CATEGORY 4: RESOURCE DEVELOPMENT 2018

Project Hwa Chong Integrated Smart Communication (H.C.I.S.C.)
Group 04-70

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ABSTRACT

Project H.C.I.S.C. is an integrated communication mobile app to ease the communication between students and teachers of Hwa Chong Institution (HCI). Our project designed an app that improved the mobile interface and dimensions along with features such as the Logged-In function, iEMB-like message system where students get notified with messages made by the teachers. The app interface will also display the time of message sent and the creator of the message. Overall, the app is simple and user-friendly for HCI students to use to improve communication.

INTRODUCTION
OUR RATIONALE

Based on our experience of using iEMB for more than 2 years, we decided that iEMB should have an official mobile app for students and teachers. Users of iEMB have to log into iEMB via HCI portal and this can be quite tedious. Hence, we wanted to create an app which allows users to assess the message board without much hassle. We had also noticed multiple areas for improvements such as the login function and the uneven mobile dimensions of the website version. Hence, we made use of this opportunity to put our infocomm skills to use and designed an app.
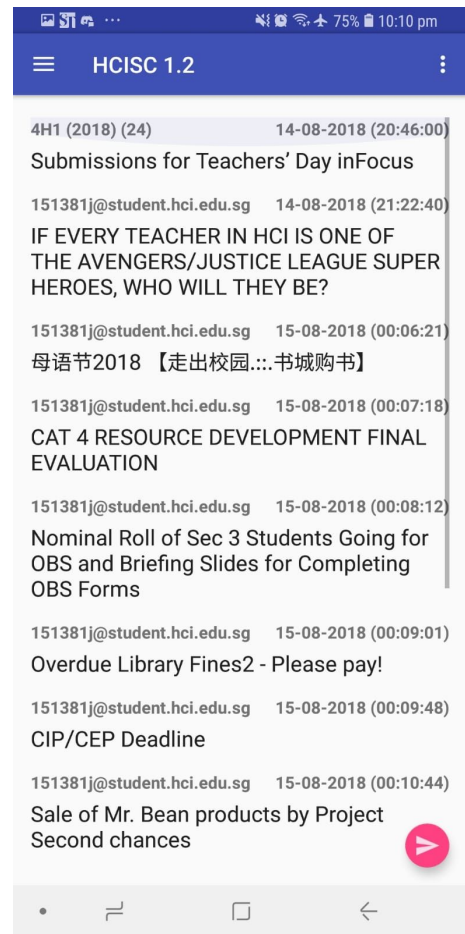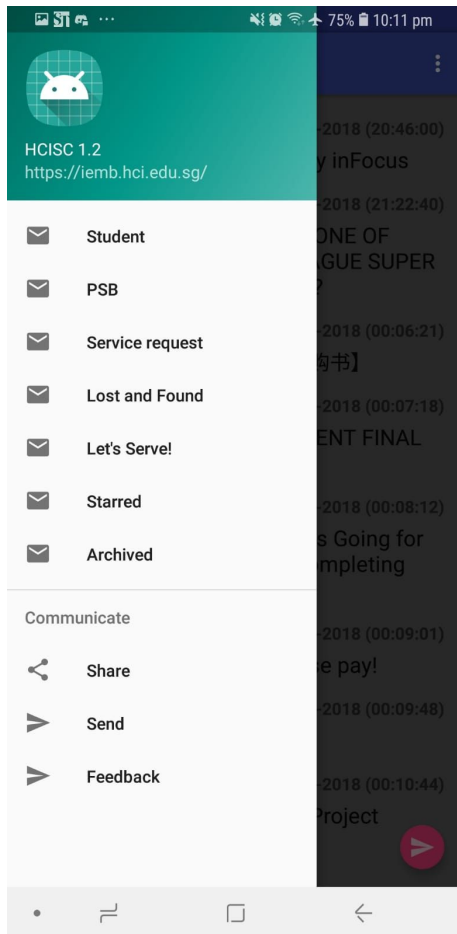
OUR OBJECTIVES

The purpose of Project H.C.I.S.C. was to
- Improve communication between students and teachers in HCI
- Enhance and improve mobile experience of users

TARGET AUDIENCE
Our target audience are students and teachers of Hwa Chong Institution.

RESOURCES

The resource created is an integrated mobile demo app for future uses. This app consists of new features such as the Logged-In feature, Navigation bar, better mobile interface that adjusts according to the user's mobile dimensions, and improved app performance such as having a simple, clear yet functionable interface to minimise lag.

REVIEW

A similar and past working mobile app that consists of the EMB system existed called the EMB X. There is also a website version accessible for mobile users on their browser. However, we considered the fact that EMB X was an old app and not many people knew about it and how to use the app. EMB X was also not up to date, having a

compressed and complex mobile interface. The website version is also not adjustable according to mobile dimensions with slow processing speed and poor mobile performance. We also reviewed some research regarding the importances and benefits of having a well-developed mobile app for education.

According to a survey conducted by the EdTechMagazine, university undergraduates find university apps helpful, but requests for more personalisation and better accessibility. Approximately, in the survey of 1,000 college students, 87 percent said the technological prowess of colleges was important to them when applying. However, centralized mobile apps from their schools eased the transition

to college for 85 percent of respondents and helped 73 percent become more involved on campus. This in terms explains that successful and useful mobile apps can ease the life of university undergraduates and hence play an pertinent role in education.

At the same time, with reference to an article created by the eLearningIndustry, students can benefit from using mobile apps in their education through having access to

- New learning methods
- eBooks and online study
- Miscellaneous functions
- **Decreased Communication Gap Between Students And The Institution**
- Enhanced Parent Teacher Communication

This article elaborate on how using mobile apps in education can decrease communication gap between students and teachers, which is also our main aim of our project. Hence, we decided that an improved and integrated communication app

inclusive of the iEMB system and many other features can greatly enhance our school's learning process.

METHODOLOGY

Our source of app development is the Android Studio (based upon recommendations by our seniors) which allows us to code our app, and mainly Stack Overflow, which is a website where questions on programming are asked and answered. This is where we learnt about how to develop our app easily.

Needs Analysis

We had conducted an online survey at the start of our project to analyse the needs of HCI students and teachers. The survey consists of questions to find out the opinions and suggestions made by the 76 respondents. The results show that students preferred a new and functionable mobile app that improves their iEMB experience and communication with their teachers. Some suggestions include designing a more simple interface and better performance app. As such, we ensured that this app would be beneficial resource to improve communication and enhance mobile experience of iEMB in HCI.
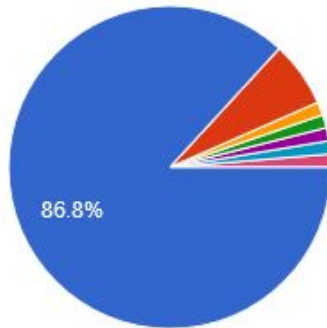
Survey Results

2) Are there any inconvenience about our current iEMB system? If yes, what are they?
76 responses

Make iEMB more organized

doesnt look cool

Not easily to use

Very hard to mark messages and not very convenient

very small on phone, must zoom in, very hassle

buttons are really small, have to zoom in and zoom out, very troublesome.

its annoying to have to log in frequently in order to read my messages

can't access read messages from panel on left

layout quite bad, user interface bad, navigation system bad

Yes, what are lost and found even for.

many useless buttons

Takes alot of time to access iemb so i can read the message

4) Do you prefer to use an adapted mobile version or the current website version of our iEMB system?

76 responses

- ● Mobile Version
- ● Website Version
- ● both
- ● nokia
- ● It depends on how the mobile version is designed. But even so, I usually check IEMB on a laptop...
- ● A good iemb system that have working lost and founds
- ● Neither

86.8%

3) What improvements/adjustments do you want for our iEMB?

76 responses

make it easier to use (2)
Maybe a mobile app with a nice interface and better performance speeds
Filter system could be better
Place read messages in order.
If its mobile it should be quicker and more efficient to use than the computer version which means your programming must be better than mr kkt :))
Make it easier to actually search the archives, and leave the read messages displayed by default.
none
No more emb
Faster loading times, offline version for previous messages, a read all/ability to select multiple messages to read button, a accurate search function, a mobile app that supports many platforms like Android and iOS
Not sure
Notifications for phone

These pictures include some of the questions we asked the participants and the opinions and suggestions we collected from them. From the pictures, we can clearly

identify some of the areas for improvements in the current iEMB system so that we can focusing on those areas to develop our app on.
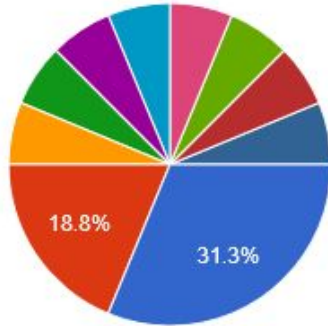
Development of Resources

Throughout April to mid of June, we did research on how to code our app as we are still IT amateurs. We visited libraries and accessed Stack Overflow for guidelines on Android Studio app development. We started off by trial and error so as to achieve a working basic app and further developed and added more codes in time. We have also reviewed multiple tutorials made by experienced app developers on YouTube and past similar apps. To determine whether the messages sent are functionable, we also made use of Firebase, which is a platform that serves as an online database. We connected our app to our own Firebase and successfully programmed a working message system, sending messages back and forth to the Firebase, a replacement of HCI iEMB database.

Pilot Test

We administered a pilot test to 16 participants by letting them a first hand experience on a demonstration version of our app. After the session, they completed a survey to collect their responses and suggestions of our app. From the results, it was evident that we can further improve the features and program a simpler app interface. The recommendations from participants were incorporated into the developments of our app. Overall, they felt that the app was a great idea and would be useful resources to them only if it was coded more professionally and had more detailed functions.

Is the interface more mobile friendly?

16 responses

- ● Yes
- ● No
- ● I guess so, I mean if more functi...
- ● Currently No, it maybe in the fut...
- ● Kindly, it will be better if more d...
- ● Depends, currently, it is not.
- ● Yes, but can we improved to be...
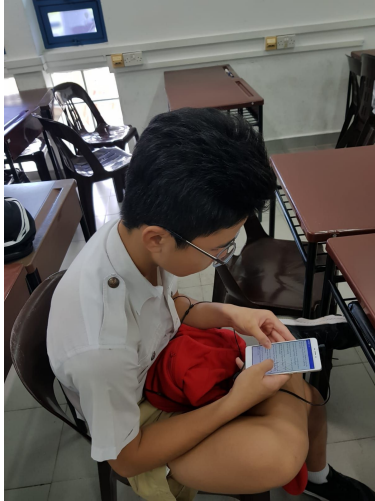- ● if u guys add more stuff then it w...

△ 1/2 ▽

How can we improve on our current demo version?

16 responses

Link your app with the iemb system or else it is just a prototype and explains nothing.

Make a better app and project icon, make it so that the app can run in the background or something.

Can improve on the functions and the message layout

Improve on message layout so that we can mark the messages as Read quickly

Can add a function to change the colour of the interface as we want like changing the colour to black or orange.

Add the iEMB message READ button so that we can read messages quickly

Please create a message read button so we can read our old messages

Create a better app icon honestly, and add in a scroll bar so we can scroll through the messages quickly

Add the search function so we can classify the messages accordingly.

Make the app link to the iemb system.

add the function where i can see if my classmates have read the messages too.

Maybe add some colours to the messages

These are some photos taken while we pilot tested our app with the participants. We got them to download our app through our APK file and let them tried the app out. Afterwards, we got them to fill up the survey form such that we can collect their opinions on our current app progress and some suggestions from them so as to improve our app and make sure we are on the right track.

OUTCOME & DISCUSSION

Overall, we have designed an app with functionable features to ease the communication between HCI students and teachers. Our mobile app also serves as a demonstration such that if the infocomm club or IT department of HCI is interested, they can adopt our app and sync it with the school's iEMB system such that it can used as an improved and official mobile app inclusive of iEMB for students and teachers of HCI.

CONCLUSION

Project H.C.I.S.C. was an interesting and challenging project for us as this is our first time developing an app and it requires great commitment towards learning the programming languages, the basics of our programming software (Android Studio) and programming our app. Through the project we had learnt many new things on

programming and develop many skills such as teamwork and time management. At the same time, we hope that this project can be adopted in the future to be continued and improved such that it become an official app for HCI.

REFERENCES

Cortez, M. B., & M. (2017, December 21). Students Find University Apps Helpful, but Want More Personalization. Retrieved July 6, 2018, from https://edtechmagazine.com/higher/article/2017/12/students-find-university-apps-helpful-want-more-personalization

Creating a Climate for Learning: A Survey for Students and Teachers. (2017, April 11). Retrieved July 11, 2018, from https://www.facultyfocus.com/tools/worksheets-and-checklists/creating-climate-learning-survey-students-teachers/

Our main resources where we gained knowledge on app development and tools we have used for it;
https://stackoverflow.com/
https://firebase.google.com/
https://developer.android.com/studio/