Project Proposal

Team Name, Members, Emails

Team Name: Protected U
Members:

- Chiao Lu (204848946): 7gci0nclfvuvo5v8ty269jouk1gz4dbjdh57el3yqi45r1nzu7@luchiao.com
- Shen Teng (104758168): shen_teng@engineering.ucla.edu
- Mu-Te Shen (904676710): mt0937142871@ucla.edu
- SangJi Lyu (704850507) sanyul@g.ucla.edu

Motivation

We live in a world full of identifications, but our most reliable ID cards is the least secure method. We rely on a piece of plastic to tell others who we are. As long as one steals the physical card, one can pretend to be you. For example, the barcode on our UCLA ID card is simply plain text encoding of our ID number. To make the hacking process even simpler, one can take a picture of that barcode, and do a lot of things in the name of you, without being noticed since the card is not “lost.”

According to Pew Research Center, 94% of population in the US aged between 18 and 29 own a smartphone. We propose a new way of identification with the security that algorithm can provide. Our service will constantly create a string hashed from the ID number, timestamp, and secret salt every once in a while, and that’s the only valid ID a student can use. Each time a student needs to pull out their ID, like in the dining hall or at Murphy hall, they can either use the generated QR code, or use the NFC (simply tap) to connect with the receiver. With our app, one doesn’t have to worry about lost ID, or malicious copying of the ID.

Expected Functionality

- A secured form of student id BruinCard
- NFC authentication (or camera, if NFC not available) to scan id
- QR code

Wireless Technologies Used

- NFC

- 802.11
- Mobile Internet (LTE, 4G, ...)

Implementation Overview

Server: generate secured string for authentication
Android App:

- sender: convert string to NFC or QR code.
- receiver: retrieve information from the sender's secured message and check if it's authentic.

Responsibility Assignment

Tasks:

1. Server Development: Mu-Te, Chiao Lu, Shen Teng
2. Android App Development: Chiao Lu, Shen Teng
3. Testing: SangJi

Work Schedule

WEEK	
4	Order/Obtain equipments and learn about Android/NFC
5	Server design, Algorithm design and testing
6	App design, Server development
7	App development, Server testing
8	Server Testing. Make project presentation (powerpoint)
9	Wrap up: making sure everything is presentable

References
http://www.pewinternet.org/fact-sheet/mobile/