ESTABLISHMENT OFEDUCATIONAL NETWORK AMONG THE UNDERGRADUATE WITH MOBILE APPLICATION

[1]CAHIT BERKAY KAZANGIRLER, [2]CANER OZCAN

[1,2]Department of Computer Engineering, Karabuk University, Karabuk, Turkey
E-mail: [1]cahitberkaykazangirler@gmail.com, [2]canerozcan@karabuk.edu.tr

Abstract— It is easier and faster for students to learn from knowledgeable students. The speed of information age and evolving educational technology have changed the way of teaching and the level of knowledge acquired during teaching.In this study, we present establishment of educational network among the undergraduate with mobile application. Students will be trained on the mobile application using smart devices which are present in almost every university student today. For this training, firstly the teams will be established and the target group will be reached for the education given by the knowledgeable student.With the mobile application to be prepared, students will be able to enroll in courses that are opened, will be notified about the lessons from the instructors and will be able to access the necessary source documents easily. The application will also be a website at the same time and all the operations performed in the application will also be available on the website.

Index Terms—engineering, mobile application,ruby, web based education.

I. INTRODUCTION

Since the 21st century, intelligent devices have become an integral part of our life. It has been developed rapidly since its first use on many electrical systems. Until 10 years ago, there is no concept of mobile technology, but now mobile technologies are being used in all electrical systems. Today, a large majority of university students use smartphones.The use of smart devices and web sites has changed drastically with the introduction of the Internet on mobile devices, which are now available in almost every area and offer great convenience in information access. With these developments, we can access the mobile devices or mobile phones we need from the desired time and location without cable or any connection [1]. In the last years, due to the usefulness of mobile devices and solutions, the transition from traditional desktop systems to mobile devices has accelerated and mobile device usage has become widespread [2]. One of the uses of mobile devices is mobile learning (m-learning).M-learning is a form of learning that allows content to be accessed without being tied to one another and to communicate with other students.M-learning environments have shown that learning without a fixed location on mobile devices is possible. Laptops, tablet computers, PDAs, smartphones, mobile phones are the most used mobile devices. Concepts such as portability and learning everywhere have come tothe forefront when defining the M-learning [3].

Mobile applications are used today in many areas and service categories. Even in our personal computers, we can use mobile applications that also have smart devices with virtual drivers. Generally applications on shopping, friendship, education, entertainment, event, finance, photo editing, news, maps, weather, e-book, music and video players are being made. Design and coding are done according to platforms that the application will work [4]. Based on 2013 mobile apps rates, Apple's app stores where apps are published for devices only IPhone, IPad, etc. have more than 500 million users and more than 40 billion mobile apps are downloaded [5].Mobile websites can also be added to app stores as an app. An analysis of a survey is conducted by Deloitte firm in 2015 with 49,000 participants from 30 countries [6]. According to the analysis result, in Turkey the average user controls the phone 70 times a day, which means that they control the phone every 15 minutes. This rate is equivalent to twice the amount in countries like Italy, Russia, England and Germany. It was argued that computers and internet should be used for education in the study [7] that the new technologies brought additional burdens to the instructors at the same time and the systems developed from the 1960s to the day of publication of the article were discussed for computer aided education.As a result of this study, it is thought that "education reform cannot be done without relying on the internet in contemporary education".In another study [8], e-learning and computer-aided educations were compared.It was emphasized that technology and e-learning enable classroom education to be realized in a richer and more diverse manner and robust and quality learning depend on the best use of resources.

With the development of technologythe performance of Java, Python and Ruby languages is compared on the other side [9]. Ruby and Python are half the length of Java in terms of code length and Ruby has the least memory consumption.The book by Song and Kidd [10] indicates that new communication technologies especially internethelps people to get together and help them to meet their different needs. Extensive information about the facilities provided by the internet and the renewed world is given. In another study [11], a mobile application developed and described as another application that remotely controls electronic devices in the home via GSM and detects movements within the home is presented. The interface design of the application is straightforward

and the interface has been able to interact with the user smart home system. In another study published in the journal of social sciences, the numbers of sites with and without .edu extensions in the world and in our country were compared [12].The advantages of computer-aided education and the convenience of home environment are discussed for students, teachers and administrators. It is envisaged to expand computer-aided education and, most importantly, to support these studies by the national education organization.

It seems that many different applications have been made in recent years. In the presentedresearch [13], the use of mobile marketing applications in the tourism sector has been discussed.The achievements that mobile applications bring to marketing sector in the tourism sector are explained.As an example, it is mentioned that how the agency's investment in mobile application has returned to itself as a profit. The increase in the number of Facebook users and educational benefits in recent years between our country and other countries have been compared in detail [14]. In another study, evaluations and attitudes of students were examined about distance education systems and programs used by universities [15]. 63.9% of the students did not visit the program at all.Besides, 27.8% of the students answered that the program was not interesting and 25.1% answered that the program was not beneficial.

II. PROBLEM DEFINITION

Nowadays, Turkeyis in the forefront in terms of mobile device usage rate.However, a comprehensive researchshows that Turkey ranked 41st out of 76 countries based on the 15-year-old students of the Organization for Economic Co-operation and Development [16]. Education is a very important element in order to have an important place in the globalizing world. The high quality of education means a dynamic society. Individuals who are well trained can contribute to the development of the country when appropriate conditions are met.

In our country, there are many problems in today's educational system, from the crowded classes to the inadequateeducators. In terms of students, there are many problems such as unnecessary information transfer effort, ineffective information transfer, intensive teaching programs, inadequacy of learning environments, inadequacy of materials to be shown in practice and inability to use correct methods.

The number of unsuccessful students in some courses according to the information received from the secretary of Computer Engineering for the 2015-2016 education yearis given in Fig. 1. At the end of the project, the students are expected to gain detailed information on different topics through the application planned to be developed. At the same time it is aimed

that the students who will give education will gain experience on the subjects to be explained.
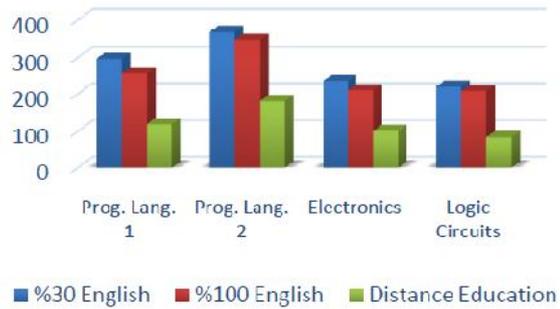

Figure 1.The number of unsuccessful students.

In many universities, students organize themselves in social media and share information. But sometimes this is not easy and effective results are not produced. In this project, we aim to reach more people by increasing the usage rate of mobile application with the power of our prepared application. It is also aimed to increase the usability and to benefit the student branches from the application by announcing the upcoming events in the university.

III. PROJECTDESIGN

Contents and features to be included in the project were determined before coding, and then the drawings were made with Photoshop program. Through the Bootstrap framework at the interface, a design that fits the resolution of every smart device is provided.Ruby on Rails technology is used in the database part. Ruby is a modern interpretable programming language that accepts everything as an object. Ruby programming language is designed to be programmer-friendly, easy-to-write, and non-repetitive. It is also preferred because it has a very talented MVC framework like Ruby on Rails. Representation of Ruby on Rails framework is given in Fig. 2. Our project is open to development as it can integrate with many educational institutions and application programming interface. The infographic of project design is given in Fig. 3.
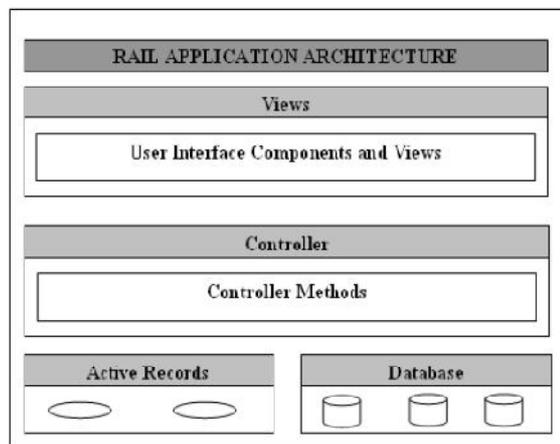

Figure 2. Representation of Ruby on Rails framework [17].

IV. APPLICATION

At the start of the application, the information module will appear for the first time entry. In the title of the main page, if the user has not logged in, the login button will appear in the middle. If logged in, the screen with the name will be displayed. There is a pop-up menu on the left and a user panel on the right. When the login button is pressed, the module opens without leaving the page and the user name and password query screen is displayed as shown on the left in Fig. 4.

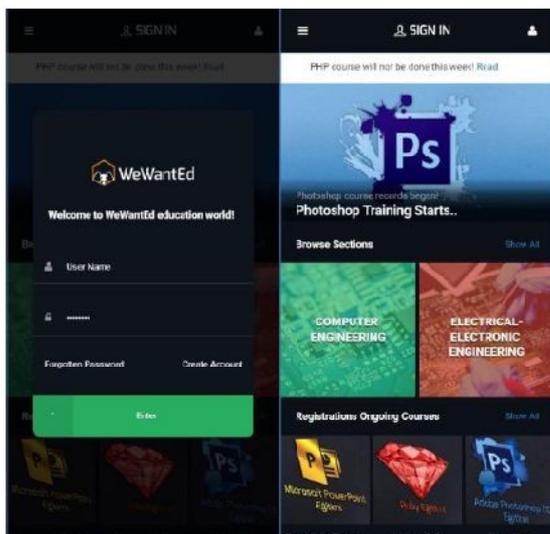Figure 3. The infographic of project design.

Figure 4. Application login and first screen views.

There are shortcuts for forget password and account creation at the bottom of the opened module. If users are enrolled with social media accounts, then a mandatory module is opened to enter the university number. At the top of the main page there is a news band covering 5% of the height, while on the bottom side there is a slide where three photos are placed. This screen is displayed on the right in Fig. 4.Starting from the bottom of the photo in the slide, a gradient from black to opaque is placed to facilitate the appearance of the texts, and a short section of the news title and content is placed. At the bottom of the slide there is a short section of white and gray header and contents. The texts are coded in order to the left, to the middle and to the right respectively. Faculties, ongoing lessons, lectures and activities of student branches are located under the slide. After the events, there are shortcuts and subtitles on each page of the application.On all faculties page, there is a drop-down menu where the faculties are located one under the other. For example, when the Engineering Faculty is clicked, the sections in the faculty such as Computer and Electronics are presented.

When any of the sections is clicked, the courses that are labeled in that section are listedas shown on the left in Fig. 5.When the content of the course is clicked, there is a slide section with three photographs at the top. Other options such as add to favorites, enrollment buttons, scoring, viewing, the number of applicants, the information about the course, the content, the necessary materials and announcements are given belowas shown on the right in Fig. 5. Above the sub-information, there are courses on the same label in the name of the continuing courses.
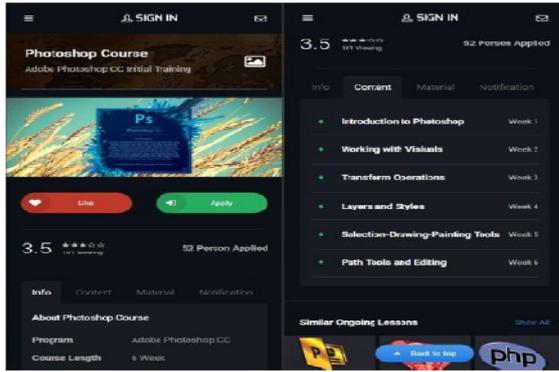
Figure 5. Sample course and its content.

The pop-up menu of the user panel on the right has an account view, personal information, courses attended, courses not approved, lessons applied, alarm list, e-support, and exit shortcuts from applicationas shown in Fig. 6. On the alarm list, developments about the course that user is applying for or voting on come as a notification. The user can remove the desired course from the page and blocking the notification. In the account view, name, department and the location information are listed respectively under the cover and profile photo of the user. Users can add a short biography of 140 characters below the location if they wish. If Facebook-linked login is made, these photos can come in sync with it. The page also contains social networks, column entries, courses attended, and lessons given.There is a back button on every page of the application. The left drop-down menu contains shortcuts for news, announcements, student branch events, information about the application, contact pages, and developers as shown on the left in Fig. 7.
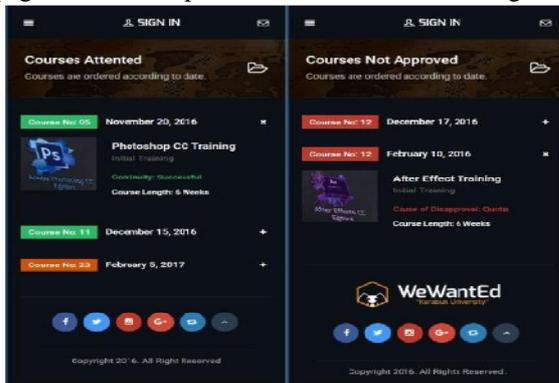

Figure 6. Courses attended and courses not approved.
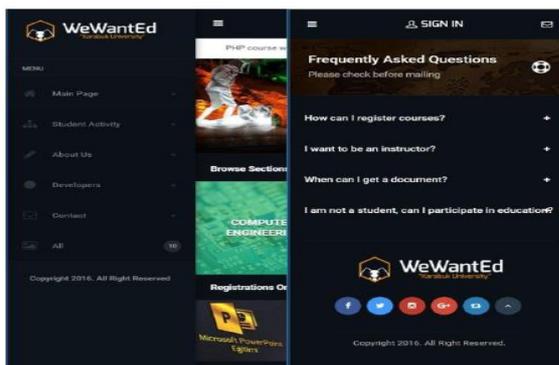

Figure 7. Menu and FAQ screens.

Sorting on the courses attended is done according to the code of the courses, and the information about the course is hidden inside the tab. It can be enlarged when requested by clicking on the code. Pending approval and unapproved lessons are designed in the same way. However, for non-approved courses, the reason for not being approved is also shown. The school number of the user is requested not to interfere with any fake voting in the lesson section on the homepage. For those who wish to join from outside the university, guest membership is given in case of communication. There is a three-page slide at the top of the news page; the university news and application news are listed under the drop down menu below. Application also includes pages such as error page, frequently asked questions, activity calendar and task list pagesas shown on the right in Fig. 7.

CONCLUSION

In this study, a difference was created with the programming languages and visuals used in the application and the rapid operation of the application were provided. Since there is no similar application, comparative studies have not been conducted but the results of the program are more positive than those of the mobile training applications. Ruby is pleased with the quick run of the application with less memory consumption. Memory occupancy in smart devices is one of the most obvious differences from similar mobile education applications.

REFERENCES

[1] Koçak, Ş., Cebeci, Z., Yenilmez, E., "Tam Öğrenme Stratejisinin Bilgisayar Destekli Uygulaması Üzerine Bir Çalışma", Ç.Ü. İlahiyat Fakültesi Dergisi, 3(1): 15-34.

[2] Oran, M. K., Karadeniz, Ş., "İnternet Tabanlı Uzaktan Eğitimde Mobil Öğrenmenin Rolü", Akademik Bilişim'07- IX. Akademik Bilişim Konferansı Bildiriler, Dumlupınar Üniversitesi, Kütahya, 167-170.

[3] Teknolog Web, "obil öğrenme nedir? M-öğrenme teknolojileri", http://www.teknologweb.com/mobil-ogrenme-nedir, (17.11.2016).

[4] Play Store, "Google Play Store'da Android Uygulamalar", https://play.google.com/store, (19.11.2016).

[5] Eyselsoft, "Mobil Uygulamanın Önemi", http://www.eyfelsoft.com/mobil-uygulama, (19.11.2016).

[6] Deloitte, "2015 Global Mobil Kullanıcı Anketi Türkiye Yönetici Özeti", 2015.

[7] Ergün, M., "İnternet Destekli Eğitim", Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi, 1, 1998.

[8] Ünsal, H., "Web Destekli Eğitim, Elektronik Öğrenme ve Web Destekli Öğretim Programlarındaki Çeşitli Ders Modelleri", XI. Eğitim Bilimleri Kongresi, Yakın Doğu Üniversitesi, Lefkoşa, 2002.

[9] Şahin, M. "Java, Python ve Ruby Dillerinin Performans Karşılaştırılması", Akademik Bilişim, Dumlupınar Üniversitesi, Kütahya, 2007.

[10] Song, H., Kidd, T.T., "Handbook of Research on Human Performance and Instructional Technology", 288, 2009.

[11] İnal, K., Akçayol M.A., "GSM Tabanlı Akıllı Ev Uygulaması", Bilişim Teknolojileri Dergisi, 2, 2, 39-45, 2009.

[12] Engin, A.O, Tösten, R, Kaya, M.D., "Bilgisayar Destekli Eğitim", Sosyal Bilimler Enstitüsü Dergisi, 5, 69-80, 2010.

[13] Şanlıöz H.K., Dilek S.E., Koçak N., "Değişen Dünya, Dönüşen Pazarlama: Türkiye Turizm Sektöründen Öncü Bir Mobil Uygulama Örneği", Anatolia: Turizm Araştırmaları Dergisi, 2, 24, 250-260, 2010.

[14] Gülbahar Y., Kalelioğlu F., Madran O., "Sosyal Ağların Eğitim Amaçlı Kullanımı", XV. İnternet Konferansı, İstanbul Teknik Üniversitesi, İstanbul, 2010.

[15] Gülnar, B., "Bilgisayar ve İnternet Destekli Uzaktan Eğitim Programlarının Tasarımı, Geliştirme ve Değerlendirme Aşamaları (SUZEP Örneği)",2008.

[16] BBC, "OECD'nin Eğitim Raporuna Göre Ülkelerin Sıralaması", http://www.bbc.com/turkce/haberler/2015/05/150513_oecd_e gitim_rapor(19.11.2016)

[17] Ruby on Rails Tutorials, Tutorials Point (I) Pvt. Ltd., 2015.

★★★