

Research and Design of Wireless Attendance System

Fengxiang Wu^{1,*}, Changzhuo Min¹

¹ School of Software, Henan Polytechnic University, Jiaozuo 454000, China

* Corresponding author: Fengxiang Wu (Email: fengx_wu@163.com)

Abstract: In order to solve the problem that the teacher manually named attendance in class wasting students' time in class and students skipping classes, a wireless attendance system APP based on Android was designed and developed. Students use the mobile APP to locate the position to achieve attendance, so as to improve the efficiency and authenticity of college attendance. This system uses Android and JSP dynamic web page development technology. The wireless attendance system APP mainly realizes the functions of two user roles of teacher and student. The wireless attendance system APP with registration, login, course selection, sign-in, and background summary functions is designed and implemented. In the design and development of the project, using the Java design language and MYSQL data, the system effect is stable.

Keywords: Position positioning system, Wireless attendance, Android, Wireless networks.

1. Introduction

The attendance system is a management system used to assess and record whether the assessed personnel attend on time. It was originally designed for enterprises[1]. However, there is a very important indicator in smart campus, namely, the class attendance rate of students, which needs detailed statistics, because these indicators can reflect many problems from the side, such as whether the teaching level of teachers needs to be improved, and can also be used as a reference indicator for students' daily performance[2-3].

College attendance patterns or teacher roll call sign in attendance record for the most part, although the attendance system of society, there are many, but most are used for enterprise to employee attendance, true to student's attendance is hardly used in universities, in order to make rapid accurate attendance of students, to be an applied to college attendance system APP. Therefore, in view of the above problems, I researched and designed an Android-based wireless attendance system APP, which was applied to students' mobile phones. Each student could perform location location attendance by connecting to the classroom wireless network and entering the verification code set by the classroom teacher.

2. Wireless Attendance System Design

2.1. Function Overview

The wireless attendance system APP is mainly divided into two parts: teacher end and student end. Its specific functions are described as follows:

On the teacher side, the teacher fills in the information to register and log in. After login, the functions are: course management and personal center. The course management interface includes: adding courses and check-in management. The sign-in management page includes: View sign-in personnel information and sign-in statistics. On the personal information screen, you can modify, log out, and log out. By entering the course management course, the teacher can not only view the information of the students who choose the course, but also set the sign-in verification code. After entering the sign-in management, the teacher can see the sign-in situation of the classroom students, and at the same time,

the total number of attendance and sign-in times of each student.

On the student end, students fill in their personal information to register and log in. After login, the functions include: course list, my course selection, my leave and personal center, where personal information includes: improve personal information, change password, log out and log out of the application. Students choose courses to learn, enter the selected courses when they need to sign in, and check in by connecting to the classroom wireless network and imputing the check-in verification code obtained in class.

This system uses Android and JSP dynamic web development technology, wireless attendance system APP mainly realizes the functions of the two user roles of teacher and student, and designs and implements the wireless attendance system APP with the functions of registration, login, course selection, check-in and background summary. In the design and development of the project, using Java design language and MYSQL data, the system effect is stable.

2.2. Key Technologies

2.2.1. Introduction to Android

Android is the operating system of mobile phones. It is a mobile phone system developed by Google based on Linux platform[4-5]. Due to the architecture of the platform, it has a good display effect.

2.2.2. GPS positioning technology

With the rapid development and wide application of Internet and smart phone technology, the demand for data services based on mobile terminals is getting higher and higher[6]. Now almost all smartphones support GPS positioning, the positioning technology of this system is to use smart phone GPS positioning technique to implement attendance, namely by connecting to a wireless network can understand class students' location information in time, for our school attendance, especially provides a convenient, students often skip school management to strengthen the regulation to the student, reduces the potential safety hazard. Operating system, is the current mobile phone with the best portability of the operating system.

2.2.3. Wireless network technology

Wireless network is a kind of local area network (LAN),

which is connected to the network through wireless. In the past, computers could only communicate through network cable interconnection, but now they can connect to the network through radio waves, that is, wireless Wi-Fi technology[8-9]. One of the most widely used is the wireless router, which allows wireless Wi-Fi connections within the range of radio waves emitted by the device. The advantage of wireless Wi-Fi technology is that it does not require a solid line connection and is not limited by its conditions. Wireless technology is widely used in colleges and universities. The IP of Wi-Fi in each school or even in each area of the school is different, which limits the conditions for wireless positioning. Wireless Wi-Fi technology is cheap, there are now a wide range of wireless Wi-Fi access points in most places, and almost all Android phones now have free wireless Wi-Fi service, making networking easy.

3. Wireless Attendance System Implementation

The system is divided into registration module, login module, course management module, course information module, sign-in function module, sign-in statistics function module. Teachers and students users of wireless system of check on work attendance first APP to register, login into side of the teachers and students, teachers through the log in curriculum management can be added after your professor's course for the student registration, click on the professor's course students can view the course selection, change their course information, can set the sign-in verification code at the same time let the students to sign in. By clicking the verification code, you can view the students who have signed in. At the same time, you can also view the total number of check-in times of all students, and then grade the students' ordinary grades. Log in to students through the end, by looking at the course selection table to add a course to learn to my course selection list, by mobile phone in class connect wireless networks and enter the classroom teachers set up after the verification code for position location sign in attendance, enter the code can also to ask for leave, add the leave time and reason to commit.

3.1. Implementation of course management function module

The course management function module belongs to the teacher-side function module. After the teacher logs in, he/she can enter through the course management and add the course information he/she should teach, including the course name of the professor, the name of the classroom teacher, and the classroom information. After the teacher has successfully added the course information, the course will appear in the student's course selection interface.

3.2. Implementation of course information function module

The course information function module belongs to the teacher-side function module. The main functions of this module are to help teachers modify their added course information, view all the students who choose the course and manage the class attendance information of the course students. After the classroom teacher sets the corresponding verification code, students enter the visa code for location check-in positioning, and then click the set verification code to view the sign-in status of students who choose courses.

3.3. Implementation of the attendance function module

The main object of the attendance function module is the classroom students, and its main function is to realize the wireless network connection, classroom verification code input and the use of GPS to obtain location information. Affection function basic flow test for students to connect wireless network classroom, and then into the selected in the class of the course set by the teacher in the classroom, and then input verification code and use the GPS positioning system to obtain their own location and implementation of check in, if your location is not within the local wireless networks cannot complete attendance for location information.

3.4. Implementation of attendance statistics function module

The main object of the attendance statistics function module is teachers. By entering the check-in management interface, teachers can view the check-in tasks set by themselves. By clicking the check-in statistics button below, they can see the total check-in times of each student who chooses the course under the total check-in times set by themselves.

4. Conclusion

The wireless attendance system designed in this paper is divided into teacher end and student end. Teachers register and log in by filling in relevant information such as employee number, name and password, and let students choose courses by adding the courses they want to teach. By setting the verification code in the classroom, students can sign in after entering the verification code. At the same time, the teacher can also check the total attendance of each student, so as to grade the usual grades. On the student side, students register and log in through their student number, password, name and other information, choose courses according to the courses they should learn, connect to the local wireless network in the corresponding class, and sign in or ask for leave after obtaining the verification code set by the teacher. The system is easy to operate, the page is simple, the system function is more complete, compared with the social attendance system for the school has great advantages, not only to solve the phenomenon of replacing the check-in, and avoid the waste of human and material resources, improve the teaching time.

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