Student ID E-Wallet System with

Sms Notification & Credit Management System

for Iloilo Sun Yat Sen High School

A Title Proposal

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**Chapter I**

**INTRODUCTION**

Currently, student cards are implemented with either magnetic strip or ordinary plastic or ordinary cards which have very limited or no space to store data and most have one use, i.e. as an identification card. E-Wallet have a great advantage over magnetic strips card in space, security, reliability and functionality. As mentioned above magnetic strip cards have very low storage mainly a few bytes and in general smart cards can store hundred times more information than magnetic. With more space to store information, E-Wallet can have more use and may be more versatile than magnetic card, in addition to being a student identification card it could also be used to store monetary values such as a cash card for retail, purchasing product and tracking a card via GPS(Global Positioning System).

Student ID E-Wallet System have the benefits of storing comprehensive records with the advantages of accuracy and reliability. Throughout the years, student card is a plastic card with an embedded microprocessor chip capable of storing, processing, calculating, managing and performing data cryptography algorithm on a magnificent amount of data which can be either value or information or both. The use of E-Wallet card can reduce costs and provide users with the convenience access ID credentials. One example of E-Wallet card is the Student ID Card, however the point is that the students should access the new technology. A technology can solve this problem and even do more is RFID(Radio-Frequency Identification) technology.

RFID(Radio-Frequency Identification) is an automated identification and data collection technology that ensures more accounts and timely data entry; it combines frequency and microchip to create smart system that can be used to identify, monitor, secure and do object inventory [1].

The short message service (SMS) technology is one of the most stable and most widely used mobile communication methods after phone calls. Most students of tertiary institutions carry mobile phones which is capable of receiving short messages as a means of event notification. In principle, text message can be used either as a one-way communication to provide the user information such as reminder, alert, etc, or as a two-way communication that enables the user to send and receive information (such as question and answer). Event notification (through SMS) is a well-known way of notifying users about an event scheduled to take effect within a particular period in an institution. Moreover, Mobile text messages are an excellent aid for communication when there is a need to submit information also at long distances or without well working communication system or infrastructure, or when the people cannot physically meet the staff that is concerned, provided that the cost of the text message is very low and it is available to practically everyone. It has been found useful to employ the text messaging in many routine-like academic environment applications. Typical examples of these application areas are e.g. different kinds of reminders and instructions, reporting of laboratory test results or home assessment for students, remote controlling and monitoring etc. By using this kind of communication, it is possible to save resources by e.g. avoiding unnecessary visits and phone calls; the mobile phone messaging in institutions has been a subject of active research work for about a decade [2].

The purpose of this system is to be used to relieve the traffic jam around the cafeteria during recess time, daily report will be saved in a database to avoid data lost, students ,and parents will receive SMS(Short Message Service) notification every enter/exit of the student in the school campus and manage the amount that will be use in their E-Wallet.

*Overview of the current state*

Apparently, the school cafeteria is currently using the traditional student identification card and manual systems of sales service processing. Student Identification Card - In its most basic form, a card is typically printed with a photo, name, ID number, expiration date, and other relevant information about the holder. This is used as a quick and easy visual form of identification. In addition, the name and logo of the facility will also normally be included. The back of the card is just as important and is often overlooked and left blank. It is a useful place to show terms and conditions of use, a return address (should a member of the public find a lost card), or even useful information for the holder - such as phone numbers for key departments[3]. Traditionally the system was manually handled by student or a person by itself. Carrying money in a pocket was a critical risk while travelling from public transport. The wallet might get lost, stolen, and etc. There is always a risk while carrying documents when travelling. The documents may get misplaced anywhere[3]. That of which includes an everyday set of recording and as an old practice it is unreliable because of the records. Considering that it is a small line of business, technically speaking there is a less need of those requirements. The problem arises when one of the school cafeteria staff of the Iloilo Sun Yat Sen High School misplaced the records of the sales. Over time, they notice that the current manual system they’re using is not that reliable. In order to help the establishment to have a reliable and hassle free way of recording the sales, we recommended to the establishment to use POS system(Point of Sales) to have easier recording of services.

In this system, the establishment can modernized the use of student identification card by adding an Electronic Wallet System and record the sales every day , print daily, weekly and monthly reports and have a secure and easy to access data. After the installment of the system, we would continously monitor the system and the establishment in order to maintain the quality of the system. The usual practice was to record the sales everyday on a sheet of paper based on the orders/item bought in the school cafeteria. In a regular day, staff record every time that are being bought in the store then it will be submitted to the owner. So, based on the above information, it would take a certain amount of time and effort for the system to be developed and become useful resolution for the company’s problem[4].

**Statement of the Problem**

*General Statement of the Problem*

Students ID is used only as a quick and easy visual form of identification and there’s no use other that. The parents of the students are always worrying if their children are already in school or not. Parents doesn’t have the knowledge of what their children are buying with their money.

*Specific Statement of the Problem*

1. The Iloilo Sun Yat Sen High School uses traditional identification card.
2. Students have the tendencies to spend more money than the allowance their parents gave them for that day.
3. Parents are concern about their children’s health that they want to know what they buy inside the canteen.
4. School cafeteria uses traditional manual sales service processing.
5. Other students are cutting classes and their parents doesn’t know about it.

**Objectives of the Study**

*General Objectives of the Study*

The main objective of this study is to develop innovative design of a system that will benefit the school, parents and students.

*Specific Objectives of the Study*

1. To design a system that will modernized the identification card of the student.
2. To design a system that will enable students to make good use of their ID’s.
3. To ensure the parents that the allowance they gave to their children will be used in the cafeteria.
4. To develop a system that the parents could manage their children’s whereabouts in school and manage their allowance daily.
5. To develop a POS(Point of Sale) for the cafeteria to avoid data lost.
6. To develop a system for their ID’s with RFID and SMS Notification.

*Conceptual Framework*

Process

Output

Input

-Sms Notification for parents

-Parents Info

-Credit Management

-Payment

-Admin Info

-Admin Login

-Student Info

Student ID E-Wallet System with

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For Iloilo Sun Yat Sen High School

-Sms notifications will be receive by the parents when the student enter/exit the school campus.

-Parents must fill up the required data inorder to create his/her account

-Parents of the student can manage the amount of money that will be use.

-Student will transact food in the cafeteria and pay via ID E-Wallet Card

-The administrator can only create, delete and edit user information of the student.

-Administrator gains access to the system by identifying and authenticating themselves.

***Figure 1.1*** Input-Process-Output of Student ID E-Wallet System with Sms Notification and Credit Management System for Iloilo Sun Yat Sen High School

Figure 1.1 shows the input-process-output of the system. Only the official and parents can benefit from this application. Once the student enters/exit the school campus they needed to login/logout using their student identification e-wallet card to notify their parents.

After filling the information needed the parents can now login into the web application using the create profile. The parent will now nagivate the system.

Parents has a feature to manage the amount of money that will be use on daily, weekly or monthly on the student identification e-wallet card. The parents can monitor the purchase of their children in the school cafeteria and inquire remaining balance of the their children e-wallet card.

Students no longer need to carry money when they transact at the school cafeteria because the e-wallet card will be use to pay for the purchase of product.

Students cannot create their own e-wallet card for buying RFID(Radio-Frequency Identification) card. Only the system administrator can create their e-wallet card. In addition, the system administrator can verify, edit and delete the parents account.

**Scope and Limitation of the Study**

*Scope of the Study*

The researcher’s will focus on developing an student identification e-wallet card and POS(Point of Sale) System for helping the Iloilo Sun Yat Sen High School modernized the student identification card and avoid data lost of report in the school cafeteria. This E-wallet will let the students to buy inside the school cafeteria without using cash while the parents can manage the daily, weekly or monthly allowance of the student. Moreover the project will help the parents to monitor and manage their children expenses and make the cafeteria service more accurate and modern. In addition the student identification e-wallet card .

The proposed system has the following features:

* The student need to login with their Student Identification E-wallet Card every entry and exit of the school campus.
* The student will use their identification E-wallet card as a method of payment for every purchase in the school cafeteria.
* Only the owner of the student identification e-wallet card can utilize the card.
* Cafeteria staff can maintain record of daily, weekly and monthly report saved on the firebase database.
* Parents will receive sms notification when their children enter or exit the school campus.
* Parents can manage their children daily, weekly or monthly allowance used in the e-wallet card.

*Limitation of the Study*

It is limited to the parents with knowledge and skill in using the web application and who are officially registered in the system. Parent can only be qualified to register if their children is enrolled in the Iloilo Sun Yat Sen High School. Officialy registered parents are allowed to use the web application as a mode of managing allowance of their children, viewing report of daily transaction, balance inquiry and receive sms notification. The administrative officers are the only one who will have access to the system; they will review the daily, weekly and monthly transaction. The Student ID E-Wallet is designed only to use in Iloilo Sun Yat Sen High School; this study will not cover other schools.

**Significance of the Study**

The proposed project can help the parents to manage the student’s expenses more efficiently. And provide better services to the students.

***To the Iloilo Sun Yat Sen High School***

The proposed study gives a benefit to save from data lost of reports and modernized the use of student identification card.

***To the students of ISYSHS***

The proposed study help the students reduces time when purchasing a product from the cafeteria.

***To the parents***

The proposed study will help the parents to monitor their children food purchase and manage the allowance on daily, weekly or monthly basis.

***To the Future Researchers***

The proposed study will benefit the future researchers as it will serve as their guide for developing and improving decision support system.

***Definition of Terms***

**E-Wallet** - is a type of electronic card which is used for transactions made online through a computer or a smartphone. E-wallet has mainly two components, software and information. The software component stores personal information and provides security and encryption of the data.

The use of E-Wallet in our system to store money so that students won’t bring their wallet with cash [5].

**Cryptography -** is a method of protecting information and communications through the use of codes so that only those for whom the information is intended can read and process it.Managing and performing data cryptography algorithm on a magnificent amount of data which can be either value or information or both.

The cryptography in our system is used to protect the information of the users from people who are not part of the administration [6].

**Short Message Service(SMS)** - commonly referred to as "text messaging," is a service for sending short messages of up to 160 characters (224 characters if using a 5-bit mode) to mobile devices, including cellular phones, smartphones and PDAs.

**SMS is used to notify the parents that their children has already entered or leaved the school campus [7].**

**Student ID** – In its most basic form, a card is typically printed with a photo, name, ID number, expiration date, and other relevant information about the holder. This is used as a quick and easy visual form of identification. In addition, the name and logo of the facility will also normally be included. The back of the card is just as important and is often overlooked and left blank. It is a useful place to show terms and conditions of use, a return address (should a member of the public find a lost card), or even useful information for the holder - such as phone numbers for key departments [8].

**Radio Frequency Identification card(RFID card) -**  refers to technologies that use wireless communication between an object (or tag) and interrogating device (or reader) to automatically track and identify such objects.

RFID card is a type card that we’ll be using for the Student Identification and E-Wallet Card [9].

**Radio Frequency Identification Reader(RFID Reader) -** is a device used to gather information from an RFID tag, which is used to track individual objects. Radio waves are used to transfer data from the tag to a reader.

RFID Reader is a device use to read the student identification e-wallet card [10].

**User Profile** - A visual display of personal data associated with a specific user.

It is the digital representation of a user's identity which allows him to easily navigate to the manage the student allowance and reports [11].

**Firebase Database** - The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data.

It is a cloud storage for the daily, weekly, and monthly transaction report of the school cafeteria and e-wallet [12].

**Chapter II**

**Review of Related Literature**

**Smart cards: A primer [13]**

By: Rinaldo Di Giorgio

**Overview**

You can think of the smart card as a "credit card" with a  
"brain" on it, the brain being a small embedded computer   
chip. This card-computer can be programmed to perform tasks   
and store information, but note that the brain is little –   
meaning that the smart card's power falls far short of your   
desktop computer.

Smart cards have been getting a lot of buzz lately on the Web, at the Java One conference last April (four sessions dealt with the technology), on the big network news stations, and on CNN. In this study we'll bring the smart card to life with a real-world smart-card example. The techniques presented here will allow you to start building Java applications that are smart-card enabled.

In order to develop the smart card application here, you need smart card hardware and some smart cards. You can purchase smart card development kits from a number of companies, including Gemplus and Schlumberger.

For those of you who already have readers, you should be able to use your reader by supplying an implementation of an interface class that we will discuss later. As mentioned above, before we can communicate with the card, we must be able to communicate with the reader, and just as there are many different cards, there are many different readers.

**Relevance of the Proposed Program**

Student ID E-Wallet are currently used in daily transaction inside the school cafeteria. They can operate using radio frequency.

**Difference to the Proposed System**

The difference between our systems is that our systems limits the user expenses depends on the setted limit.

**In Your Pocket: Smart Cards [14]**

By: Carol Hovenga Fancher

**Overview**

Smart card is a card which contains a barcode which is nothing but a unique card that is assigned to the user and is capable of storing data which can be either value or information or both. A barcode is a series of alternating dark and light stripes that are read by an optical scanner. It is an automatic identification technology. A barcode is an optical, machine-readable, representation of data the data usually describes something about the object that carries the barcode. Originally barcodes systematically represents data by varying the widths and spacing’s of parallel lines. Barcodes originally were scanned by special optical scanners called barcode readers.

**Relevance to the proposed program**

The proposed system can be used in cafeteria transaction and capable of storing data which can be either numeric value or characters or both.

**Difference to the proposed program**

The difference between our systems is that our systems limits the user expenses depends on the setted limit.

**Integrating Ticketing - Smart Cards in Transport [15]**

By: Phil Blythe

**Overview**

The aim is to make a student card system using smart card technology that is to be implemented in educational institutes. This will enhance the current student cards that can be seen in many educational institutes and stop the current problem of having many card with the same use. The use of an electronic smart card as an alternative means for users to access and pay for transport services is now emerging as a viable option for many operators. With the recent introduction of the Oyster smart card by Transport for London and the plans by a number of passenger transport executives and transport operators to launch smart-card ticketing, the UK is on the verge of an influx of transport and local authority-led smart-card schemes. Interoperability between schemes is being tackled by ITSO (the Integrated Transport Smart-card Organisation) which will deliver a final version of a national specification for transport smart cards in early 2004. This paper examines what smart cards are, why smart cards are now being widely adopted, and finally will consider their benefits and impact on the public transport industry.

**Relevance to the proposed program**

Both systems used on a specific place where they transact without using money. And both cards store information of the user.

**Difference to the proposed program**

Our proposed system has a transaction history which is absent to the other system. And our card store more information about the user.

**Children's credit or debit card system [16]**

By: Stephen S. Fleming

**Overview**

Methods and credit or debit card systems are disclosed that allow the available credit to be determined by someone other than the card issuer and that allow a limit to be set on the number of expenditures that can be made. The methods and systems can be used to provide a mechanism for supervising credit or debit card usage. Methods and systems are disclosed which include a child's credit card account linked to a parent's credit or debit card account. The parent may change the child's available credit without changing the total combined available credit for the child's and the parent's accounts. In addition, an expenditure counter figure associated with the child's account is disclosed which can be used by the parent to enable the child to make an unlimited number of purchases, a limited number of purchases, or no purchases. The parent may make a single payment for both the child's and the parent's credit card accounts. The methods and systems disclosed may be used outside of the parent/child context whenever supervision is required. They may also be used by a single individual to provide limited credit card usage in less secure environments.

**Relevance of the proposed program**

Our system also limits their children to spend more money and to keep record on what their children buying.

**Difference of the proposed program**

Our system is can only be used inside the school premises so the students will tend to buy healthier foods and to avoid buying worthless things.

**Application of NFC Technology for Cashless Payment System in Canteen [17]**

By: Evizal Abdul Kadir

**Overview**

One of the issues is payment system use manually (cash) and queue at the cashier to pay foods, sometime need to wait a few minute until to get the turn. Cashless payment such as token or credit system is implementing in some of restaurant and food courts but does not applicable in University canteen that most of customers are students with small transaction, only a few dollars and cents. Nowadays, mobile phone or smartphone is not a luxury thing and most of student carries it for phone call, message, email, or browsing internet. Most of smart phone also embedded with Near Field Communication (NFC) reader inside the phone, thus by using this phone with NFC enable to do payment system at the canteen. The credit is deducted from mobile phone balance for pre-paid system or billed in monthly for postpaid and this system have working together to the cellular phone operator. Confirmation on payment system is shows whether customer approve payment or not then a notification is sent to user. With this system be able to overcome several issues such as queue at cashier for payment and risk of student to carry cash money while buying foods.

**Relevance of the proposed program**

Both system focuses on transacting on the cafeteria without using cash as method of payment and to avoid losing the cash or getting stolen.

**Difference of the proposed program**

His system focuses on using mobile and our system are focuses on using RFID. And limits the student on over spending the money because of limiting the maximum credit or money he/she could use.

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