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A new approach for managing CAD processing by designing new methodology: Case study University Sulaimani CAD

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ABSTRACT

The process of improving the quality of academic sector is an important factor for developing countries. Many universities follow a process called CAD system, and this system is managed by ministry of higher education. So that, there should a be computerized system, which can compromise all the required data into a database or record for the future uses by academic staff and ministry of higher education as well. So that, this research tries to find well-structured process to handle the all CAD process management, by using Gmail account and google applications that help the working process to follow an easy and usable strategies. The obtained result from this research, is that academic staff can follow a systematic process of CAD without any fussy steps or misleading outcomes. Also, it helps to organize the CAD points collection further simple.

Keyword: Quality Assurance, academic activity, online system, technical attendance, CAD

INTRODUCTION AND LITERATURE REVIEW

Education is the most critical factor in the development of a country. Its people's prosperity and success depend on the education standard set for the general public. And the opportunities available to academics to further their realm of knowledge. Alongside students who seek out further education to update their understanding stands the professionals who taught them. Allowing academics to update themselves and level up according to the standards set for their works favors those who seek education and strive for further insight in their specialized field of choice. Educators should consider it their responsibility to keep themselves on track with the latest teaching methods and developments in their fields [1].

Continuous Academic Development (CAD) is the academic standard set by the Ministry of higher education in Kurdistan's universities and colleges. Also, this program was put into place between 2010 and 2011 and has been actively monitored by the Scientific Committee since its implementation [2].

When (CAD) was first established in universities and faculties, rules and instructions were implemented to ensure maximum efficiency and success. In this new set of rules that were implemented were things such as seminar titles and locations being published on their websites, proof of attendance, and proof of achievement of the development process in the faculties. However, throughout the years that this program has been in place, there's been a rise in issues that have to do with implementing these rules [1].

Many attempts have been made to find solutions for the issues mentioned above. Primarily the problems surrounding the inability to accurately monitor lectures and seminars attendance. The various technological ventures that were made included methods such as:

Although face detection might seem new and easy, law enforcement in certain countries and regions has gone as far as altogether banning live facial-recognition software. The method is a massive breach of individual and societal privacy. It not only infringes on people's anatomy but also poses a considerable risk for data breaching and hacking. Aside from being an invasion of privacy, it also proves to be incompatible with the general public as many people's internet connection isn't sufficient enough to render clear live video.

These papers are an example for the use of face detecting algorithms Haar-Cascade [3]-[6]. in another work the faces detect through the use of the Eigen Face Recognizer algorithm [4] the Viola-Jones method used for faces detection [5].

While barcodes might seem like an efficient and reliable option, unfortunately, they are too fragile for long-term use. Both the barcodes themselves and the barcode readers are easily vulnerable to physical damage. This constant need for repairs adds costs for upkeep and maintenance. Barcodes also create an easy to abuse system for students, who can simply have their friends and classmates scan their barcodes for them in order to not seem absent in classes they are skipping.

This paper shows the use of barcode technology for the auto identification of students [7] the Zint software is used for generating barcodes in this work [8] students use their smartphones to scan barcodes to prove attendance [9]. In this paper an automatic examination attendance system is developed to capture student examination attendance [10].

The most significant defect with this technique is the inconsistencies between the website on desktop Vs. on mobile. These websites were created to be user-friendly. Hence, them being single windowed. However, this same format cannot be translated over to mobile. The fact that these websites can't be accessed off the net Makes them unreliable. And while a mobile app might fix the offline issue, it brings forward another problem: the cost that comes with the development of a mobile application that can work across every operating system.

An attendance mobile application system is developed based on an Android Studio and internet of things (IOT) [11]. Student registered through a web-based attendance system and

an OTP code consists of six (6) digits will be generated and sent to students by email for verification [12]. A framework for the attendance management is proposed, which consists of a mobile device and a web application [13]. This work proposes a Mobile Attendance Class Register System (MACR) [14].

Finger prints come with a few setbacks of their own, before the system can even be implemented. For one, everyone's fingerprints must be registered in a database, the process of adding all of the fingerprints is a lengthy and time consuming one. It demands extra labor and adds up costs for the purchasing of the correct equipment. This brings up another set of issue; The machines cannot read everyone's fingerprints. In addition, fingerprints also cause a queue problem which can cause a delay in lectures and seminars.

The approach used in this research is a quantitative method approach. [15]. A hand-held device is used to mark the attendance without the intervention of teacher, The system is using MIAXIS SM630 fingerprint module. [16]. An integrated portal system was developed to automate attendance management and tested for fifty students in five attempts [17].

Another approach to developing attendance systems is through the use of RF identification (RFID) or near-field communication (NFC) technologies. RFID and NFC are based on radio frequency communication. The weaknesses associated with this method stem mostly from the wear and tear of the RFID readers and tags. Which are vital components in the functionality of this method. Along with the rising cost of hardware maintenance, another problem would be the range of RFID readers as they prove to be too small for comfortable use.

student's attendance RFID based systems that have been proposed are also analyzed and criticized respect to systems functionalities and main findings [18]. In this project, an NFC technology is coupled with fingerprint verification technology for recording and managing attendance in university [19]A cloud-based employee attendance management system using NFC technology [20] A prototype system automation using the RFID technology [21].

In addition, those ideas have another obstacle: the lack of guarantee for the amount of money spent on it. Only a few organizations can implement those methods, and they have to pay an extraordinary amount as the costs associated with this method are on higher budgets.

This research has noticed some shortcomings as part of the University of Sulaimani (UOS) staff. We have conducted this case study in hopes of finding and implementing solutions for the problems mentioned earlier.

1. There is no information panel or information board for the academic staff and teachers (Participants) to be aware of the activities. We mean by activities the seminars, workshops, conferences, and other scientific activities that would be done at universities.
2. Until now, the way and methods of registration of the attendees are the traditional and manual method (based on paper), which is an outdated and non-accurate way of attendance and enrollment.
3. The provided certificate for participation in the CAD is manual. It will be provided in person (hand to hand). In contrast, if the certificate is delayed and not ready on the same day of the event, it will be very hard for the participants to find the place and the party who will provide the certificate later, as there is no electronic way to receive the certification from it.

4. Participants can sign the attendance sheet and leave the event, or they sign it on behalf of their friends who will not be able to attend the event, even if they don't commit to the course duration. There is no tool or possible way to detect the absence of the participants in the event.

After analyzing the issues of the old working methods, in this paper, a new strategy has been proposed to step forward and develop solutions that are both low cost and easily accessible to all the UOS academic staff. It is done by using a Gmail account for this paper.

Although the UOS uses Gmail (unvisul.edu.iq) as its primary communication domain, unfortunately, many of the functions needed to carry out this study have been limited to UOS Gmail domain accounts. Personal Gmail accounts are used for conducting this research and creating our prototypes.

This paper tries to find an appropriate mechanism for better managing the CAD process at Sulaimani university. It can be done by creating links among CAD in each college with the leading CAD at the University presidency to exchange the event information, collect and store activity information for archiving and feature use, and help university staff quickly get their approved attendance.

METHODOLOGY

The method proposed in this paper is to enhance the procedure of the current working process of CAD at the University of Sulaimani, which is our case study. The steps taken are to convert all the current processes into computerizing management.

The first step is to start with organizing the teachers' email account, which is hosted by a google account and managed by the university, and the format is "@univsul.edu.iq." This email domain is provided for every university staff. So, it can be used as the first step in the process because teachers can get a notification for any new events. Also, it can get a certificate of attendance after the event.

In addition, those emails hosted on a google account come up with many supported applications in different areas of usage. So, for this process, many useful google applications are found during the research and tested. In addition, all the academic google accounts that the academic organization provides are free to use the provided applications, and they are easy to download and use.

For this research, we use Google Forms, Google Sheets, and Google Slides, which are the most essential applications that increase the process's speed and make it more computerized. It will pass out all the documentation as a regular daily working process.

This work links the primary university presidency of CAD and colleges and departments CAD sections. And this is for sharing the updated events' announcements and details, such as Seminars, Workshop, Conferences and other academic events, figure 1 explain the process for sharing files. This includes sharing a folder, on google drive, between each college with the leading CAD header.

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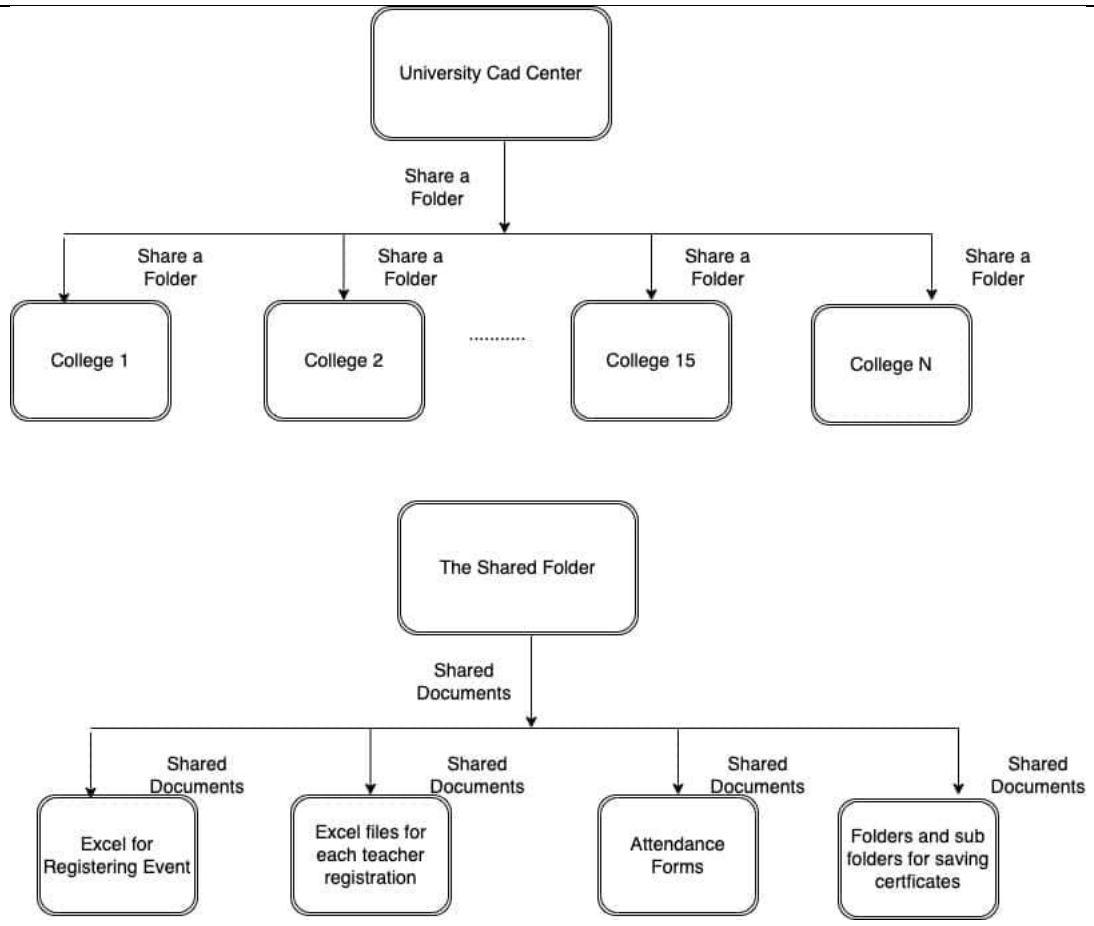

Figure 1. The exchanging event details between CAD colleges and the main CAD

Each college has an individual google drive folder in this step, which is shared with the presidency CAD via email account. And this folder will contain all the required files, especially a Google sheet that stores all the event information, which helps the main header of CAD monitor all the academic events among the colleges and departments.

Furthermore, the proposed paper provides more steps after announcing the events. Another step is the organization of the registration process, which is done by using Google Form, and this will become the event organizer of the college will hold this event finished, the google form will be shared with the audience to enter the required information.

Once the registration is finished, each attendant will get an email with registration information and an attachment file which is the certificate with all event information. Later, the teacher or the attendant can get all the registered or attendant events in their email and use them for CAD point accumulation. And they are required every year by the ministry of higher education in the Iraq Kurdistan region, and figure 2 explains the process.

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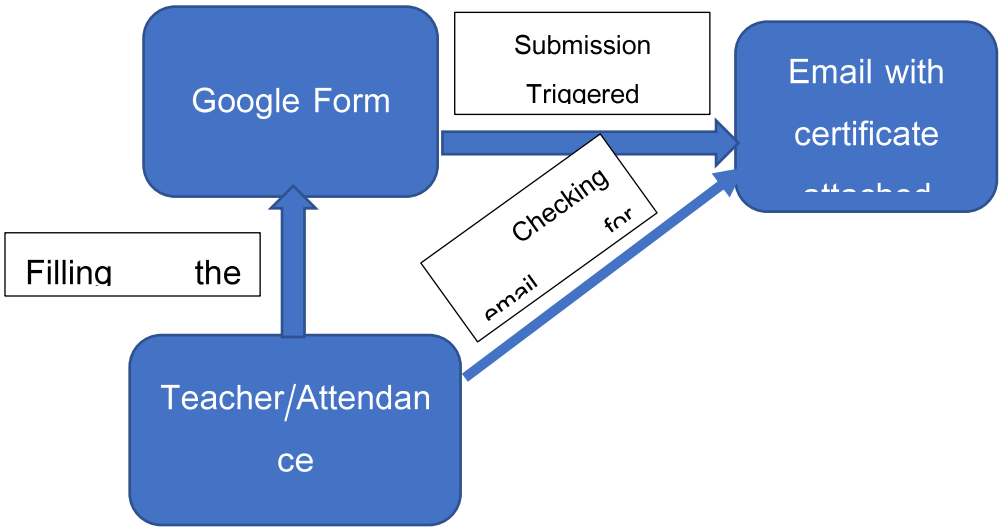

Figure2. The process of event registration

RESULT AND DISCUSSION

It can be seen that, the new methodologies and techniques that are chosen for conducting this research, are enhancing the previous procedures in CAD systems. Also, it is used many applications with help of google that provide many facilities for working process. In addition, the main results of this research are to facilitate and pace the process, and this done by using Gmail account.

The reason we have used Gmail rather than University account, because there were some restrictions and under constructions on APP in university email accounts. However, we provide second hand step by using Gmail to be able to use the applications.

One of the App that is used is called Google form, which is used to help the lecturer that attend the seminars to fill, and get acknowledgement of attendance in the events. This step will return much time and more organizations rather than the previous step. It was conducted by signing a paper sheet provided by the CAD organizer of the college.

In fact, the paper after signing by the teachers, it become overcrowded with many signatures and bad hand writing. Also, sometime the paper might get lost for some reasons, and in this case the attendance will be misplaced and the teacher will miss the active or passive point of that particular event.

In addition, the filling form will lead to send a certificate with organized template which consist of the event and teacher information of attendance to the teachers' email. This process or step will help to organize more and teachers will be able to collect the points and get acknowledgement of any event that attended easily.

As CAD is required to be completed by every teacher at the end of every year, teacher seeking for the documents as approval for their attendance in different events that held by different organizations. So that, by using simple method and more computerized procedures, the whole process become faster and easy to be done.

There are many methodologies and software that are used for attendance for different purposes and different organizations. However, in this research a simple method and low of cost has been used, this is to reduce the cost and inflexible usable in the process. The main reason is to increase the capability of the academic staff to follow a process in more comfortable and accessible. All the process is done with using Gmail account and Google applications, which is accessible by all staff that has Gmail, and it is free to use.

CONCLUSION

In conclusion, CAD process is one of the most essential requirements by the Ministry of Higher Education. Teachers and all academic staff should follow the instruction of CAD process. So that, having a system that facilitate the procedure is an important to help academic staff in colleges for collecting activity points. Also, apart from point collection, organization of activity arrangement by using computerizing system is another important factor rather than documentation old fashion which lead to many problems or missing activity attendances.

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