2 Factors of costs

1.2.1 *Product Features and technology*

The features of the software called e-magister were already explained in details in the “homework 3”, but it is necessary to remember that the system will have to main applications: a web platform and a software running on a mobile gadget with the system Android. Some of the functionalities of e-Magister are: the grading, attendance, timetable, dates and notes features, etc.

Some technological decisions – as the use the Android system to the mobile devices, also explained in the homework 3 – have impact in order to calculate the final cost of the product. As mentioned, Android is as open source operational system devices, also the company will uses PHP to develop the frontend for the web-based application and MySQL as a main storage software, as the basic technology purposed for this project.

1.2.2 *Calendar*

The prevision of time is also another important item in the cost calculation. In this case – and as described through the Gantt charts in the homework 2 – the time estimation is between five to six months to finish the product. This period involves the implementation and a delimited time for training and support. The time to extend the training, support and maintenance, will be negotiate with the owner of the product but within the first contract.

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1.3 Costs calculation

1.3.1 Internal Cost

Despite the company is already 10 years in the market, this section is pointing the internal cost, detailing also the equipment involved to run the project, as computes, furniture, etc. The values are integrating the final cost as a whole, in order to provide to the company the necessary gain to cover the depreciation of the patrimony and the ideal work environment for the team.

1.3.1.1 – Hardware, physic space, and Software costs, for the development

a) Hardware for Development

As it was proposed on homework 2, five roles are needed for the development of the project including the project manager, assuming one person on each role, then we need:

Hardware	Unit Costs (A) in €	Number (B)	Total (A*B) in €
Server	4000	1	4000
Laptops (*)	500	5	2500
Mobile device	200	2	400
Printer	50	1	50
External Devices			
Mouse	20	5	100
Memory Sticks (4 GB)	15	3	45
Total			7095
(*) The costs including the Operating system license			

Tab. 1 - Hardware costs

b) Software for development

It is also necessary to predict the investments on software to the development environment. The options are, mainly, for freeware licenses as Linux for the server, Firefox for web browsers, Adobe Acrobat Reader for PDF files, etc. On the SRS, homework 2, the applications are detailed (mobile and web-based), and the following table will describe all the software need for all the phases and cost of each one:

Software	Cost x License (A) in €	Number of license needed (B)	Total Cost (A*B) in €
Mobile device Application			
Android (OS) (**)	0	1	0
Pendragon	200	2	400
Hot Sync (**)	0	2	0
		Total	400

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Web Application			
EasyPHP -Apache Web Server (**)	0	1	0
PHP Development application	0	3	0
MySQL – DBMS (**)	0	1	0
HeidiSQL (Friendly Application to access MySQL)	0	4	0
Total Cost of Software for Development			400

Tab 2. - Software for Development costs

(**) is the software that is going to be installed on the Customers environment. Some of them will be installed with the final product and the number of license will depend on the number of schools and teachers, but the costs of licensing will not change

c) Other Infrastructure services

The cost concerning to the foundation of a company – lawyers to describe the contracts, accountants, etc, are not predicted, considering the company already exists. But to give a closer idea to a feasible market price, the necessary infrastructure to support a team work are mentioning in the following table:

Issue	Cost x month (A) in €	Total (A*6 months) in €
Rent	500	3000
Heating ¹	100	600
Lighting ²	100	600
Water ³	50	300
Internet	32	192
Telephone (One)	30	180
Transport	250	1500
Cellphones (Five)	150	900
Others (Food, Beverage, cleaning)	200	1200
Total		8472

Tab.3 - Cost of Infrastructure Services

This table shows in average the costs of energy need for just use the laptops and the server during the six months of the project:

-
- 1 Erdgas swb, 4.93 €/Month (kwh=kilo Watt per Hour), 1kwh=5.68cent, <http://www.swb-gruppe.de>
 - 2 Strom swb, 4.59 €/Month (kwh=kilo Watt per Hour), 1kwh =20.88 cent, <http://www.swb-gruppe.de>
 - 3 Wasser swb, 2.46 €/Month, 1 m3= 1.98 €, <http://www.swb-gruppe.de/privatkunden/>

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	watts	1 kw	hours/day	days/month	Months	kwh/month	units	total kwh/months	price / kwh	total price
laptop	50 ⁴	1000	10	22	6	66	5	330	0.21	68.9
server	200	1000	10	22	6	264	1	264	0.21	55.12

Tab. 4 - Examples of Energy costs for computers

d) Salaries

On the homework 2, s described the human resources, and roles needs if we assume one role for one person so we will have, the next Salary table:

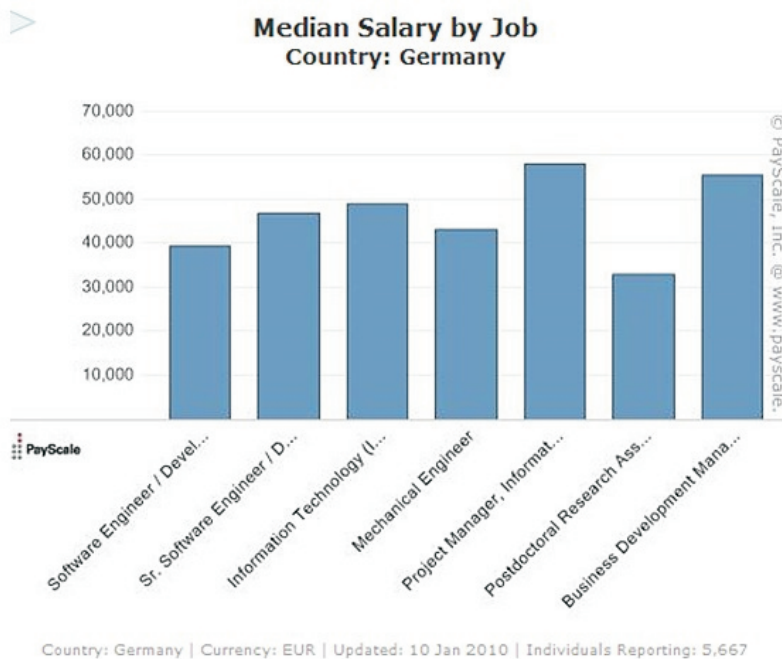


Fig. 1 - Media Salary by Job www.payscale.com

According to the Media Salary by Job (Figure A1), the enterprise in going to hire personal with the following role and experience. The numbers listed in the Salary table, bellow, shows the salaries without taxes

4 <http://michaelbluejay.com/electricity/cost.html>

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Role	Studies at least	Salary/Year Bruto in €	Salary /Month in € (A)	Salary Per Working hour in € (A/160)	Total Salary Bruto /Month in €
Project Manager (PM)	Bachelor in Science (4-5 yrs experience)	58,182	4,848.50	30.30	4,848.50
Concept Manager (CM)	Bachelor in Science (3 yrs. experience)	46,932	3,911.00	24.44	3,911.00
Designer (De)	Bachelor in Science (3 yrs. experience)	35,000	2,916.67	18.23	2,916.67
Programmer1 (Pg1)	Bachelor in Science (1-2 yrs. experience)	39,539	3,294.92	20.59	3,294.92
Programmer2 (Pg2)	Bachelor in Science (1-2 yrs. experience)	39,539	3,294.92	20.59	3,294.92
Total					18,266.00
Total in 6 months					109.596,00

Tab. 4 - Salaries, cost in Bruto.

Therefore, for this project, the project is not demanding all the professionals in the same moment. Considering that, they are already working for the company, but in different projects. In that case, to estimate the final cost of the product, it is necessary to figure out the salaries only during the time each one will be working for the e-magister. Again, the considerations are based on the already explained human resources needs, according to the Gantt, homework 2. So, the project will run in six months and the following chart describes the real cost:

Role	Month 1		Month 2		Month 3		Month 4		Month 5		Month 6		Total
	hrs	Salary	Hrs	Salary	hrs	Salary	hrs	Salary	hrs	Salary	hrs	Salary	
PM	160	4848.50	160	4848.50	160	4848.50	160	4848.50	160	4848.50	160	4848.50	29091.00
CM	160	3911.00	160	3911.00	160	3911.00	80	1955.50	40	977.75	40	977.75	15644.00
De	40	729.17	160	2916.67	160	2916.67	160	2916.67	120	2187.50	80	1458.33	13125.00
Pg1			160	3294.92	160	3294.92	160	3294.92	160	3294.92	120	2471.19	15650.85
Pg2			160	3294.92	160	3294.92	160	3294.92	160	3294.92	120	2471.19	15650.85
Total		9488.67		18266.00		18266.00		16310.50		14603.58		12226.96	89.161.71

Tab.5 - Salary table

Digital Classbook - Proposal - APPENDIX

The Enterprise taxes will be at least of 27 % in the present scenario, including insurance taxes, the VAT (Value Added Tax) is 19%⁵ and also considering the fictional company as a GmbH – that also should pay the Corporation Tax. To afford this 27%, the company should, at least, earn enough to pay the salaries on that basis and the 27% will be calculated over the total cost on salaries.

Total cost within the company for the 6 months of the project:

Salaries	89161.71
Taxes	24073.66
Services	8472
Hard +Soft	7495
	129202.37

Tab.6 - Cost of the License

There are a management decision involved in the final cost of the product. The company, as mentioned, works for several clients and is planning to customize the product developed for Bremen for other states, schools and also for an international perspective. However, considering the e-magister is starting from one specific client need, the price of the product have, at least, to cover the expenses to allow prospective marketing actions in the future.

For the company, the opportunity to sell a complete product to the state for Bremen allows to improve the clients gallery and earn credibility and expertise. Considering that, just the cost will be covered, with a tiny merge of fidelity. It is important to remember that the gadget acquisition is not involved in the company costs: there are many models available in the market and the government, school or professor can decide for the one which is affordable according to different needs.

The final price was calculated considering two possible scenarios – also describing in the homework 3: one gadget for each teacher, or one gadget for class. Information from the State of Bremen⁶ allows the company to know that are 4635 teachers and 2835 classes on the Educational System. Thus the calculation has the two possible situations:

License per class=Company Investment/ number of possible users = $129202.37/2835=45.57\text{€}$

License per teacher=Company Investment/ number of possible users= $129202.37/4635=27.87\text{€}$

To the state, the final cost has no changes: but to the marketing perspective is possible to apply creative solutions. The cost for an individual license runs at 45.57€ , but it is possible to offer a contract involving all the professors and advertise a more interesting number: around 27.87€ .

The training, support, and maintenance for a period of one month are integrating the initial offer. The idea is offer the initial training in collective meetings, optimizing the costs:

5 EC-Euopa, 2007, http://ec.europa.eu/taxation_customs/taxinv/search.do, [Accessed, 23.01.2010]

6 Total number of classes and Teachers within the state on Bremen
http://www.bildung.bremen.de/sfb/usr/ref17/kennzahlen/2008_09/FQ-SLR2008_Internet3.pdf

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	Cost per hour €	Cost per Units €	Units	Total €
Training	30	-	1 month (160 hrs)	4800
Support	25	-	1 months (160 hrs)	4000
Maintenance	25	-	1 month (160 hrs)	4000
Total				12.800

Tab. 7 - Describes all the Investment and cost of implementing e- Magister

Considering the license in a package with maintenance, support and training and the scenario of one license fore each teacher of Bremen, the final cost is a special offer for the State of Bremen of **30.00€**.

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2. LOGO

The following page explain the concept behind the logo and name of the product.

2.1 Name Concept

The “e-magister“ is a combination of :

- E: eletronic
- Magister: teacher in *Latin* language.

The idea is to use the Digital ClassBook as an eletronic solution for teachers.

2.2 Design Concept

The design is a combination of words and a draw of an apple.

The reason to choose an apple, is based on old tales where the students often give to their teacher an apple fruit. In this case the apple symbolizes the teacher and his/her reward from the students.

To accomplish the logo design, and its meaning, the sentence “Digital ClassBook“ was attached bellow the logo.



Fig. 2: e-magister logo

Digital Classbook - Proposal - APPENDIX

3 POSTER PROPOSAL

The created **Poster Proposal** for the Homework number 5, created with the screen resolution of: 1024px width x 768px height.

Digital ClassBook

Mobile solution for class management

e-magister is a complete solution for schools. More than just organizing the students profiles, classes and other school's routine aspects, it is responsible to simplify and optimize the work. It is a web-based structure that works synchronized with mobile devices and provides up-to-date information for the teacher, parents, and all the school staff.

Example: The following sample shows the class selection and attendance control, with a warning message added by the administrative staff about a student who needs to leave before the end of the class.

Click

[Selecting Class]

Click

[Checking Students]

Click

[Reading Warning]

Click

Good for Teachers
more optimization

Good for the Staff
more organization

Good for Parents
more participation

Special Offer for the State of Bremen!

from €45,00 to just €30,00 per Teacher*

* Valid for a Full Adhesion Contract; no devices included.

Start: 22.02.2010 Design Development Prototype End: 11.06.2010

Analysis (Marketing & U.R.) Test Implementation

FEBRUARY MARCH APRIL MAY JUNE

Fig. 3: poster proposal