Carnegie Mellon University

Department of Information Systems

Apollo 11 Term Project Report

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**Overview and Background**

In today's very technical world, college students are very reliant on their phones for communication, navigation, and mobile payments. Yet, many universities continue to rely on outdated physical student IDs for important campus functions like dorm entry, dining payment, and event attendance. This mismatch between how students live and institutional infrastructure creates inefficiencies, added costs, and security risks.

Our proposed solution is a digital student ID app that integrates into students smartphones using NFC (Near-Field Communication) or QR code technology. This platform will serve as a secure and user-friendly alternative that allows students to access buildings, services, and campus events without needing a physical card. For universities, this would mean reduced costs that come with producing and replacing cards.This would also streamline an authentication system.

The idea for this startup came up through discussions about common problems students face. One of the major points of discussion was how physical ID cards can be annoying when you lose them, forget them, or have them stop working at important times. After looking at various methods to implement a new version of student IDs, our team saw NFC as a practical option thanks to its use in contactless payment, and its compatibility with modern devices. A NFC-based mobile payment is a more secure system, as it eliminates the need to carry cash. Customers can simply hold their phone near the terminal to complete the transaction, which occurs in front of them without handing over their card (Saba & Ozturk, 2019).

Initially, the core users were expected to be students, but further analysis led us to realize universities are our true customers because they must purchase, implement, and support the system. Our revenue model will be based on long-term service contracts with higher education institutions. This business plan will outline how this model works, resources required, marketing strategies, and financial projections.

**Business Model & Key Components**

Our startup proposes a cross-platform digital student ID app that allows students to carry their identification on their phones. The app utilizes NFC and QR code technology to enable secure door access, building entry, and integration with meal plan systems. By integrating with the university’s existing backend systems through secure APIs, the app streamlines authentication and removes the need for physical IDs. The system will be protected by end-to-end encryption and multi-factor authentication to guarantee secure access. The UI will be intuitive and responsive to the student’s needs.

Our business model is based on long-term contracts with universities. We will offer a software as a service platform where universities pay an annual licensing fee based on the amount of students they have. Additional revenue will come from integration services and optional features like analytics dashboards, or attendance tracking.

* **Key Resources**

Our startup will require a team that has experience in app development and NFC technology. Our startup will also require a partnership with university IT departments to facilitate API integration. Most importantly, a cybersecurity team is needed to comply with privacy laws and protect student data. They will also work with MCC (mobile cloud computing) because MCC facilitates mobility, enabling functions like mobile payment, ticketing, messaging, and access to educational resources. Institutions adopt MCC applications for account transactions, payments, and balance checks for clients (Cyril, Scrimieri, Qureshi, & Awan, 2025).

* **Target Customers**

Initially, we thought students would be our main customers, but we quickly realized that students only use the app while universities fund the service. Therefore, our target customers are university administrators and IT staff in charge of student services and security infrastructure.

* **Marketing Strategies**

To start off, we will launch starter programs with small to medium sized universities to build case studies and get feedback from the universities themselves. We will also have to attend conferences at higher education institutions to connect with staff that will help implement our service. Weidert (2012) says, “To begin with, in support of uses and gratifications theory, it is clear that the distinct factor weightings of the communication, coursework, and media activity functions within the sample reflect students’ adoption of technology for specific academic needs. Uses and gratifications theory predicts goal-directed, agent-driven adoption of technology to meet particular needs” (p. 151). With research claims like this backing our marketing, it will be clear to universities that students would find digital IDs more convenient as more of their needs are being met with technological implementations.

**Market Analysis**   
 The student ID market in higher education is currently dominated by plastic cards and outdated systems. Despite many universities transforming digitally, the adoption of a system like our startup is slow due to the costs of implementation and lack of flexibility in current systems. Solutions like Apple Wallet are restricted to the Apple ecosystem, excluding some students. To overcome this, our software will be developed to be compatible with both iOS and Android and various university systems through secure APIs.

It is important not to focus only on the technological renewal of higher education, but to make digital innovations the engine of methodical, organizational and structural innovative changes in the formation of fundamental skills of future specialists (Zolotarova, Ponomarova, Stankevych, Novikova, & Zolotarov, 2024). This text suggests that aside from soft skills and hard skills, there are digital skills which new specialists should focus on. Our startup will allow specialists to work with new technologies, helping make the use of IDs on universities more efficient.

**Operations Plan**

Our team agreed that student IDs are easy to lose and using phones would make it easier to open doors or use meal blocks since people forget their phones much less. The technology we decided to use was NFC because other digital ways of paying like Apple Wallet and Google Wallet already use it, which would offer fast, secure, and contactless ways to open doors and pay for food using campus plans.

During our first three months, our focus would be on developing the basic version of the app that includes NFC and QR code access. In months four through six, we will aim to work with a few university’s IT teams to gather information and help with integration. In months seven and eight our focus will be to launch the app onto iOS and Android smoothly, and begin onboarding students. After this eight month timeline, we will continue to add and improve features, fix bugs, and maintain secure and reliable systems for the universities using our service.

**Financial Plan**

We will follow a financial plan that has universities pay an annual licensing fee based on the amount of students they have. These pricings are based in part on pricing benchmarks from Chamera, a digital ID solutions company. For example, a launch program of around 50 students could be offered for free to encourage adoption. Universities with 250 students would be charged $750 annually, 500 students at $1125, 1,000 students at $2,000, 2,500 students at $4,500, and 5,000 students at $7,500. Larger student groups will be given higher pricing tiers, with custom quotes given on the university’s size and needs.

An initial investment for developing our digital student ID app is estimated at around $45,000, which would cover design and implementation. $7,500 will be needed to cover costs related to security of student information and compliance of regulations. Sher (2024) recommends that advertisement is more aggressive at the beginning and around 20 percent of the annual revenue should be dedicated for marketing purposes. With projections for the first year revenue to be $50,000 dollars, $10,000 of that revenue will be dedicated to further advertise our service. Additional revenue will come from integration services and optional features like analytics dashboards, or attendance tracking.

**Conclusion**

Our digital student ID app would offer a secure and cost-effective solution to the outdated physical IDs many campuses still use. By aligning with students using technology increasingly in their education, our startup will improve the student experience and reduce long-term costs of producing and replacing physical IDs for institutions. We are seeking partnerships with universities that are willing to pilot our system, as well as investors looking to help align higher education with its expanding use of technology. With your help, we will help campuses transition to a more efficient, secure, and connected campus experience.

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