

CASHLESS SMART CAMPUS SAY GOODBYE TO PAPER'S MONEY

Md Saddam Hossain

Md Saddam Hossain, Software Engineer, Daffodil Computers Ltd. Recently completed M.Sc in CSE from Jahangirnagar University, Dhaka, Bangladesh, E-mail: saddamesh@gmail.com

KeyWords

Cashless Smart Campus, Contactless Payments, Cashless Payments, Smart Card in Campus, RFID Cards

ABSTRACT

Students can pay with 'Contactless Payment' without bearing papers money. The term 'Contactless Payment' mentions to a secure method for students to purchase goods or services utilizing their 'Smart ID Card'. The Smart ID Card will be a Radio Frequency Identification (RFID) or a Near Field Communication (NFC) technology. The assumption of the 'Smart ID Card' in campuses enhance transactional favor, flexibility and security. The 'Contactless Payment' technology works by 'Tap' the Smart ID Card on a Point-of-Sale (POS) terminal or QR payment through mobile app and the payment will be made instantly.

1. Introduction

In the fast-paced evolution of technology, educational institutions are constantly seeking innovative solutions to enhance efficiency, security, and overall user experience. The concept of a "Cashless Smart Campus Say Goodbye to Paper's Money" represents a revolutionary stride towards modernization, bidding a fond farewell to the era of traditional paper currency within the academic environment.

2. Overview Diagram



figure-01: Overview Diagram

3. Smart Cards

A circuit chip with program enable and a plastic card called Smart Card. The card will be programmed keep out various activities as well as write student data or information's (such as student name, ID number, email, mobile number and balance etc.) to the smart card. The smart card touch on a reader with direct physical contact or radio frequency. The smart card has a unique tag ID that can be identify to a student uniquely. ^[1]

3.1 One-Student One-Card Using Smart Card Technology

Implementing a system in campus where students use contactless payment technology, specifically NFC (Near Field Communication) technology for various purposes, including payments and other services. This type of system is generally mentioned "One-Student One-Card" system. Here's common outlines are card issuance, write cards with information's, payment system integration, payments points, mobile app integration and ensure transactional security. Implementing One-Student One-Card using smart card technology can streamline various aspects of campus life, offering convenience and efficiency for both students and the university. ^[2]

3.2 Multitasking of One Smart Card

Generally students are holding multiple cards in their campus. The Smart Card can respectively be an ID card, payment card, gift card, etc. in a single card. Multitasking with smart card entail incorporating multiple functionalities or services into a single card, providing users with a versatile tool for various purposes. Here are several examples of multitasking with the smart card: Identification, Cashless Payment, Access Control, Library Service, Transportation Service, Health Service and Time and Attendance Tracking etc. Combining these functionalities into the smart card not only simplifies the user experience for students but also streamlines administrative processes for the educational institution. ^[3]

3.3 Pros and Cons of Cashless Payment

Pros:

- High Security
- Authentication
- Convenience
- Easy to carry
- Easy to use

Cons:

- Vulnerability to physical theft
- Costly
- Need to maintenance
- Integrate with system
- Program Complexity ^[4]

4. Say Goodbye to Paper's Money

By saying goodbye to paper's money on the university campus and adopting a smart card system, the institution can streamline various processes. Reduce the need for physical cash handling, and enhance overall campus security and efficiency. It creates a unified and convenient experience for students, faculties, and staffs, aligning with the broader trend towards cashless transactions in the digital age. Two method may you use for cashless campus. One is QR Payment and another one is POS Payment. ^[5]

4.1 QR Payments

Implementing QR Payments through a mobile app is a popular and convenient method that institutions use. The technology allows students to make transactions by scanning QR codes using their mobile devices. QR Payments through a mobile app offers a quick, secure, and contactless way for students to make transactions. It is especially relevant in environments where physical cash handling is being minimized, and digital transactions are becoming more prevalent. ^[6]

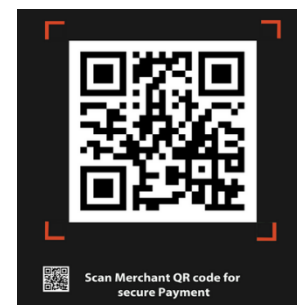


figure-02: QR payment

4.2 POS Payments

POS payments allow to students a smooth cashless transaction. It reduces transaction hassle, it takes only a couple of seconds to make a successful transaction.

POS payments provide a fast and convenient way for students to make secure transactions. This method is particularly popular for its contactless nature, which enhances the overall efficiency and user experience at the point of sale.^[6]

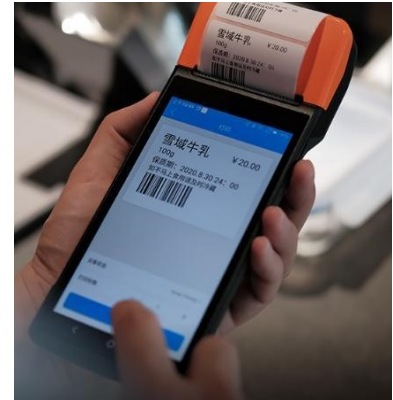


figure-03: POS payment

5. Proposed Services

- Cashless payment Services
 - OR Payments
 - POS Payments
- Access Control
- Identification and Authentication
- Library Services
- Transportation Services
- Health Services
- Gym Facilities
- Loyalty or Discount
- Time Attendance Tracking
- Parking Service
- Printing Service
- Food Service

6. The Rise of Cashless Payment

According to Dynata Research, cashless payment usage is up across multiple countries, generations and income levels. Few years ago, 52% of consumers preferred cashless; that number now stands at 59%. At the same time, the worldwide preference for cash dropped to just 15%.

According to research from Capgemini, 77% of the world's consumers expect to increase their use of cashless technologies now. It will increase day by day.

NB: The data only for Credit/Debit Card payments.

7. CONCLUSIONS

The journey towards a cashless smart campus marks a significant paradigm shift in the way educational institutions manage financial transactions. The transition from traditional paper currency to digital payments not only streamlines administrative processes but also fosters an environment of efficiency, security, and technological advancement.

ACKNOWLEDGEMENTS

The completion of this journal, titled "Cashless Smart Campus Say Goodbye to Paper's Money," has been a collaborative effort that wouldn't have been possible without the support, expertise, and encouragement of numerous individuals and organizations.

First and foremost, our sincere gratitude goes to Jafar Ahmed Patwary and Daffodil Computers, Bangladesh. Whose forward-thinking vision and commitment to innovation laid the foundation for this exploration into the realm of cashless campuses.

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