



Course Attendance Mobile for Monitoring Student's Activity

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ABSTRACT

The learning and teaching process is an important activity to achieve learning objectives. However, in practice it often happens that the process does not run as it should. One important component in the learning and teaching process is attendance. The discipline of student attendance shows that they have a good interest in their studies and needs to be recorded so that attendance data is stored and presented properly. Manual attendance recording is a problem of effectiveness and efficiency. This research proposes a system for monitoring student attendance using mobile applications. The results of the study show that it is easier and faster for students to take attendance and easier for teachers to recap student attendance and also become the basis for decision making when giving final grades.

1. INTRODUCTION

Current technological developments provide many conveniences for users. This improves the performance of both users and managers. Various digital platforms available on the internet seem to spoil users in supporting their daily activities. Technology transition occurs massively in both large, medium and small organisations, in order to improve the expected results.

Including educational organisations using internet media to support the learning and teaching process. Since 2020, major changes have occurred in the world of education, when

Covid 19 hit the world. The situation forced the world of education to change significantly in carrying out the online learning process. Various online learning media options are available such as google classroom, edmodo, moodle, teamviewer, zoom and so on.

The adaptation period is not easy for all educational institutions because of the existing limitations such as internet networks and the use of applications and the lack of e-learning applications in accordance with the context or needs of educational institutions.

The online learning and teaching process requires fast, precise and accurate attendance

monitoring. This is important because online learning is not the same as offline. For educational institutions that are not familiar with online attendance, they will face obstacles that make the learning and teaching process not run as expected. These obstacles include students not being able to take online attendance due to the unavailability of realtime attendance applications. Then for teachers to do a recap is difficult because it is still manual.

Presence is an activity of recording the presence of an organisation's work in which there is a process of recording data in accordance with working hours carried out by employees and students. The utilisation of digital attendance has several advantages over manual attendance. The data management process and time effectiveness are some of the advantages of digital attendance [1].

Student attendance is an important factor for students to succeed in a course. In certain universities, student attendance in a course is also used as one of the requirements for students to follow [2]. Usually recording attendance by calling one by one the names of the students in the class then the students sign on the attendance list. However, this method is not good in terms of time and can potentially cause cheating, especially in large classes, where a student can sign another student. Anticipating this incident, the teacher calls the student's name one by one and the student comes forward to sign the attendance list, but this method is time-consuming so that learning time is reduced [3].

In this research, we propose a mobile-based attendance system that can make it easier for students to take attendance in real time and also for teachers to recap attendance online so that anywhere and anytime [4] it can be accessed.

2. METHODS

The stages carried out systematically in this research are as follows [5][6][7][8]:

3. RESULTS AND DISCUSSION

3.1 Current System Analysis

1. Problem formulation
2. Literature study
3. Data collection
4. System analysis
5. System design
6. System implementation
7. System testing

The following is an explanation of each stage carried out.

1. Problem Formulation

At this stage, an understanding of the existing problems is carried out and then formulated according to the context

2. Literature study

Looking for references from various scientific sources such as journals, books, articles and other theses related to this research.

3. Data collection

Make direct observations so that you understand the existing problems and see manual attendance data and interviews as a reference for system analysis.

4. System analysis

Using context diagrams to analyse the attendance application that will be designed.

5. System design

This stage focuses on four attributes of the program: data structure, software architecture, interface design, and procedural details (algorithms).

6. System implementation

At this stage the design is translated into program code using a predetermined programming language.

7. System testing

System testing uses two parts, namely black box testing.

The attendance application is used to record student attendance data for both school and college. Attendance data is recapitulated

every meeting, which is once a week until the end of the meeting. This attendance data is used as one of the components of student assessment. If students do not meet the attendance requirements, they will not be allowed to take the final exam.

Attendance is done during the meeting, the lecturer gives the attendance list to students to sign. The current system takes up students' time and concentration during class and the potential for cheating, students can sign the names of their friends who are absent.

3.2 Proposed Solution

Based on the analysis of the current system, problems were found that caused the attendance process to be ineffective in terms of time, recapitulation and flexibility. Thus the need for solutions and alternatives to answer the above problems. The following is an overview of the proposed attendance application.

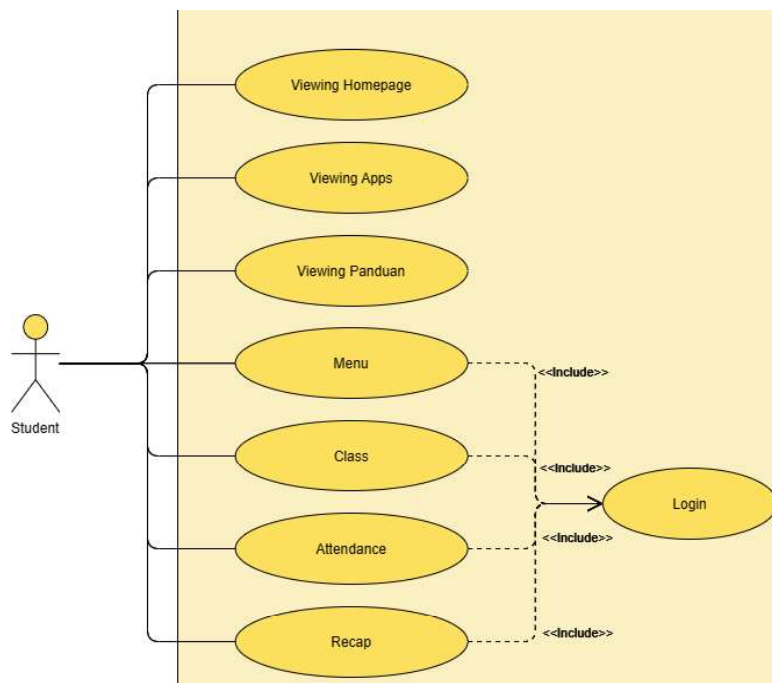


Figure 1. Course Attendance Mobile

3.3 Software Design

3.3.1 Login

User login using NPM for students and NIDN for lecturers. This is the main page when the user opens the website or mobile class attendance application. But before login the user registers first to get an account.

After registering, they are asked to verify their email so that the user account is active. After that, they can login. Users are asked to complete profile data and add classes. The class code is given by the system in order to join the class. This is the steps of login to register for classes.

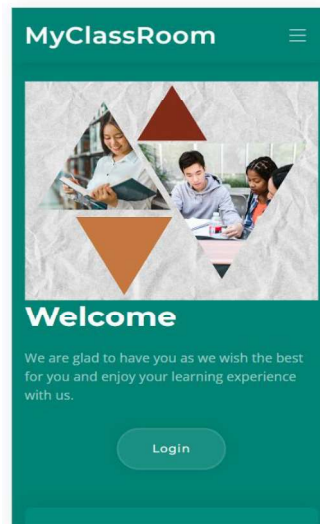


Figure 2. Login

3.3.2 Attendance

In this section, the attendance is displayed automatically by the system when the user joins the class that they have enrolled before.

Attendance data is recorded to the database and displayed quickly, precisely and accurately in both student and teacher accounts and provides convenience for users [9][10].

The top screenshot shows the 'Presensi' (Attendance) modal in the E-Bisnis application. The modal displays the following information:

- Matakuliah : E-Bisnis
- Topic : Perancangan Sistem
- Nama : Erwin Saragih
- NPM : 1100700

At the bottom of the modal is a blue button labeled 'Hadir' (Present).

The bottom screenshot shows the 'Student Attendance' section of the application. It displays a table with the following data:

#	NPM	Nama	III	IV	V	VI	VII	UTS	IX	X	XI	XII	XIII	XIV	XV	UAS	%	Action
1	217410227	daniel purba	✖	✓	✓	✓	✖	✓	✖	✖	✓	✖	✖	✖	✖	✖	31.25	📄 🗑️
2	219410191	Ebenezer Panjitha	✖	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	81.25	📄 🗑️
3	219410207	Helmawati Sitorus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	87.5	📄 🗑️
4	219410226	Agrifa j a manurung	✓	✓	✓	✓	✖	✓	✓	✖	✓	✓	✓	✓	✖	✖	62.5	📄 🗑️
5	219410234	Afri Damayanti Robekka Pandiangan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	87.5	📄 🗑️

Figure 3. Attendance

3.3.3 Testing

Presence menu testing is used to ensure that the system can record automatic student attendance properly. The system is

also, able to provide real-time attendance data for both students and teachers and recap the latest attendance data.

Table 1. Testing Results

No	Scenario	Input	Expected	Results
1.	User logs in using the correct username and password	joko@gmail.com joko123	Successful login and redirected to Main Menu	Valid
2.	User logs in using an incorrect username and password	joko@gmail.com joko	Login is unsuccessful and redirected to the login page	Valid
3.	When the user enters the class attendance automatically appears	Popup Attendance	Automatic popup attendance page appear	Valid
4.	Display attendance data in student and lecturer accounts	Recap attendance	Display the attendance page	Valid

4. CONCLUSION

The Mobile Presence Application can serve users to take attendance well, with a presence system that appears automatically when entering class, it is very easy for users. Moreover, the mobile application provides flexibility for users to take attendance anywhere and anytime. This application base system can recap attendance data in real time and display it

precisely and accurately. The response of the application is also good so that users can take attendance faster.

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