UNIVERSITY SEMINARS ATTENDANCE CHECKING SYSTEM USING QR CODE IMAGE SCANNER

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ABSTRACT

Most of the seminars at universities or at any other organizations required to have checking attendance list for their participant. From this way, teachers and students can register their name for specified seminar at the same time that they attend in the seminar hall. This new technique can be done by using QR Code Image scanner and Mobile Smart Phone, which Scan the displayed QR Code image on the seminars Screen, before seminars Start.

Keywords

QR Code, Database, Image Scanning, Attendance Restriction, Presentation, QAS, Login System
1. **INTRODUCTION**

We can find at the most places when there is an event for holding a specific seminar on the specific subject, people that attended the seminar will write their names on an attendance sheet. Thus, seminar manager takes it around all the participants to register their names. However, there are some disadvantages can be found with this old process and technique.

One of these drawbacks that can be seen through using this old system is that the attendees must wait till the sheet list of names reached to their desk. Moreover, in some cases the list of the names may lose, and all the participants lose their registration process.

Another weakness point that can be noticed in this old technique is that required that sometimes there are not enough spaces for other people to write put in their names, which means lack of spaces.

Also to those problems that face current registration process there are some other main important issues that face this system:

1. Most of the universities in Kurdistan Region of Iraq (KRG), from example University of Sulaimani, it is required as an obligation that their teaching staff must attend seminars for collecting points for their QoS.

2. In some faculties, their QoS center still work with lots of papers and documents. Also, each teacher that is a member of teaching the community in the faculty must name which is stored in the QoS Database.

3. The number of paper works may exceed more than hundred teachers profile in some colleges or faculties, and some them of the have more than five departments. Also, in each department there are lots of teachers.

In the new proposed system, university academic staff must have their mobile smartphones have been registered into the university's database. Thus, it is required that the information of each university member staff mobile phone must be stored including MAC Address and Phone number. All this information will be stored in the central database that contains all the academic data, for instance, teachers and employees personal information.

Also, there will be a QR Code image will be displayed on seminars screen before the seminar starts about 5 to 10 minutes. Moreover, this opportunity will be given due to give sometimes for attendees to scan the displayed QR code. This process of scanning the QR system can be held through mobile applications that specified for scanning and decoding the Image.

This research will be organized as following:

- Starting with a research background, discussing some aspects that related to our research topics. Also, defining some academic terms that will be used in this study.

- Pointing the main advantages and disadvantages of the old system

- Describing the significant benefits and disadvantages of the new proposed system

- Making differences in some relevant aspects

- Showing the main methodology that have been used to propose this research

- Starting out how the current system is working

- Indicating how the new system will work

2. **BACKGROUND AND RESEARCH**

According to the some data which shows the usage of a smartphone among people all over the world. It is quite a clear from those data that every routines life become systematics including smartphones. (Figure 13 and 14) illustrate some statistics data using smartphones between different ages and different uses [1].
2.1 Authorization security

The term of authorization means that any system that required having a level of security, the system designer must provide authorization technique. From this way, the system will be able to prevent any users that are not a member of the order to enter into it. Thus, means the only users that have the permission with username and password can enter into the system and use its features.

2.2 Authentication security

This terminology refers to users with their correct username and password that they use to enter into the system. This technique will provide another level of security, which every user must use their account in the system and prevent using another person account.

2.3 Captcha image techniques

It is a new web technology technique that used to distinguish between human being login and robot login system. The main idea of this idea is to prevent hackers and intruders to use some hacking software to use the system without system permission [6].
2.4 Login system

Login Systems users give permissions to use the system through the username and password that have been given secretly to the system users. In this step, members should enter their correct username and password. Also, they have the ability to reset their username and password by using their information that they gave to the system at the first time they have been registered [1].

![Fig 4: Login System Technique](image)

2.5 Mac Address

It is the identification that has been granted to devices such as smartphones (Mobile, Ipad, and I-pod), laptops personal computers. From this way, those devices will be distinguished from each other when they will connect to the network either on LAN network (Local Area Network) or WAN network (Wide Area Network).

In this new system, that have been proposed in this research, it is mainly based on using Mac address. That will be used to give permission for their members to enter into the system at the second level of security privileges [12].

![Fig 5: User Authorization](image)

2.6 IP Address

It is a network protocol address that is used for giving each device a unique address in a communication network. This process of setting an address for a particular technology device could be done, once it connected to the network providers. There are two types of IP Address, Static IP Address, and Dynamic IP Address [2].

![Fig 7: TCP/IP Configuration](image)

2.6.1 Static IP Address

The term of static refers to that the network providers, assign the networking IP by entering it normally from networking setting system [2].

![Fig 6: IP Address Configuration](image)

2.6.2 Dynamic IP Address

The meaning of dynamic IP address is that the network provider or Internet service provider will assign network IP Address automatically, without entering any data into Network IP field. Nowadays, lots of Internet service providers, they based their network on giving a dynamic IP address to their host [2].

2.7 Attendance system

In many organizations, especially in education societies (Colleges, Institutes, and Universities), they have a very high restriction with taking absents from students. Also, there is a specific amount of absent rate; that must not be exceeded by the students. There are some rules that used to those students that they have a high amount of absents.
As well as students' attendance, there is a restriction with teacher and employer attendance. Employers need to check their entrance every day of work, to include their name into the database. That store personal information and availability data (absent day, attendance date and days of permission).

Also to the employee absents, teachers also have a participation of absent checking system. However, dislike employee system; teachers must check their name for attending of working days. Also, they are required to attend seminars and register their names through using the provided a particular system that supplied by the University.

There are many checking absents such as fingerprint, Identity card barcode, checking QR code using QR code software reader [4][7].

2.8 Mobile Smartphone

Nowadays, the most common device that have been come into account in marketing and business are smartphone devices. Moreover, it comprises lots of them for instance IPhone, Android, Galaxy Samsun, IPad, and IPod [8].

![Smartphone](image)

Fig (8) Smartphone

2.9 Web Services

It is a new terminology name with application components that communicate with each other using open protocols. Also, it has capabilities to self-contained and self-describing techniques. Thus, web service can be discovered using UDDI. Moreover, the web service-wide uses these days, and HTTP and XML are the bases for the web services [5].

![Web Services](image)

Fig (9) Web Services schema

With web services, there are lots of users for aspects of web technologies and the most of the important uses are:

2.9.1 Reusable application-components

In this kind of uses, lots of applications, will be needed to access and to be used by internet users frequently, for this reason it will be more significant to use some techniques of web services such as RSS, RDF, and SOAP.

Also, web services can comprise many online applications such as online currency conversion, weather information et.al.
2.9.2 Connect existing software

Another use of web services is to make it work interoperability, which means has capabilities to solve problems and link data with other applications. Thus, different applications and different platforms can communicate with each other easily.

2.10 QR Code Image Scanner

It is another kind of barcode images, but it has a two-dimensional bar code. This came into account in 1994, by an expert name "Denso Wave" in Japan. This image is comprised of white and black columns and rows. Smartphones can decode it. Such as IPhone, Android [9] [13].

3. RELATED WORK

1. According to (Masalha, F., & Hizallah, N.), which they proposed a new idea of taking attendance. This by embedding the idea of using QR with watermarking for taking attendance, and this by scanning the images by smartphones.

In fact, the main aspects of this work are that each student will get their QR Code Image, and they scan by their phone. So, all information about the student will be directed to the university server after the scan completed successfully.

Thus, the primary server of the University will work on identifying the data about the students' availability or absentee. In addition, this process are done through some steps that are.

The date will be sent to the ARM memory through GSM, after that it goes through the Ethernet or wireless top the PC that work as the main server for collecting data.

Students with high absent rate will be notified by sending the information to ARM memory then it will be processed on every two weeks. Figure (10) and figure (11) illustrate the working algorithm [9].

2. In the second related work, that works on QR Code images is about "Genetically Modified Food" (GMF) and it has been embedded with the idea of Multimedia Messages Send (MMS). This embedding means that scanner owner get the feedback of the scanning result by the multimedia message. Such as Images, animations, and videos.

Thus, the author of this work tried to propose a new system to scan and create QR code for the food companies' products. Also, attempted to make a storage of all the specific food information into the image by using some techniques of cryptography.

The writer of this research claims that most of the consumers got smartphones, and they can get scanner easily. Furthermore, customers have significant demands on identifying how good the food packages are.

According to the paper idea, the proposed system, works on tagging processing system and it is chosen because of the appropriateness of QR code. Figure (12) show how the system works [10].
4. Implementation and design

After investigation through some papers and reading some related projects, I came into account with proposing a new idea for attendances for university teachers in seminars halls. It will be taken their names for check listing reasons at the beginning and end of the workshops.

This idea has been chosen, because these days most of the people hold or own smartphone as mobile devices, and they use it for various purposes for example, internet connections, calling, sending SMS, multimedia applications and scanning (QR Code and BAR Code).

So, in my work teachers must have their information including personal details and their Mobile phone data must be registered at organization's server. Moreover, in that server there is a database that process all the information that will be requested to check for storing absents. In fact, before this process the organization that makes the seminar attendance obligation must have a database with all data for teachers.as it can be seen in the figure 16 and 17.

As, it is clear from the above images that are required to store the information for storing attendance.

After that, whenever the members or teachers attended the seminar, the first step is to display the QR Code images on the Data-Show or Projector. Thus, teachers will scan the displayed photo on screen. As shown in figure 18.

After they scan the image, the information on their phone will be transmitted over the private wireless network to the main server. Moreover, from there, the data will be processed, and the person will be registered as participated in the seminar. However, the others who did not scan the image will be put on absents list in the database. Furthermore, they will get a new page that contain information about the seminar and information about the person as it can be seen in figure 19.

This information contains data:

- Name, the full name of the teacher.
- A degree means university owning degree and the field of study.
- Working place, which institution or organization they work for.
- Mobile phone, the mobile number that has been registering in the university database. That is the main information will be used for checking the data to make the comparison of being authorized person or unauthorized.
- Mac Address, is the primary idea of this work, the all of these distinguishes will be done based on the registered mac address. Moreover, these mac address will be used to give each person their information.
- Seminar title is the title of presented day that will take the absents from the attendances.
- Seminar No. shows the number of workshops that the particular person attended.
Also, at the end of the seminar teachers must recheck the QR code images. Moreover, they will get a page as shown in the following figure:

Fig 19: Mobile Display Teacher info.

Fig 20: Welcome Message on Mobile Screen

5. RESULT AND DISCUSSION

The purpose of doing image scanning in beginning and the end of seminars is to restrict the attendees to stick to the seminars to the end of the session. This is because of many attendees leave the seminars just 5-10 minutes of starting seminars, which, in fact, the seminars session will last to 1 hour to 1 hour and a half.

In some universities in many countries, there are purposes of quality assurance (QAS) system. This system are applied to all teachers in the many education organizations. So, it is required from them to collect points as passive and active. With passive points, they must attend as many seminars as possible to collect many points.

Unfortunately, in some organization some of the members that are working there, do not pay much attention to the Academicals purpose with those seminars. They just come as attendees and leave it after 5 minutes, do not give any attention to the seminar, and the Hall or the class become none of the people.

This kind of problem will make a bad effective on the presenter and self-confidential. In some cases, the presenter may think of disqualifying the seminars, bad presenting and non-understanding.

Moreover, this will not help to develop the level of academic idea between teachers. Moreover, they will not be motivated to learn a new idea, because every time all the need that they look for will be the points of the short amount of time. However, the first purpose of quality assurance is to level up the degree and academicals position in all different educational organizations.

In the old system or the system that are currently working on, it is just simply write QAS ID, Full Name, College/ Department, University academicals positions, And signature.

Fig 21: Attendance Seminar Sheet

After completing the workshops, this sheet will be handed to the seminar manager. Moreover, then it will be sent to the school QAS Administrator to enter the data into the computer database. On the contrary, it will be as much as possible to add or register names of teachers by their near friends while they did not available in the hall. Also, this is another point that make to do this research, because it contains a new feature that is distinguishing each teacher from other by using Mac Address.
From using this mac address, no can register his/her friend. Because it is required to use the phone. Moreover, all data will be processed at university center, so this reduce the effort of entering all the data from sheet to the computer. Thus, we have done another step of lessening the time consuming and stepping forward to the systematic idea in colleges and departments.

6. CONCLUSION

In this research, it has been concluded that the number of smartphone users is increased in different countries and continents. Moreover, these increment covered the different uses such internet, SMS, MMS and calling.

This is the main reason that lead developers and research to include most of their software development smartphones as mobile technologies. Moreover, those devices.

Also, I have investigated that using QR Code scanning through Smartphones for absent checking is valuable. Thus, due to capabilities to hold and interpret data according the owner of the mobile devices. It means that every teacher in the university will have their encoded data.

So, I reached to a point in research to restrict to make fraud with seminar attendances and to make the restriction that attendees must stick to the seminars session time completion.

7. FUTURE WORK

In the future, it will be possible to enlarge this system to cover a wider area of QAS for example, teachers can check their point on a daily basis or weekly or even monthly. This will help them to track their lack of points.

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9. REFERENCES


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