9th INDES 2020

LIMITLESS MIND:

EMPOWERING INNOVATION THROUGH VISUALIZATION

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The 9th International Innovation, Invention & Design Competition INDES2020

17th May – 10th October 2020

TRANSFORMATION FROM PAPER BASED TO INGENIOUS E-ATTENDANCE SYSTEM (INEA)

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ABSTRACT

It is an important process to track the class attendance of students in every educational institution as it is directly related to academic success. The paper-based manual compilation of student attendance results in a loss of time as well as delays in the subsequent processing of the collected data. A solution for the automation, tracking, and further processing of attendance collection is proposed to help lecturer focus on teaching. The e-attendance system named "Ingenious E-Attendance" (INEA) was proposed to shorten the recording attendance duration, save cost, promote green HR implementation that reduces pollution and waste and assist to enforce punctuality and discipline on students. In addition, it offers a summary attendance report at any point in time and easily access from anywhere. By using the application, users can also notify the student's absenteeism to the guardians of the students via SMS or any appropriate instrument. The student attendance system 'INEA' can be practiced using QR code and smartphone as a medium for data recording. In addition, the use of QR code to record attendance with additional protection will be developed to avoid unauthorized registration of attendance using multifactor authentication, which is verifying username and password. The system will able to verify students' identity and prevent false registration. The location will also be checked to ensure that the students are present in the class when scanning the QR code. All of the attendance records will be recorded to the system and available to students and lecturers instantly. This proposed system is suitable to replace the current inefficient process.

Keywords: e-attendance, QR code, student record, smartphone, efficient

1. INTRODUCTION

A study done by [1], have reported in their study which indicated a significant positive relationship between student attendance and student achievement. However, the procedure of taking attendance of students in higher education is time consuming, tedious and inefficient, consuming the valuable time of lecturers and as well as students which in lecture, signing of student attendance not only a problem but it also distracts the student concentration. This procedure becomes harder to handle when the student population is big and prevention cheating on attendance is even harder. Study done by [2] among student has discovered that 85% of university in Malaysia still used paper based which is sign attendance on attendance sheets and 75% of the respondents think that cheating on attendance are easy. With all problem mentioned above, universities are still not changing the way they record attendance. Many of universities especially in Malaysia, are still recording attendance by signing on attendance sheets [3]. In tackling this problem there are numerous solutions has been recommended. For example, the introduction of smart ID cards, RFID, Biometric and many more but all these methods that both increases cost and cannot be adapted to every system with simple software support [3]. Therefore, as mention above, it is significant to propose an efficient system which uses QR technology in handling process of recording the attendance named **"Ingenious E-Attendance" (INEA)**. The objectives of this proposed system is to enable reducing effort

on paper work and save the time required to generate accurate result from the student's attendance. Moreover, QR technology empowers to create attendance record for each student and improve attendance rates. Student can be embedded with punctuality and discipline. QR Code has many advantages such as it provides low initial cost for implementing the system. QR code can simply use the software decode built-in into the applications to convert scanned code images into the coded information and save it into the database. The core of the use of QR code in the attendance system is to provide a consistent and efficient attendance tracking and reporting system that helps the administrator to better identify those students who do not meet the minimum attendance requirement. This system attainable because nowadays all students have smartphone and smartphone is important device in this "Ingenious E-Attendance" to scan the QR Code for recording attendance.

2. INEA E-ATTENDANCE SYSTEM FLOW

The system is transparency to student since they can view attendance records for their enrolled subjects. The system also issue notification if the attendance percentage is below than certain level. Additionally, lecturers too can oversee student's records with web module. Lecturers can update students' participation records in case they have substantial reason to absent lesson. New class can be created; existing classes can be modified or deleted in case there are any changes or class replacement by lecturers. Administrators can handle users with web module. They can add new lecturers or students, update information and remove existing users. The lecturers can view attendance records, update attendance records, manage classes, and create classes, view classes, update classes and delete classes. The approach and flow of the INEA system for lecturers and students are shown in Figure 1 below, whereas Figure 2 shows proposed interface student view of INEA system.
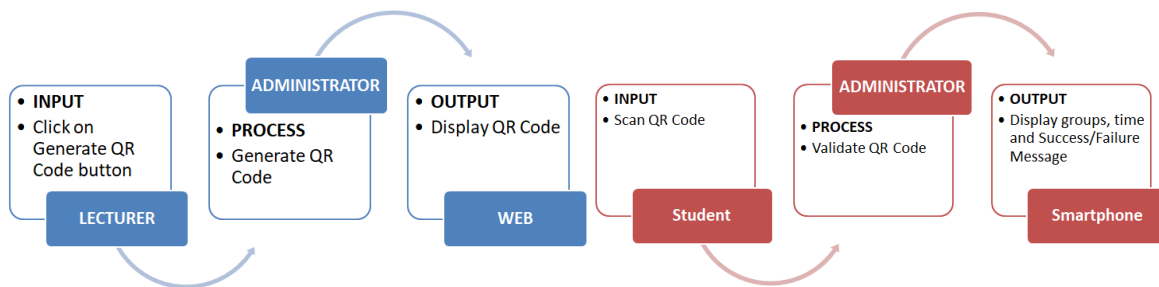

Figure 1. Ingenious E-Attendance System Flow

Figure 2. Proposed INEA system interface

3. CONCLUSION

In conclusion, INEA system is user friendly, low cost and definitely will benefit lecturer, student and it can be commercialized to the other higher institution in Malaysia.

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Surat kami : 700-KPK (PRP.UP.1/20/1)
Tarikh   : 30 Ogos 2022

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Kelulusan daripada pihak YBhg. Profesor dalam perkara ini amat dihargai.

Sekian, terima kasih.

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