

## A Mobile App for College Students Work Management based on Android Platform

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**Abstract** — To help students and teachers manage the teaching-learning process at University, we propose a design of a student work management system based on the Android platform. We examined and analyzed the needs of teachers and students to perform their practical work tasks. The system will organize such things as: student leave approval, group notification, student and school/teacher information queries, and other functions with the aim of greatly improving the efficiency of the teaching-learning process. The system uses the C/S system structure, the main data of which is placed in the school PC server, and the client runs on Android intelligent mobile phones.

**Keywords** - Student management; Informationization; APP, Android platform.

### I. INTRODUCTION

With the development of Information Technology, the use of IT in management is gradually realized in various fields of society, which requires colleges and universities to construct and apply campus student IT management system. [1]. In recent years, with the development of education IT in China, many colleges and universities put forward several constructive ideas and creativity in order to improve the teaching quality, promote the scientific progress and simplify management in university information construction. [2] Now, with the rapid development of mobile Internet, in order to meet the requirements of teacher working whenever and wherever possible, the IT management system has been gradually transferred from computers end to intelligent mobile phones' end. According to this demand, our project studies the theory and practice of student management IT system to realize the operation in the Android intelligent mobile phone.

Nowadays, with the rapid development of Internet and mobile, there is more and more the data exchange between them. Some issues such as student-oriented, building harmonious campus, developing an effective communication means between teachers and college student, and so on, have become a hot topic. [3] So, the college student management system emerges as the times demand. [4] The system aims at solving the information collection, exchange and instant messaging and other issues in order to satisfy the demands of teachers and students.

Mobile computing is one of the most breakthrough in human history the emergence of the mobile intelligent device for people's work, study and way of life has brought the huge change, the development of the intelligent device itself is also changing, arisen smart phones, tablets and other mobile devices, 3G, 4G, WIFI, such as the development of wireless communication technology, make mobile devices connected

to the Internet technology is increasingly mature for people to get all sorts of information provides a quick and convenient way and experience. [5]

### II. ANALYSIS OF SOFTWARE DEMAND

Android is based upon a modified version of the Linux kernel. The platform consists of the operating system, middleware, and user interface and application software. Android with real open-source software is first developed by Google to serve mobile devices. In this thesis, combining computer technology, wireless communication technology and mobile platform technology, we study on android and its application in college student management system. [6]

Firstly, the Android platform architecture is briefly introduced, including the basic concepts of Android platform, Android's API analysis, Android analysis of the various components, and the Android development environment configuration, and so on. Secondly, according to another's feature of work, the author has done much examination on each department and students of the school. The system requirement based on object oriented method is discussed in detail. And user case models and the structure and basic functions of the system are studied mainly. Thirdly, the thesis has researched the design based on OOA, including system architecture design, system object model and system modularization. As a result of MVC model design, the system has some advantages like lower coupling between modules, increasing systemically maintainability, and so on.

### III. DESIGN DETAILS AND IMPLEMENTATION

The paper has discussed the produce design and implementation of the college student management system [7], which based on Android mobile platform, including the implementation of the major modules, and describes the test results and running interface of system on mobile phone platform, and discusses the implementation of key

technologies in detail. Installation interface is shown in Figure 1.

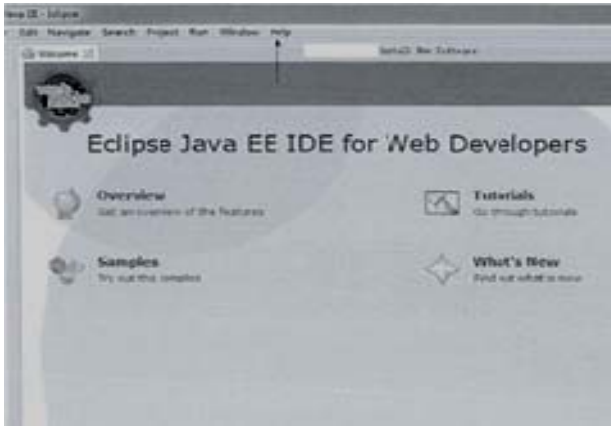


Figure 1. Installation interface

As the continuous focus on higher vocational education the fast development of higher vocational education in China and the situation is gratifying. On the other hand, the characteristics of higher vocational colleges is the vocational education is given priority to, students often have to go to an internship, field exercise, this led to the higher vocational college students management is difficult, plus school construction not keep up with the development of software and hardware facilities [8], so for higher vocational colleges, students management is one of the most important and challenging job.

The rapid development of wireless networks has been reduced from 90 years of analog signals to today's smart times, 3G/4G era has arrived. Apple's IOS, Microsoft's WP7/8, Google's Android, Blackberry Black Berry other embedded mobile terminal operating system has emerged. [9] By Google launched Android systems are widely used in embedded mobile terminal system, Android platform is based on Linux2.6 core open source mobile operating system, Android has become a hot research field moves.

With the rapid development of 3G networks, smart phones becoming increasingly popular, video chat, video telephony, and campus application requirements are increasing. This design as a smart phone attempt at Eclipse software based on the design of this platform for the mobile space (such as Windows Phone, IOS, BlackBerry) the development status of research and analyzes their prospects, and then research and analysis the Android platform, system architecture, application architecture, functional characteristics, Android program life cycle, operating environment, and other related technologies. Based on this, attempts Android platform based design and development of software applications on campus. ADT Installation interface is shown in Figure 2.

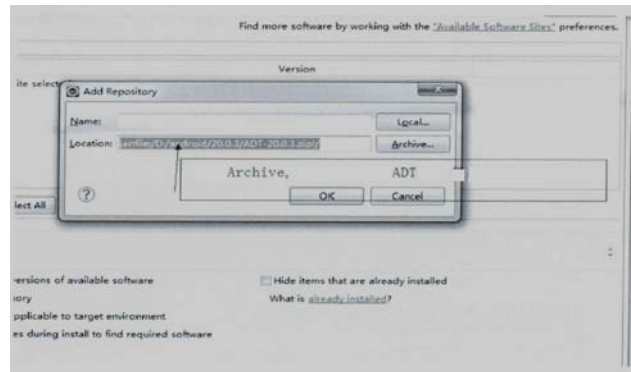


Figure 2. ADT Installation interface

#### IV. SYSTEM TESTING

Therefore how to take the student as this, promote and improve teacher and student school and students' effective communication of management in higher vocational colleges has always been a main research direction, how to use advanced technology to improve the efficiency of the student management work is struggling goal of higher vocational colleges and universities student management department. [10] So, to carry out for smart phones, especially for the student management system based on Android platform of smart phones, it makes sense to also be very necessary. In view of the above characteristic, this topic studied the following aspects: first of all to the Android platform architecture is analyzed, studied the Android platform application components; Second, the research analyzes the design process of the mobile device; Once again, to design a student management system based on Android, including database design, function module design; The last is the realization of each function module and the tested system simulator and so on, and summarized, insufficient and proposed.

##### A. System Module

```
public class DB4penHelper extends SQLiteOpenHelper
{
    private static final int VERSION=1;
    private static final String DBNAME="data.db";
    public static final String STUDENTse INFO PATH=
        Environment.getExternalStorageDirectory().getPath()+"Led
        u.hzu.moa/studentInfo.txt...
    public static final String SCHOOL CALENDA PATH=
        Environment. Get External Storage
        Directory { }.getPath()+"Ledu.hzu.moalschoolC
        alendar.txt";
    public DBOpenHelper(Context context)
    { supcontext, DBNAME, null, VERSION);}
    @Override
    public void onCreate(SQLiteDatabase db)
    { StudentDAO. refresh DB(STUDENT_ INFO PATH,
    db);
    School Calendar DAO. Refresh DB
    (SCHOOCALENDA PATH, db);
    SyllabusDAO.createDB{db);}
```

```
@Override
public void onUpgrade(SQLiteDatabase db, int
oldVersion, int newVersion){}
```

This topic designed by a student management system based on the Android platform has the characteristics of practicality and availability, scalability, makes counselors, teachers and students of vocational colleges' management personnel to better manage the students, beautiful interface, easy to learn, easy to operate. Upload package structure is shown in Figure 3.

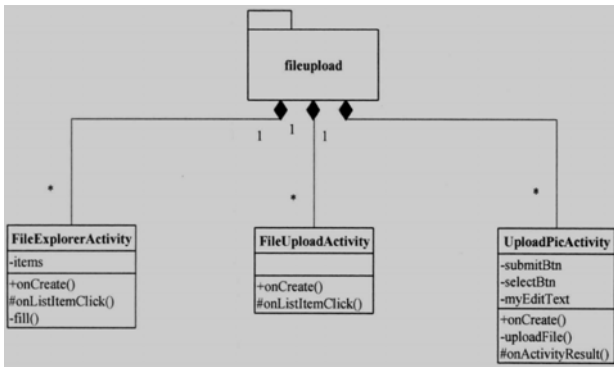


Figure 3. Upload package structure

B. Key Code of Students Leave Module

```
{ wxApi=WXAPI Factory. Create WXAPI(c, WX APP_
ID, true);
wxApi. Register App(WX_APP,ID);
}
public boolean send String(String main Text, String
description)
{ WX Text Object text Obj=new WX Text Object();
text4bj.text=main Text;
WX Media Message msg= new WX Media Message();
msg. media Objeet=text Obj;
msg. description=description;
Send Message To WX. Req req=new Send Message To
WX. Req(); req. transaction=String. Value Of (System.
Current Time Millis{});
req. message=msg;
return wxApi. Send Req (req);}
```

The application key features include network costs student inquiries, faculty student information query, simple online message function, Wuhan University and Central China Normal University, location query a brief introduction. Student form is shown in Figure 4.

Name	Type	Nullable	Default	Comments
ZGH	VARCHAR(32)			
XM	VARCHAR(200)	Y		
DEPART_ID	VARCHAR(32)	Y		

Figure 4. Student form

The application interface is user-friendly, easy to operate, suitable for school teachers and students. After the test has a good user experience, to meet the basic needs of users in the school.



Figure 5. Schematic diagram of Android simulation development platform

Schematic diagram of Android simulation development platform is shown in Figure 5. As the most important part of smart phone mobile Internet application, interface design directly determines users' experience effect of the application and it is the key factor to win the market, which enables the research of interface design to become one of the core problems concerned by the research field of smart phone mobile Internet application. However, most of the related research only focuses on the interaction and visual design of the interface design, and discipline limitation also exists in related research.

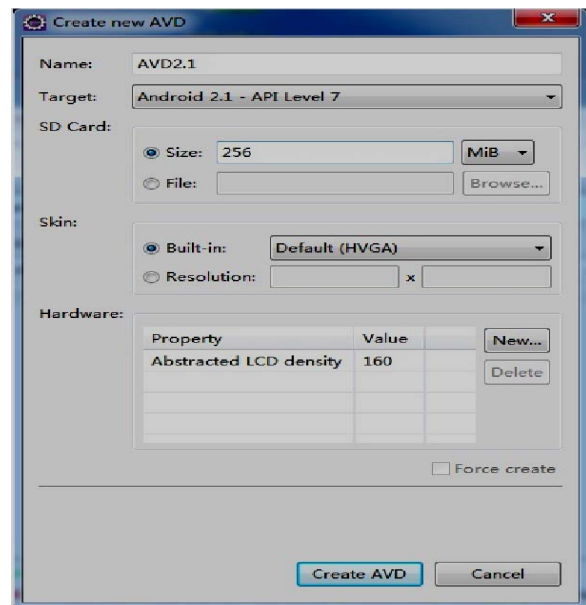


Figure 6. AVD create a sketch map

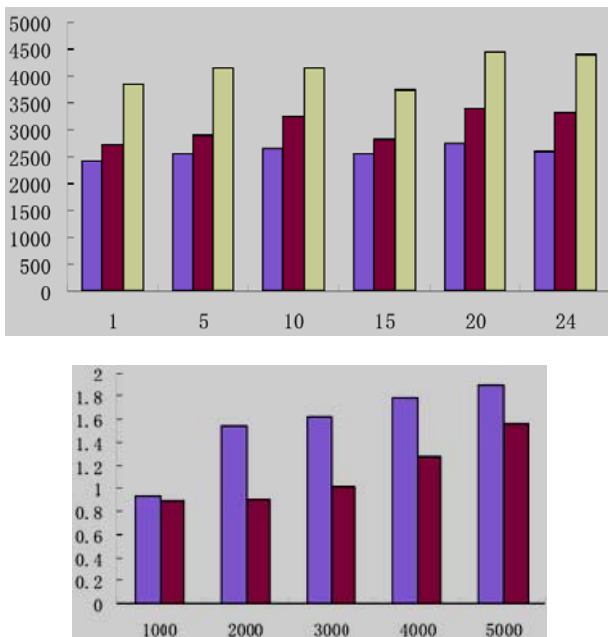


Figure 7. Test analysis chart

AVD create a sketch map is shown in Figure 6. Based on the problem mentioned above, this paper takes the interface design of smart phone mobile Internet application as the research object, adopts a collection of literature investigation, applies interdisciplinary research method, and combines practical case analysis to reconstruct interface design knowledge system, namely SLTIG interface design knowledge system, with big-picture thinking of smart phone mobile Internet application from four aspects such as design strategy, user model and its task analysis, interaction of interface, and visual design. Besides, on this basis of the study, by taking the interface design process of smart phone mobile Internet application as the research content, the paper analyzes the principle and method of the interface design of smart phone mobile Internet application, emphasizes the user-centered ideas figuring out the whole process of interface design of application would require around the user and task model implementation and development.

Test analysis chart is shown in Figure 7. The research contents at the stage of SUIG knowledge system construction mainly include: obtaining design strategy which aspects need to be paid attention for the characteristics of smart phone mobile Internet application through comparatively analyzing the new-style application design strategy; exploring the creation method and key points of the character model and the task model of smart phone mobile Internet application interface based on the research on user model; analyzing and summarizing the interaction design method of application interface from aspects such as the component elements-information architecture and flow chart design, as well as navigation design of the contents and key points of application interface interaction design; concluding the principle and method of visual design of application

interface based on a collection of literature investigation and theoretical research. (Shown in Table 1.).

TABLE 1. STUDENT'S INFORMATION

xsxxb	xuebao	Varchar(10)
	xingming	Varchar(20)
	xingbie	int
	age	int
	nianji	Varchar(20)
	banji	Varchar(20)
	zhuanYe	Varchar(20)
	xueyuan	Varchar(20)
	lianxifangshi	Varchar(15)
	others	Varchar(100)

C. Design and Implementation

```

{
    String str = searchInput.getText().toString();
    if(!str.equals(searchContext))
        return;
    searchContext=str;
    newListAdapter();
}
lvStudent.setOnItemClickListener(new
OnClickListener(){
    public void onItemClick(AdapterView<?> parent,
View arg 1,
position, long arg3){
        selectIndex== position;
        Cursor cursor=(Cursor) parent.getItemAt
Position(position);
        int strLen=cursor.getColumnCount();
        String strArray[]=new String[strLen];
        for(int i=0;i<strLen;i++)
            strArray[i]=cursor.getString(i);
        QbjectMap.getQbjectMap().putObj("adao",
adao);
    }
});
case R.id.btn_vstart_worktime:
    intent=new Intent();
    intent.addFlags(Intent.FLAG_ACTIVITY_NEW
TASK);
    intent.setAction(android.content.Intent.ACTION_
IEW);
    uri=Uri.fromFile(new
File(Environment.getExternalStorageDirectory().getPath(
)+"/.edu.gxufe.moa/worktime.pdf"));
    intent.setDataAndType(uri,"application/pdf");
    startActivity(intent);
    break;
}
    
```

Along with increasing of our country's university reforms, college students' management steps into a new historical period. Number of university students and the enlargement

of enrollment scale have brought new challenges to traditional universities student management work. So how to more humanized and rational manage students' daily life and learning has become a current research hot issue.

This system is design by Android mobile platform technology and design Java application on Eclipse platform and deployment to Android client for testing. Background program development, use JSP dynamic web design language and deployment through tomcat server in order to build a Servlet server program segment for Android client and remote data communication. Use JDBC technology to access SQL Server 2005 data base. Build a system test platform using Samsung Android smart phone as physical machines to achieve functional testing, performance testing and interface testing. Test results showed that: system designed in this thesis has meet user's needs, and achieve the desired development goals.

## V. CONCLUSIONS

This paper has proposed and completed the design task of on student management IT system. It designed and implemented a foreground program based on Android mobile phone. It includes attendance sign function, leave application function, daily learning management, operations management functions, and information View function. It design and implemented a background data management procedures program based on B/S mode including the basis information management function, the user information management function.

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