

IT Project Management

Final Report



Dept : Information System

Team Member1 : Minseok, Pak

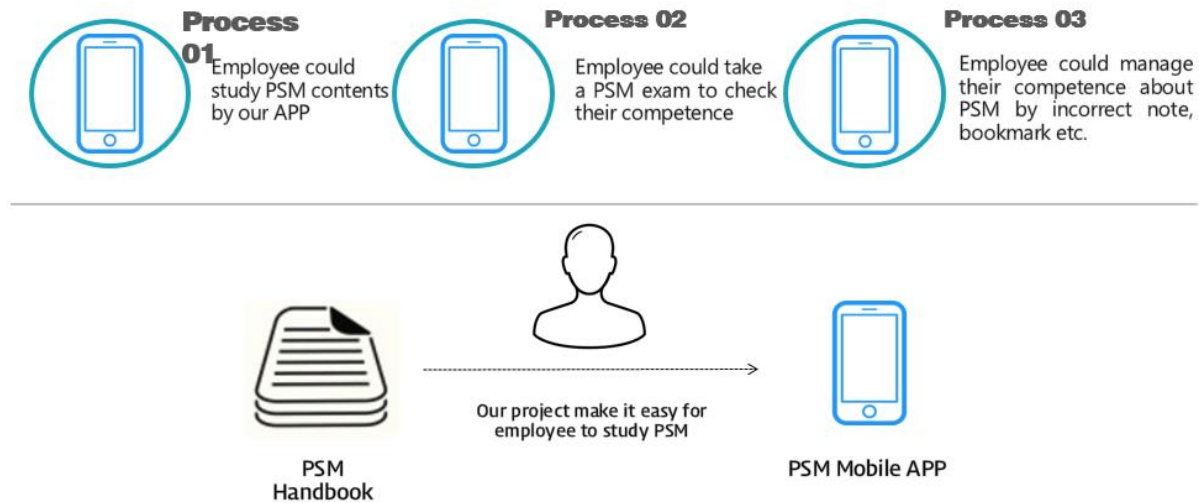
Team Member2 : Jaehoon, Han

Team Member3 : Hakjun, Kim

Team Member4 : Hyeyun, Hong

Date : 2015.12.17

■ ABSTRACT



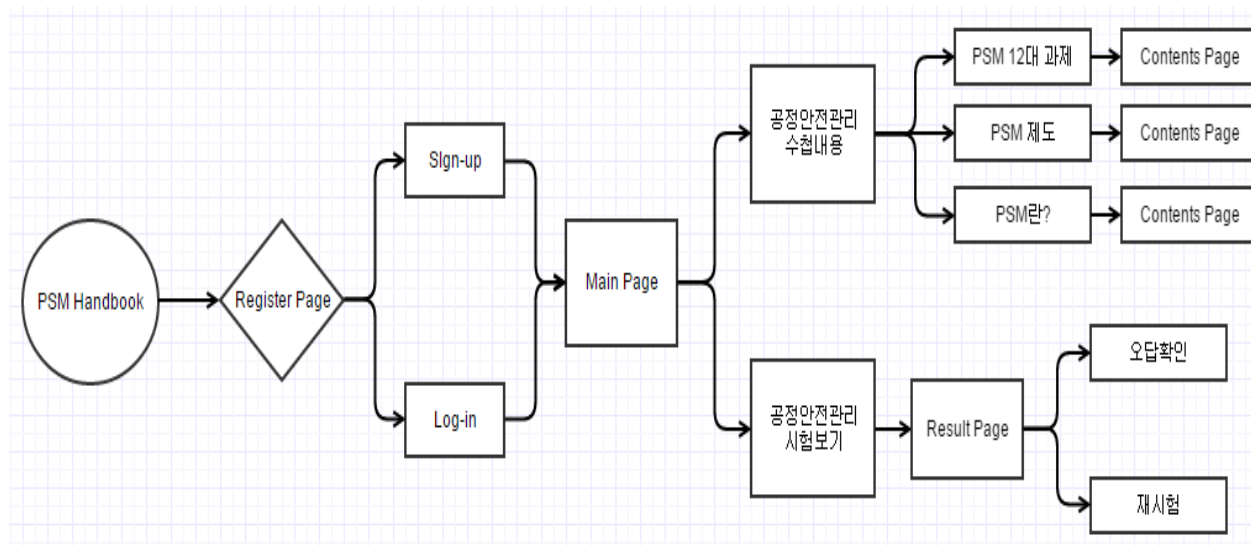
■ Objective

We found the company, (주)교우산업 for our project. The company wants to upgrade its PSM(Process Safety Management) grade. It was evaluated M- which is the lowest PSM grade. The company need to develop mobile application to educate employees about PSM guideline. And the company need to check how the employee understand PSM. Because it makes PSM grade of this company better. So our project is to develop mobile application for PSM education.

■ Role

Name	Role & Responsibility	Responsibility Description	Joint Role
Minseok, Park	Project Manager and Frontend and Backend Development	<ol style="list-style-type: none"> 1. Project Planning & Management 2. Develop Handbook pages(layout and Incorrect Note) and Manager page(graph) 3. Use Parse for backend server 	App Testing
Jaehoon, Han	Frontend Development	<ol style="list-style-type: none"> 1. Develop Handbook pages(using Tab / ListView and ViewFlipper / add bookmark function) 	App Testing
Hakjun, Kim	Frontend Development	<ol style="list-style-type: none"> 1. Develop Exam Screen pages(adding record function to show the result page) 2. Construct Server and link with frontend 	App Testing
Hyeyun, Hong	UI/UX Design and Frontend Development	<ol style="list-style-type: none"> 1. Design the App's UI/UX(Intro, Handbook, Exam pages etc) 	App Testing

■ Flow chart for application



■ Application Guide

PSM Handbook

사용자 이름

이메일

비밀번호

등록

<Register page>

PSM Handbook

사용자 이름

비밀번호

회원가입

로그인

<Login page>

[User Register Page] :

- 1) If user has not registered yet, user should click '회원가입' button. And user should fill out the blank (User name, E-mail, Password).
- 2) If user has registered already, user writes down User name & Password and clicks the '로그인' button. Then, the page is moved to 'Main Page'.

공정안전관리 핸드북
PSM HandBook



로그인 성공!

<Main page>

[Main Page] :

- 1) There are two buttons('공정안전관리 수첩 내용' – PSM Notebook Contents and '공정안전관리 시험 보기' – Take a PSM Exam).
- 2) If user clicks '공정안전관리 수첩 내용' button, Activity is changed to 'PSM Notebook Contents Page' and user could see the 'PSM 12 대 과제' and 'PSM 제도' and 'PSM 란?'.
 3) If user clicks '공정안전관리 시험보기' button, Activity is changed to 'PSM Exam Page' and user could take a exam directly.

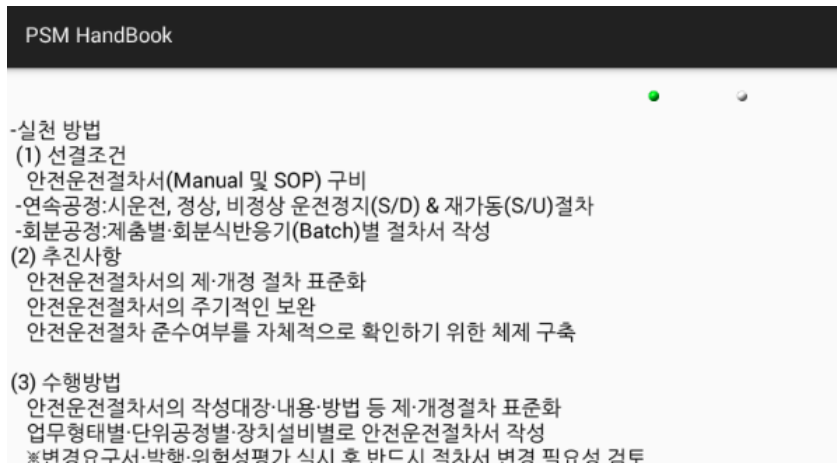
1.PSM 12대 과제	2.PSM 제도	3.PSM 란?
읽지 않음	PSM 12대 실천 과제별 세부 추진사항	
읽음	공정안전자료의 주기적인 보완 및 체계적인 관리	
읽지 않음	공정위험성평가 체제 구축 및 사후관리	
읽음	안전운전절차 보완 및 준수	
읽지 않음	설비별 위험등급에 따른 효율적인 관리	
읽지 않음	작업허가절차 준수	
읽지 않음	협력업체 선정시 안전관리 수준 반영	
읽지 않음	근로자(임직원)에 대한 실질적인 PSM교육	

<HandBook Page>

[PSM Handbook Page] :

- 1) Default(1st tab) is 'PSM 12 대 과제' and there are 12 lists. If user clicks the some list he/she want to study, the activity is changed to show detail contents about the list user clicked.

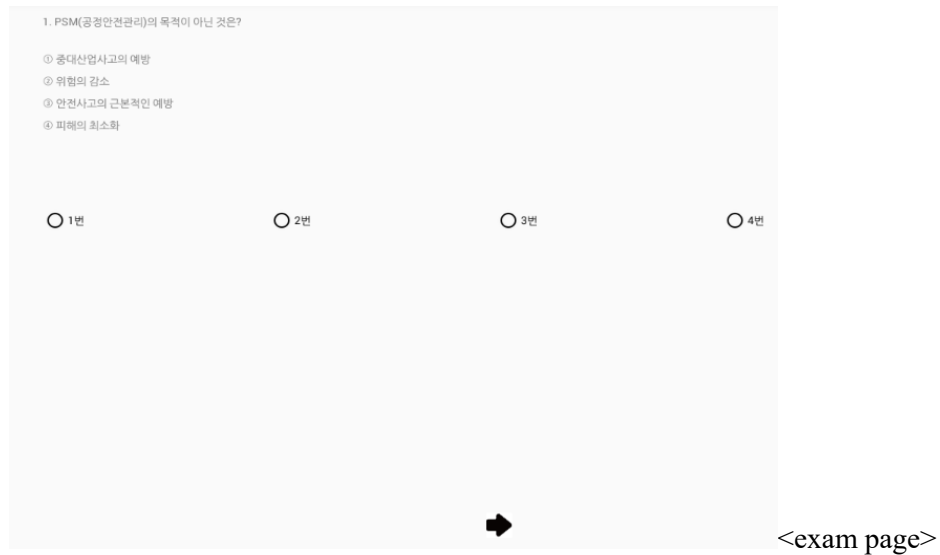
- 2) The middle tab is 'PSM 제도'. User could see list that the summary of PSM, introduction background, the legal basis etc are included.
- 3) The right tab is 'PSM 란?'. User could see the definition of PSM.
- 4) There is bookmark button left of the list. If user click that button, the text in the button is changed to '읽음' and mini bar's color in the button is changed to green.



<Detailed content page>

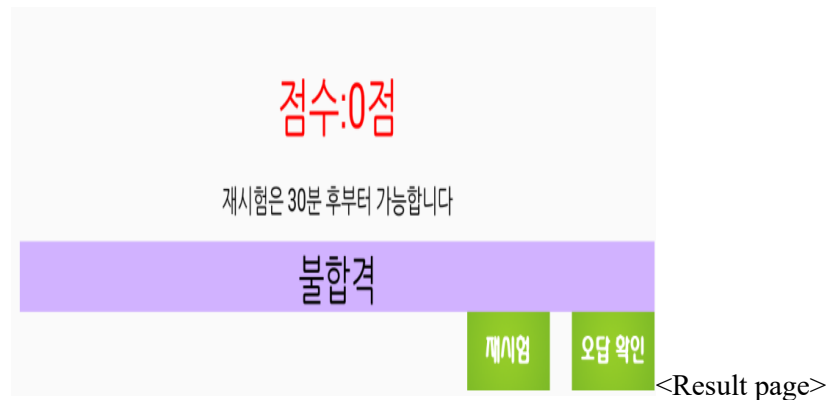
[The Detailed Contents Page] :

- 1) User could move to next page by sliding page from right to left. And if user wants to go back to the prior page, user should slide page from left to right.
- 2) If user clicks text for 2 seconds, it is highlighted by yellow color and user could adjust highlight scope to copy and paste that text.



[PSM Exam Page] :

- 1) User reads the question and clicks the answer in the checkbox.
- 2) User could move to next or prior question by click the arrow image.
- 3) If user clicks the '제출' button, the activity is changed to 'Result Page'.



[Result Page] :

- 1) Result Page shows record and whether user is pass the test or not.(If the record ≥ 90 , the result is '합격' (=pass) and if record < 90 , the result is '불합격' (=fail)).
- 2) If user clicks the '오답확인' button, the activity is moved to 'Incorret Note Page'.
- 3) Taking exam again is possible after 30minutes.

PSM HandBook

1. PSM(공정안전관리)의 목적이 아닌 것은?

1) 중대산업사고의 예방
2) 위험의 감소
3) 안전사고의 근본적인 예방
4) 피해의 최소화

정답: 4

2. 밀폐지역에서 작업을 실시하려고 한다. 밀폐지역내에서 작업을 실시할 경우 산소 농도를 확인하여야 하는데, 몇% 미만일

1) 16% 미만
2) 17% 미만
3) 18% 미만
4) 19% 미만

정답: 3

3. 다음중 알루미늄 테이스트에 화재가 발생한 경우 소화약제로 사용하기에 가장 적합한 것은?

1) 물
2) 분말소화기
3) 가스계소화기
4) 마른모래

정답: 4

4. 다음은 위험 기계들을 사용할 경우 위탁 또는 자체적으로 자체검사를 주기적으로 실시하도록 실시하도록 법으로 정하고

1) 승강기: 월1회 이상
2) 호이스트: 년2회 이상
3) 국소박이장치: 년1회 이상
4) 보일러 및 압력용기: 년1회 이상

정답: 4

5. P & ID란 무엇인가?

1) 공정안전배관도
2) 공정배관계장도
3) 공정안전계장도

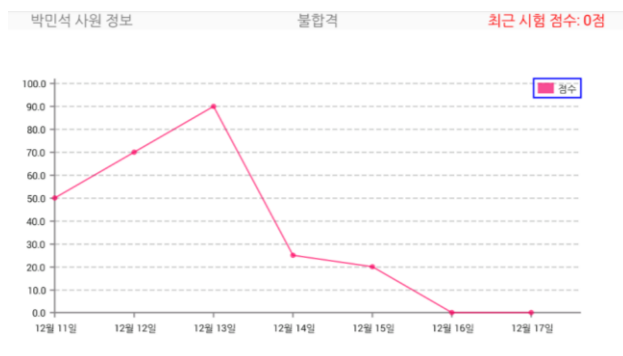
<Incorrect note page>

[Incorrect Note Page] :

1) User could check the incorrect questions he/she was wrong.

PSM HandBook	
hakjun	→
강도연	→
박민석	→
안형석	→

<Manager Main Page – user list>



<Result of employee page>

[Manager Main_Page] :

1) Manager can show list of all of employees who register their account in this application.

2) When clicking the specific name of employees, manager can see that employee's result of taking an exam and the results are described by line graph which show the changes in the employee's score of exam for recent 1 week.

■ Development Environment

A. Choice of software development platform

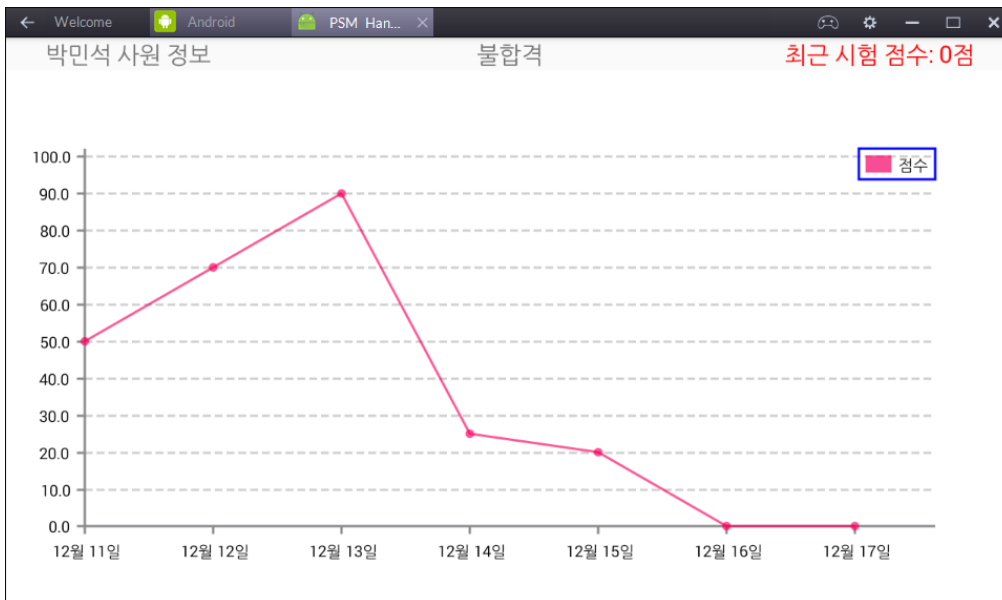
- 1) Android API 2.2 ~ Latest version.
- 2) Android Studio

B. Programming language

Because we should develop android mobile application not ios(apple smartphone), we used JAVA and XML(for layout) to complete our project

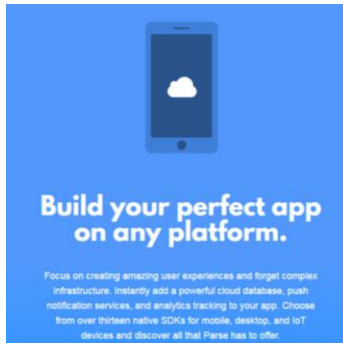
C. Open Source

We use HzGrapher Library which is open source for android graph to develop graph function in our project. You can see the source code at <https://github.com/handstudio/HzGrapher>. Also you can download the code and use to your android application. The below picture is graph function we developed. There are many graph in this library such as Line graph, Radar graph, Curve graph, Circle graph, bubble graph. We use Line graph function because, after interview, we know that what our client wants is to show changes in the result of employee's exam for recent 1 week. We updated this function on our application at 2015.12.16.



D. Other platform in use

Because we need to use back-end for our project, we use "Parse"(The Cloud Application Platform)



<<http://parse.com>>

It helps us make our own server easily, because it is a suite of cloud service for developers who need to use back-end more easily. We have 2 tables for our project which are “User” and “Data”.

objectId	username	password	authData	emailVerified	email	online	point	IsAnswer
7zRTgSVu76	박종대	(hidden)	(undefined)	(undefined)	a@a.com	true	(undefined)	(undefined)
ShAq5eg9ub	hakjun	(hidden)	(undefined)	(undefined)	canon3478@gmail.com	false	(undefined)	(undefined)
xxHTdnKbhv	박민석	(hidden)	(undefined)	(undefined)	hasta@gmail.com	false	10	["false", "false"]
nQfj1HSeQm	안형석	(hidden)	(undefined)	(undefined)	ab@a.com	(undefined)	10	["false", "false"]
2ge9LmHudH	강도연	(hidden)	(undefined)	(undefined)	pak@gmail.com	(undefined)	0	["false", "false"]

The above picture is User table in our Database using Parse. This table manages the data of user. “objectId” means primary key of this table. “username” is attribute to represent the worker(users) of (주) 교우산업 and it is identification for Log-in. User can enter his/her name using Korean or English. “password” is attribute to represent password for Log-in. “email” is attribute to represent e-mail of user. “point” means the recent result of taking a exam of the user. “point” should be more than equal to 0 and less than equal to 100. “IsAnswer” is attribute which is user’s answer for the problem when user takes an exam. If user solve the problem correctly, “true” value will be added to this attribute.

P	PSMHand...	DEV ▼	Core	Analytics	Push	Settings	D
Data	+ Row	- Row	+ Col	Security	More ▼	Filter	
Role 0	objectId String	point Number	username String	Month Number	Day Number		
Session 24	yACJk0F9F1	0	박민석	12	16		
User 5	1IOc6AFRkV	25	박민석	12	14		
Data 7	q3rjrHsCSC	90	박민석	12	13		
+ Add Class	gSwpFmotdQ	70	박민석	12	12		
+ Import	9zkhPEisDc	50	박민석	12	11		
Cloud Code	MythjxvIFX	30	박민석	12	10		
	CkktANsTj1	20	박민석	12	15		

The above picture is Data table in our Database using Parse. This table manage data which is user's result(point) of taking an exam. "point" attribute show how much the user get score from the exam. "username" is the user's name who takes an exam. "Month" is a month when the user took an exam. "Day" is a day when the user took an exam.

Interview

We interviewed with the manager of the company and 1 employee. The following question and answer are the result of interview.

Q. Do you think this mobile application is user-friendly? If so or not, why?

A. This app is very simple(just read a text and take a exam).

So, we don't need any guide book for using this app. Therefore it is user-friendly.

Q. Do you think this mobile application is creativity? If so or not, why?

A. I don't think so, because we just read text and take a exam.

There is no function to motivate or encourage employees to study PSM by themselves.

Q. Is there any inconvenience to use this application? If so or not, why?

A. We want this. Text should be in a row, not more 2 lines.

Q. Is there any inconvenience to use this application? If so or not, why?

A. We want this. When click "확인", immediately activate Login function.

Q. what else do you want for this application.

A. I(who is Manager) want to add graph in manager screen showing changes in the result of employee's exam. Also I want to know how many times the employee uses this app. In addition, I want to send push message to employee for "You don't often use this app. Study!!"

A. The present app has bookmark function, but user can click bookmark button to represent that he or she read or not. Then, there is a problem such as user didn't read but click the bookmark button and say "I read!" I think it is better when user click the item of list to read, the background color should change other color to show whether user read or not automatically

Q. Do you think this mobile application is more efficiency than before? If so or not, why?

A. Before this project, we made a plan just to print out PSM guideline and make book. However, we think it is inconvenience because poor portability and this book is very thick, so employees don't want to study PSM. So we give a project to develop mobile application. Because many employees have smart phone, using PSM handbook application is very efficiency in terms of portability or making employees study PSM frequently.

Q. Do you think this mobile application has value? If so or not, why?

A. As I mentioned before your question, this application is very useful. PSM guideline book is thick, so employees don't read that book and it is very inconvenience to carry this book for studying. However, this app make employees study PSM more often because many employees use smart phone every time, every where.

■ Lesson Learned

Minseok, Park(박민석) : I am main developer in our team. I had no experience to develop android application before this project. So I was concerned that we can make our project successful. Many people said to me that android development is easy, so I think our project will be done easily. However, when adding new function on application, there were many errors to fix. So I spent much time to fix these errors. Besides, I developed many functions that we should make for our project. Because I devoted much time to this project, it makes me study android hard and I improves my skill to develop android app. Also using “Parse” which is BaaS(Backend as a service), I can build app server more easily. This time, I build server easily to use Parse, so I want to study backend server such as Socket.IO or Node.JS because I became interested in building server by myself.

I think it is success project. First of all, we satisfy scope(90%). There is scope change, but we couldn't satisfy new requirement(text highlight). Also we meet a dealine(time) except developing new requirement. And there is no cost(we just use Parse). So I think our project is successful.

Jaehoon, Han(한재훈): I learned a lot of thing through this project. First of all, now I know what IT project is and what is most important in IT project. I think practicality is most critical factor in project. The second thing that I learned through this project is about coding. I was afraid of coding. When I decide to do coding, because of vague which is arise from my ignorance I couldn't start coding. However, during this project I could learn what coding is.

Before this project, I thought coding is creating something new. But, the coding that I actually done was not making something new, but changing preexisting one and fixing error. Now I know that the coding is not an indefinite work. If I didn't do this project, probably I still have some fear about coding. I plan to make some application on my own during my winter vacation.

■ Lesson Learned(continued)

Hakjun, Kim(김학준): This was first time for me to process IT project over than 3months and manage that project from start to finish. So, I'm happy to see our project result althouth there were some problems when we made our android application. When I enconutered development problems, some problem was difficult to solve and spend a lot of time. But, it was good experience for me to develop new parts and develop the program cooperating with other people. But, if I have a chance to do simillar project like this, I will use git-hub. Because it was difficult to combine with a lot of codes. And, I think that it was also very good thing to apply the topics about IT project (ex-scope/time/cost/risk management etc) to our project in real.

Hyeyun, Hong (홍혜윤): First, we had each own ideas, we had meeting and we adopted idea of Minseok. Because his idea had been more specific than the others. He'd prepared a lot about his project. He has been a project proposal in his father's company. Based on it we planned to meetings after class every week. We decided to implement an app. But I've tried a lot of the usual web development, application development was the first. So I thought that the prayers of a great opportunity to learn Android.

I first tried the Android development in September. Our leader was Minseok. He leads by example and work hard. His appearance was like that of many lessons. I would like to receive the sincerity of his hard work. He may be able to get a lot of stress, it not even once was angry. He is younger than me, but I think mature than me in that respect. And there are many points yet to learn one people. In collaboration with real companies, under the project, it is planned to develop it and to try firsthand feedback to process outgoing really mean deep. During the semester really sore but, I think I was delighted to learn that many instruments. I want to say thank you for this opportunity given to professors.