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AN IMPLEMENTATION OF ASSET TRACKING IN EDUCATION

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Abstract

For making any institution's work go smoothly, it is important to manage each and every asset which is being used by the institution. Similarly, for the smooth working of an educational institution like a school, it is very important to track all the assets which are to be used. This asset tracking can be done manually but as we know, manual work is not 100% accurate. To make this task accurate and easier to implement, nowadays applications are being developed. In this paper, we will go through the design and analysis of an android system which consists of all the necessary asset tracking details separated by providing modules for each different department present within the school's premises. The system designed is an android application in which, separated modules are created according to each item which is being used in an educational institute like monitors, blackboards, playing equipment, projectors, etc. Using education tracking software will provide the school with a user-friendly platform that puts the asset data at your fingertips. There are many websites available to manage the assets for personal or organizational level assets, but for an educational institute, it requires many assets each with different requirements and is needed to be bought daily. Updating this information each time by providing the complete details for every new item becomes really difficult and time-consuming. Hence to reduce this process, the application provides separate department wise distribution and it also makes it easier to review the data. This android application will be using login which will be created by the admin and provided only to authorized staff or school personnel. Monthly reports will be generated by entering the final amount in the prepared report format and will be sent to the principal and the trustees of the school.

Index Terms: Asset, Educational Institute, Android Application

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1. INTRODUCTION

Asset Tracking In Education is a module that can be used by the Principal, Trustees, Admin to track the assets used in schools. By using this android application we can generate a report and send it to respected principals and trustees. Using system-based software applications provide dynamic record-keeping and data processing with other advantages for the entire school and peoples associated with them.

Today we are familiar with Android apps. Instead of using record which is usually handwritten or technologies develop websites we use apps because they are easy to access. So basically we are developing such an android application which will track all the asset regarding the school itself. This application will be very useful in every aspect.

We are developing an android application which will help the people who want to access all information about the school. The concept and design of the Asset Tracking In Education interaction module are to ensure that it can meet the demanding requirements that ideal software should have to manage the huge amount of data by using this kind of application.

Now the question to be asked here is: Why to develop an Android application when you have a manual record maintain in school. The answer is Our app not only shows what the manual records show but also some additional features. In the current era, the android operating system is used by many people. Due to the android operating system, craze of different apps is increasing day by day.

The asset management concept has been implemented in many institutions including educational institutions. Schools cost a lot of money to maintain and keep the doors open. As schools get away from chalkboards and move into technology-driven education, asset tracking is invaluable to keeping track of what schools have and where it is. It is an important task to take care of all the asset's of your school. This asset tracking software can help you simplify asset management of your school. Using education tracking software will provide you with an easy to use platform that puts your asset data at your fingertips.

Information on your assets is probably all over the place in different spreadsheets, databases, documents, and locations. Until now the only way to keep track of them has been through the time consuming, frustrating, and laborious manual process so, you could be losing or misplacing assets and not even know it. To ease this process, there were new websites were designed so as to keep the records into specified databases making it secure by using login credentials. The websites designed were not so user friendly as it was complex and confusing for the user to use it. The websites also were not so trusted by the organizations as all the asset data was to be stored on that website. Since the asset is the most crucial information of any organization, organizations demanded a specified application which will store the asset data and also give them monthly reports and daily updates.

2. LITERATURE REVIEW & RELATED WORK

For asset tracking in education, since there are no android applications available, we consider the following examples of asset tracking available on the internet.

2.1 Asset Panda (2012)

Since 2012, people all over the world have been using Asset Panda's Asset Tracking and Management Platform to replace spreadsheets, expensive scanners, and costly software for asset tracking and management. Our mobile apps and web platform work on the devices you already own, giving everyone in your organization access to vital information about your assets. Our extensive configuration options allow Asset Panda to work the way you do, no matter how many assets you have, how large your team is, or what industry you work in. It can also grow and change with your business, so it's always the right platform to meet your goals and solve your problems."We are committed to providing our customers with outstanding customer service, a constantly improving easy to use flexible platform and our employees the chance to make a difference in the world."[1]

2.2 School Asset Manager (2013)

School Asset Manager is the only complete school asset management system to use the latest in cloud and mobile technology. Combining QR asset tagging, scanning, document and media storage network management and help-desk. School Asset Manager offers the ultimate in flexibility to allow any school to benefit from a tailored and unique asset management solution. We are trusted in over 2,000 school

districts, charter academies, individual schools, academy federations, universities, colleges, private groups and managed services and other educational organizations worldwide. They use our system to save time, save money and improve results in their schools.[2]

2.3 eSMS - School Management System - VB.NET + SQL Server (2014)

Every school has day-to-day operational issues ranging from the registration to the departure of students. Currently, most of the school's operations are not integrated and hence it takes a lot of effort for creating and maintaining the student and employee's records. This inevitably leads to higher costs in terms of staff processing time, higher level of inaccuracies, costly corrections, and duplication of work. In addition, real-time statistics and performance information is difficult, if not impossible, to derive. For overcome this problem eSMS system is introduced. School Management System, eSMS is very customized and user-friendly system for school. It has been designed to automate, manage and look after the over-all processing of even small to large school. This Software is capable of managing Student Details, Fees Details, Employee Details, Payroll Details, Library Details, Result Details, and Class Routine etc. It also provides very helpful report for managing the school in easy and accurate way.[3]

2.4 eSMS – Online School Management System (2017)

Simple, Powerful & Affordable School Management System. What is eSMS? Want to improve the efficiency of your School with eSMS-Online School Management System? ESMS involves School Management System software that automates the life cycle of a student from admission to pass-out, maintains academic records (Course details/ Student details/ Staff details/ Appointment details/ Inquiry details, etc…), facilitates collaboration, conduct exams and print report, etc. Key Features - Fully responsive bootstrap v3.1.1 web template, Easy web based installation, Multi user & full secure login system (Give Access to Admin, Students, Lectures, Staff members, Accountants), Clean reusable code.[4]

3. ANALYSIS OF PROBLEM

Information on your assets is probably all over the place in different spreadsheets, databases, documents, and locations. Until now the only way to keep track of them has been through the time consuming, frustrating, and laborious manual process so, you could be losing or misplacing assets. To ease this process, there were new web sites were designed to keep the records into a specified database making it secure by using login credentials. The websites designed were not so user friendly as it was complex and confusing for the user to use it. The websites also were not so trusted by the organizations as all the asset data was to be stored on that website. Since the asset is the most crucial information of any organization, organizations demanded a specified application that will store

the asset data and also give them monthly reports and daily daily updates.

The problems of the predesigned software were that all the software designed to date requires a bar code scan. It is difficult to scan the bar code for every item bought as many items are being purchased daily. To reduce this work we are designing new software which will categorize the item according to its departments. This project provides service about the school Asset management system that contains all operations running daily together with quality services for users.

4. PROPOSED WORK AND OBJECTIVES

In this project, we are developing an android based application that will help the schools to manage their complete assets. It will include all the objects which are present within the school premises. The application will have the assets kept in separate modules according to their use for example a classroom module will include all the assets present in a classroom. It will provide access to the principal for every module. The accounts section can only update the financial expenditure and fees accepted by the students. The trustees will get a monthly generated report consisting final amount gained and expended on the school maintenance. Library persons will access only the library module where they will have to update for every newly purchased book or any other asset for library use.

5. MODULES

5.1 Admin Department

The admin department has access to the complete status and has authority approves and denies the requests and the admin department also edits the asset.. school administrators work in every level of education. They may direct programming, hire and supervise staff.
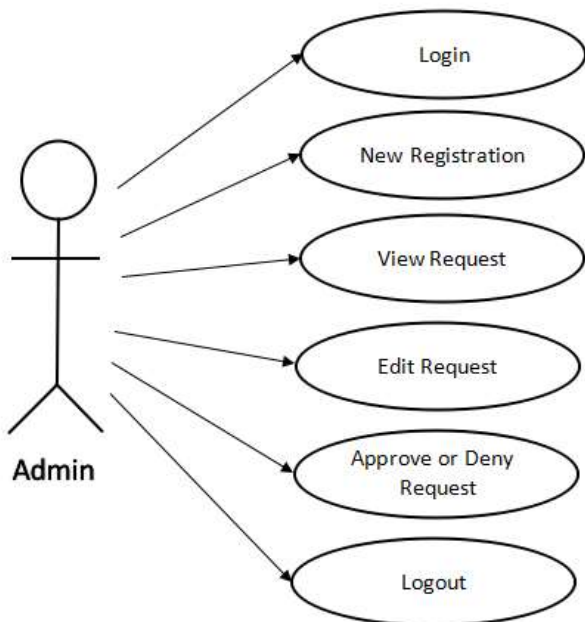

Fig-1 : Use Case For Admin Module

5.2 Trustee

The trustee is allowed to check the monthly reports. Being representatives for their community, trustees prioritize the interest of their students. Through foundational responsibilities tied to governance, policies, budgeting, and more, the trustees can establish a culture of support and success within the community.
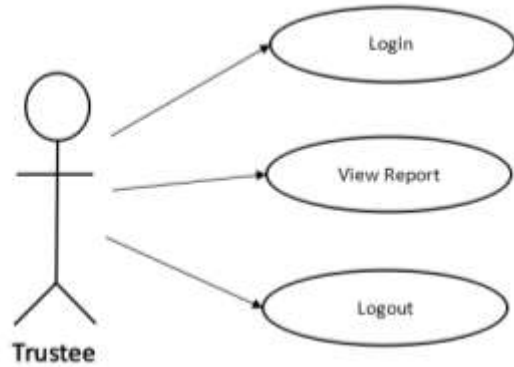

Fig-2 : Use Case For Trustee Module

5.2 Principal Office

The role of the principal has viewed a complete status and provide strategic direction in the school system . principals develop standardized curriculum, asses the teaching methods used by the teachers, monitor student progress, encourage parents involvement, revise policies and procedures accordingly, administer the budget, hire and evaluate staff and oversee facilities.
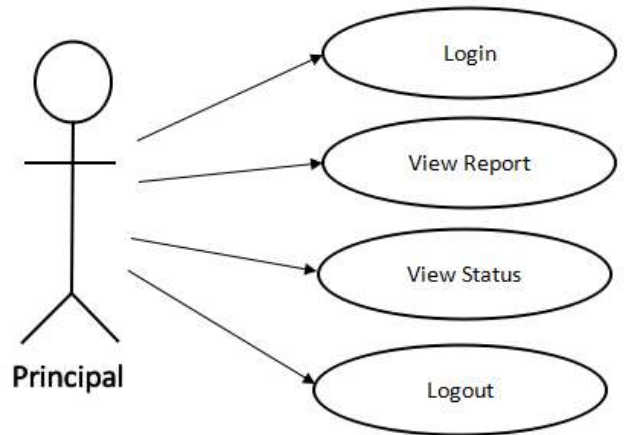

Fig-3 : Use Case For Principal Module

5.4 Laboratory Module

Laboratory module contains sub module as science, math socials science and language lab, each lab will keep track of the equipment like for Science lab we required test tubes, chemical, instruction, etc for math lab we required different instruction like charts, set square, etc for social science we required maps and charts and for language lab we required pc for each student and the software which is used to develop student accent.

5.5 Classroom Module

This module holds the classroom equipment like benches, chairs, projectors, lights, fan, blackboard, button board & also the classroom module will have sub module for each classroom.

5.6 Transport Module

This module will hold the bus details the no. of bus conductors, drivers for each bus & also the data for schedule maintenance.

5.7 Occasion Module

This module holds the data for all the occasions which are held during a session .to flag hosting is held every year so this asset is required for each year cultural & sport event are held every year there are also other different events held within a year so asset for that event also must be managed.

5.8 Store Module

The store module holds different modules such as CCDM modules, noticeboards, etc. The CCTV module requires all the data for each CCTV installed within the school campus, and the monitors which are used to keep track of activities going on in the campus. The store module will also keep the data about aspects like a bell, generator, fire extinguishes, water purifiers and water tanks.

5.9 Library Module

This module holds the details of the book which are presented library according to the type or kind of the book like comics, news, syllabus, etc. The new section will be updated regularly.

5.10 Medical Module

This module will have the details about all the first-aid equipment required for the basic AID to be provided. This module should also keep the data about the doctors and ambulance which will be required in critical condition. |The number of beds also must be kept track off, and the details are also required to provide the basic first-aid if any medical emergency comes.
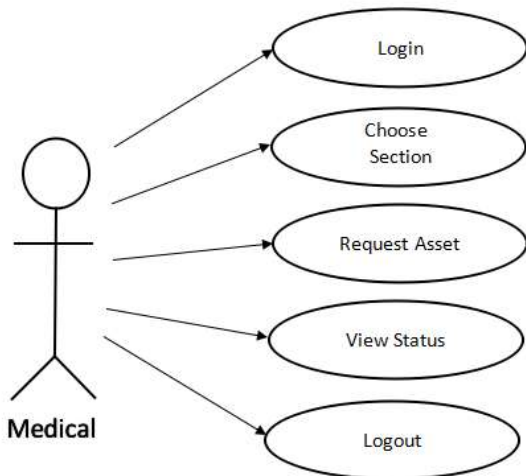

Fig-4 : Use Case For Medical Module

5.11 Activity Module

In the activity module the art room, music room, computer room, sports room, dance room, conference room. The school teacher must exhibit and professional attitude and maintain ethical teacher-student boundaries.

5.12 Report Generation

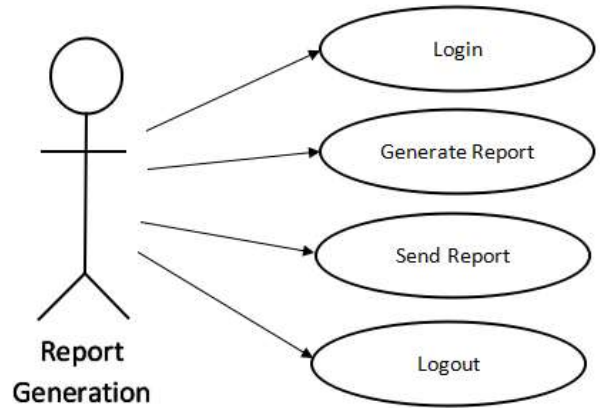In report generation monthly generated by admin and accessible to the principle and trustees.

Fig-5 : Use Case For Report Module

5.13 Office Module

The Managing office services module has specific relevance to all school business managers. The school office has an important role to play in ensuring that the Admin department, Staff details, Student details, and Registration desk.

5.14 Account Module

This module holds the assets present in the account section. The account section contains assets like printers, computers and also the fee structure of student must be maintained by analyzing paid and remaining fees. Also, the payments to be provided to staff should be stored onto the database.

5.15 Campus Maintenance

This is the section where all the remaining campus assets like washroom, gardens, parking, and security-related data should be managed and tracked.

6. IMPLEMENTATION

After the complete design of the application, we have to write the coding according to the requirements set while desiging. Since this is an android application we require the android studio application to design the actual application. Here we provide with some screenshots of the developed application.

The first screen is a flash screen follwed by a menu screen with all the departments provided in a card layout. Within

each card, it has a login form and this screen once logged in is followed by another card view wherein all the allowed functions are provided. To consider an example, within the admin section the user gets to create new account, view the details and approve the status.
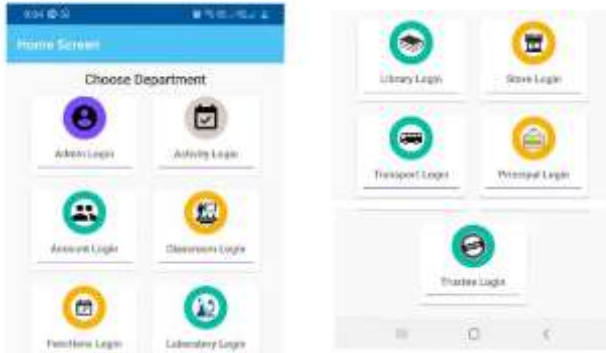

Fig-6 : Home screen card view

For the report generation module, we can view the monthly report for every month with the total amount. An example outputscreen is shown in fig. 7.

Fig-7 : Monthly Report

7. ADVANTAGES AND DISADVANTAGES

7.1 Advantages

- Allows transparency- the system lets the teachers and staff know where the assets go and what changes are made in the asset.
- Allows the schools to collect more accurate asset data
- In this system the item is identified by the system generated .
- This system provides better asset availability, teachers and staff would not have to put up with the equipment not being needed.

- This system could store the historical data for the audit purpose.
- The asset management system reduces the time required to handle the assets and can track the data on the fingertips.

7.2 Disadvantages

- The requests for the assets need to be approved when it is sent.
- It cannot handle large amount of data as we are using firebase so only specified amount of data could be stored.

8. CONCLUSION

For asset tracking in education, we designed an android application which consist of separate modules which are differentiated on the basis of the departments. The assets will be stored on the firebase and all the data will be managed and tracked by the admin and new asset will be requested and the approval will be provided by the admin only. The admin can also edit the request. This paper will help the developer to understand the design and different modules which are to be used.

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