Reception number	

SW Institute	**Academicity Capstone Design Result report**	개인정보 삭제

Task type	■Technical solution type		□Problem excavation		
Task area	□AI	■Information protection	□VR/AR	□IOT	□Big Data
Task name	DID - access control system	Team name	Block-PASS		
Period of execution	2022/03/01/ - 2022/06/30				

깃헙 업로드시 개인정보 삭제

Participating students	Major	Grade	Class Number	Name	Contact
	Computer engineering	4	개인정보 삭제	Park Ju Hyun	
	Computer engineering	4	개인정보 삭제	Kim Sun Hong	
	Computer engineering	4	개인정보 삭제	Kim Young Jae	
	Computer engineering	4	개인정보 삭제	Jin Hae In	

Gitub Link 주소	https://github.com/turtle-Park/cap_design

Submit a result report according to the Design Support Plan of the University Campus Support Business Program, SWU-centric Business Support Project.

2022 year 4 month 5 day

Coaching Staff : 깃헙 업로드시 개인정보 삭제 (sign)

Representative Student : Ju Hyun Park (sign)

개인정보 삭제

<별첨서식#2>

Composition of Capstone Design Projects for the industry-style capsulation projects

1. Task Professor and Professor of Engagement

Index	Name	Position	Subject	Contact	E-mail
개인정보 삭제					

2. A list of Members

Index	Subject	Year	Class Number	Name	Contact	Role
1	Computer Engineering	4	*개인정보 삭제*	Park Ju Hyun	*개인정보 삭제*	Plan and design the entire project as a project manager. analyze and solves problems that arise in this process. and also responsible for implementing blockchain as a developer. mainly responsible for producing Android applications.
2	Computer Engineering	4	*개인정보 삭제*	Kim Sun Hong	*개인정보 삭제*	As the main developer, it oversees the back-end. It implements a server and blockchain network and links it with Android applications.
3	Computer Engineering	4	*개인정보 삭제*	Kim Young Jae	*개인정보 삭제*	As a QA, analyze and solve the problems of the project. Design and implement Android UI/UX as a front-end developer
4	Computer Engineering	4	*개인정보 삭제*	Jin Hae In	*개인정보 삭제*	Responsible for the overall design of the system. As a backend developer, implements blockchain and various functions by technically converting solutions while communicating with team members.

3. Other participants(Graduate student /Internal/External experts / practicpants)

Index	Name	Role	Affiliation	Contact	E-mail
개인정보 삭제					

o The number of participating professors shall be one or more, representative professor is located on the top.
oThe role of the team members list is to describe the roles of the team leader, secretary, deputy, and observer.
oThe position of other participants is indicated by doctoral course and master's course for graduate students / In the case of external experts, the position of the institution.

※ Team Member Contribution

name	Idea Contribution (0.25)	Attitude of participation (0.25)	punctuality (0.25)	participation rate (0.25)	Final score	Number of times to participate/ Total number of meetings
Park Ju Hyun	깃협 업로드시 개인정보 삭제					
Kim Sun Hong						
Kim Young Jae						
Jin Hae In						
sum						

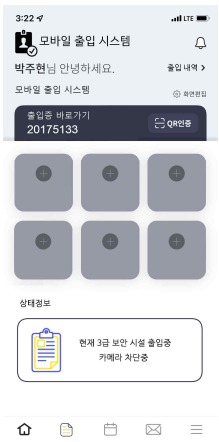
A problem / point of praise

1. tried to participate hard in other areas even if I did not do well in development.
2. couldn't contact him, and even the notice made me uncomfortable
3. It would be better if you let me know which part you tried, not which one.
4. It was good to challenge with confidence.

A Study on the Execution Plan of Capstone Design Studio

1. Outline of Task

Our Idea, Decentralized Identity based access control system is is to solve the security problem of the existing RFID system by storing authorized visitor information in a distributed form As a blockchain technology. this idea is designed to replace access permits for military access control, security facilities , and companies that need security, which currently use the existing RFID system. For security of each access control area, this system also includes the function of limiting the function of the mobile phone according to the security level of the accessible visitor and the security requirements of the access destination.



[pic 1] design example

2. The Necesity and Expected Effect of Task (과제의 필요성과 과제의기대 효과)

access cards based on RFID technology have been steadily used due to their advantages such as being able to be used repeatedly and operating at low maintenance costs. However, RFID technology has a resource limit because its low price. this mean it is hard to apply high level security algorithms. [1)]

The fact that existing RFID-based access systems are vulnerable to forgery and alteration, and the penetration rate of mobile phones in Korea is 100%, and penertration rate of smartphones is more than 95%,[2)] considering the results of such studies it will not cause inconvenience even if the access card is put inside the mobile phone through DID technology.

Currently, in places where security is needed, such as military facilities, stickers are attached to mobile phone cameras to maintain security. but it is vulnerable to security. if we use our access control system, we can be able to control visitors' mobile phone functions such as blocking a camera, and blocking incoming and outgoing calls.

1) 유국남(2009) RFID 시스템의 한계와 미래 발전 방향 (p.56)
2) 한국갤럽 2012-2021 스마트폰 사용률 & 브랜드, 스마트워치, 무선이어폰에 대한 조사

3. Task goals and content

first goal

To realize this function, we use blockchain-based Decentralized Identity technology. we develop this system with privit-blockchain. We expect this to solve problems such as usage fee problems and latency at the same time. and it can also secure strong reliability.

second goal

According to the security requirements of the place where access is to be made and the security level of the visitor, Block the functions of mobile phones.

4. How to Perform a Task

1) Research

Study and research so that it can be developed with blockchain technology.

2) Back-end develop

Implement access control system with blockchain technology, and add other functions. when implement blockchain, we use python and JAVA. Since the system to be implemented is in the form of a private blockchain, it is implemented as a PBFT consensus algorithm.

3) application develop

It will be developed using Android studios so that users can use the system through Android apps.

5. Advance schedule

Details	Period of execution(Month) (Plan : ⇨)																	
	3					4					5					6		
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	
Drawing out ideas																		
Material purchase																		
Research																		
Back-end production													중간 보고서					
App production																		
interim experiment																		
final expriment and modify																		
get results																		

Week	Project propulsion plan	Enterprise Participation status	Participation Name of enterprise
1	Drawing out ideas		
2	Material purchase		
3	Research		
4	Back-end production		
5	App production		
6	interim experiment		
7	final expriment and modify		
8	get results		

○ Task Detail Capstone Design

6. Expected effects and utilization measures

- Expected effect

Due to this system, will be possible to improve the RFID-based access system with loopholes in the existing forgery and modulation. This will be widely applied to access to other companies or security facilities that currently control access using RFID systems.

It will also be possible to block technology or secret leaks by appropriately limiting the functionality of the cell phone according to the security requirements of the access place.

Through this, it is also possible to carry cell phones by restricting cell phone functions even in places where cell phones were not previously available.

7. Requirement expense statement

Sortation	Cost		Ratio(%)
	Calculation details	Estimated	
Material cost	깃헙 업로드로인해	민감정보	삭제
Total			