STUDENT ELECTRONIC CARD - A NEW APPROACH TO DOCUMENT MANAGEMENT IN HIGHER EDUCATIONAL INSTITUTIONS

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In the rapidly changing realities of the development of Internet technologies, there is a widespread transition of higher education institutions to an electronic document management system, which involves the creation of an information resource with different levels of access to available data, where information is generated in the form of reports and queries from a specially designed database. With the help of the information system of a higher educational institution, the collection, storage, processing and transmission of information and educational documentation is carried out.

Also, for remote access to some data of the system used, it is proposed to introduce students' personal electronic cards, which store all information on a single student, replacing a student ID card, grade book, and even a bank card. For the convenience of accessing remote data, a web-based information system has been developed that contains the necessary educational information, as well as student data: personal data, academic performance, scientific or social activities, achievements, etc. Each grade received or missed class is immediately entered by the teacher or administrator into the database and subsequently used to determine debts or to set final grades, to form the rating of students.

Since each classroom has a teacher's computer or a wi-fi access point, it will not be difficult to fill in the necessary forms and reports of this information system in a timely manner when working with its database, especially since each teacher has a password to his "electronic journal". Such a database will store not only information about the progress of students, but also lesson plans, calendar schedules, directorate documents that previously had a paper form (at the same time, paper documentation is not canceled). Thanks to such a system, the time intervals for searching for the necessary information will be significantly reduced, it will be possible to conveniently and transparently build a student performance rating, there will be no need to collect a huge number of documents every semester to assign increased scholarships to students for excellent education, for research work, for active social work which will greatly simplify the work of the directorate and administration of the university. It will also solve the problem related to parental control of students.

When a student enters the first year, a new profile will be created in the database, to which the account of one of the parents will be linked, who at any time of the day will be able to view information about the progress of his child, about rewards and penalties, about the rating. But this information will remain closed to a third-party user and there will be no general access to it, so that it would not be possible to use it to the detriment of a student or his family. In addition, it is proposed to replace the traditional student ID with a plastic card similar to a bank one. These are widely included in our daily life and their production has already been put on stream, i.e. does not cause much difficulty. The student card must contain information about the student not only on the outside, but also have access to the entire database of the university using special reading terminals, both stationary and mobile portable cash registers, and also have access to the bank account of the accrued scholarship.

Such a student card will simply become indispensable when visiting administrative institutions that require a huge amount of certificates and

documents from customers, instead of which you can present a plastic card.

Fig. 1. POS terminal that reads the necessary information from a plastic student card

New devices have already appeared on the modern market - 2can mobile POS terminals for personal work with a bank card, but which can also be used to work with a student card (Fig. 2).

Fig.2. The POS-terminal and the 2can service allow you to carry out transactions using mobile devices based on iOS and Android.

The POS-terminal and the 2can service allow you to accept bank card payments using mobile devices based on iOS and Android. The card is read by a card reader, a compact device connected to the audio jack of a smartphone or tablet computer. International Visa and MasterCard cards are accepted for payment, both with a magnetic stripe and with a chip. To carry out the operation, you need to activate a special application, connect the reader to the audio jack, fill in the input fields. To confirm the operation, the client will be asked to sign directly on the smartphone screen. After confirming the transaction, the buyer will receive an electronic receipt by e-mail or SMS to a mobile phone. Data confidentiality is ensured by encryption at the level of the card reader, the 2can processing platform has a PCI-DSS Level1 security certificate [1].

Fig.3. Terminal with the ability to print on A4 sheet

If you need to get a certificate that, indeed, this young man is a student of a university, you can insert a student card into the appropriate terminal - an A4 information kiosk - and get the desired document generated on the basis of a request for information stored in the university database. A stylish information kiosk with the ability to print on an A4 paper sheet (Fig. 3), which for most people is the most familiar and convenient type of information presentation and paperwork, allows you to independently print instructions, forms, receipts, documents from accounting programs, voluminous information materials and much more. The A4 terminal has extended functionality: it is equipped with a barcode scanner, an electronic key reader, and a webcam. It can be completed with other additional equipment [2].

Thus, the introduction of a "new form of student card" implies the union of a student card, a bank card, a record book and a university database with certain delimited user rights. Such integration is achieved by exchanging information with the database using the above devices (mobile and stationary terminals, as well as using Internet technologies and access to the university's web-based information system via smartphones, tablets, laptops or home PCs), as well as connecting to bank accounts (in case the student enters the budget and receives a scholarship). The scheme of objects and connections used to work with the proposed map is shown in Fig.4.

The student card will be presented in the form of a plastic card, which contains certain information about the student, which will replace the not very convenient, modern student card and at the same time will carry incomparably more information that the student will be able to present upon request in various bureaucratic departments, not only University, but also any institutions, such as: military registration and enlistment

offices, clinics, social security, etc. Immediately a bank account will be linked to such a card, which will allow you to remove another unnecessary card from the student's wallet. It will not be difficult to withdraw money from a student's card, since most terminals will support it.

But this is not all the possibilities of the card, information about the student's progress will also be recorded on it. Sometimes, in order to find out about their academic or financial debts, or just to get an extract on their academic performance or a certificate that they are a student for presentation to various authorities, the student has to wait a long time, as it often happens that the directorate is busy with pressing matters and it there is simply no time to make the required statement. A student card will solve this problem. A special terminal will help to view and print such data, which will be enough for one for the university building or for the entire university. Also, during the receipt of a student card, the student will be provided with data to enter the information web resource.

Thus, it is proposed to provide access to the developed web-oriented information system of the university via the Internet (traditionally), as well as with the help of a student card through specially developed software applications for terminals.

ECONOMIC JUSTIFICATION OF THE PROJECT.
To calculate the material costs for the introduction of such a system in one university, it is necessary to decompose this process into certain components and determine the corresponding costs.

First, you need to purchase a server. To determine the choice of server, you should take into account certain parameters that will allow you to freely access data and store the necessary information. Incorrect selection of characteristics can lead to unwanted data loss, failures in the information system, freezes of processes running on the server. Approximate characteristics of the server necessary for hosting a web-oriented information system of the university and the "Student of the Future" system were established. Such a server must have Xeon E3 or E5 class processors, and also support SAS information reading and writing technologies. The amount of RAM on such devices should exceed 12 GB [3].

Secondly, the design of the bath base. This is perhaps the most important and costly step. The price of this service depends on many factors, for example, the term of the work, the amount of data or the number of developers. But there is another, less expensive, solution to this problem - the organization of a student

project, in which it is necessary to involve as many students of technical universities as possible. Students from different cities can keep in touch using well-known, free software products such as Skype, Viber, etc. If the leading institutions of the Russian Federation take part in the project, then the results of this development can be introduced into the new higher education system.

The third stage is the development of a web-oriented information management system for education in the university in the form of a web-portal. The cost of this service depends on the volume, complexity and labor intensity of the work performed. To save public funds, as well as to educate students and apply the acquired knowledge in practice, you can offer them the development of a web-based information system that combines a database and visual applications, forms, reports, documents for filling and printing, supporting cross-platform principles of work.

Thus, the development of a student project, together with the implementation of a web-based university information system and a database for it, is a priority for the development of information technologies and their introduction into the learning process and IT education, and ultimately allows improving the quality of graduates' knowledge by practical orientation and a more transparent control system with the help of Internet access to information.

CONCLUSIONS
The introduction of electronic document management will optimize the document management system of the university and effectively use the working time of the educational department and provide access to information for both interested parties and the students themselves if they have an appropriate student card. That is, the period for issuing certificates, diplomas, as well as the creation of reporting documents necessary for the internal workflow of the university will be reduced.

The introduction of electronic journals and record books will help to avoid data falsification and ensure their reliable protection. Since the student will have access to such data only in the "view" mode, he will be able to find out about his "tails" in time and retake the necessary subject. Parents will also have the opportunity to monitor the progress of the child, control his education, which is also important in improving the quality of education.

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