HKUST Entrepreneurship Center Application

Enhancing user-friendliness on team creation, connection and join functions

ISOM3010 Project Report
L2 Group 3
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HKUST ENTREPRENEURSHIP CENTER APPLICATION

The HKUST Entrepreneurship Centre Application (EC App) is an entrepreneurship supporting app which offers primarily HKUST students and faculty an opportunity to join case competitions, workshops, inspirational talks, and connect with like-minded people on one single platform. Business is one of HKUST core departments. The objective in the creation of the EC app was to support innovation and foster an analytic risk-taking mindset on HKUST campus. In addition, another important goal in terms of functions was for external users, non-UST members, to be able to use, join, and participate in events presented within the app.

INTRODUCTION

With one of our groupmate's personal experience applying to entrepreneurship competitions, we had a chance to use the EC App itself. There were multiple technical difficulties as the app was outdated, which caused troubles in our application process.

With this in mind, we decided to work with the EC App for our project as to benefit all entrepreneurship enthusiasts in HKUST.

PHASE 1: PROJECT INITIATION

ORGANISATIONAL STRUCTURE

The EC app was initiated and carried out by the HKUST Entrepreneurship Centre. With help in design by Flips Digital and co-developed by students, the app was launched and is operated under the following structure:

HKUST Entrepreneurship Center Application
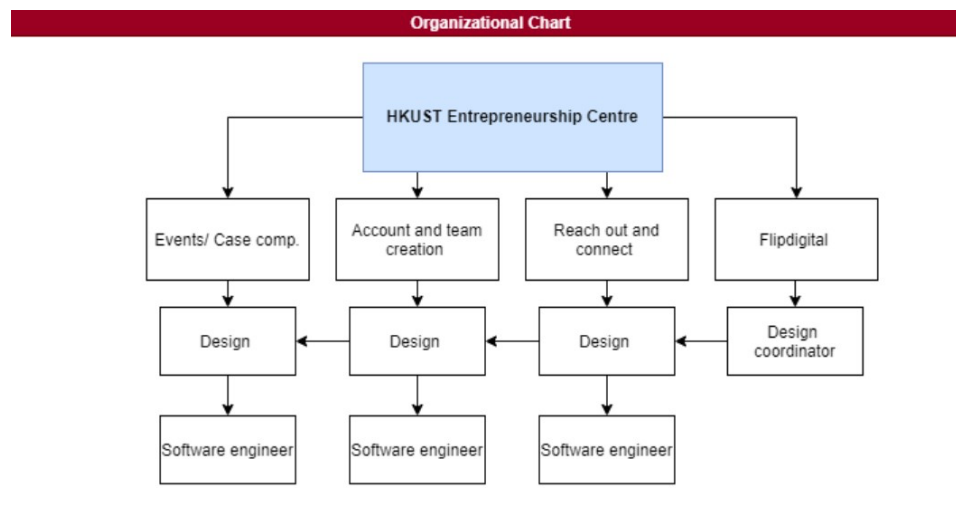
Flips Digital got involved to help design the structure, their recommendation was first approved by the EC. During implementation Flips worked with each department which was divided up based by core functions. Under each department students were assigned based on skill and knowledge with supervision from a staff member of the Entrepreneurship Centre.

Hence, the team is planned to be structured as **project-based**. Since Flips Digital is a creative digital agency which is responsible for creating digital content for apps and websites, each service it provides is unique, tailor-made . Workers who handle the project mainly come from the divisions of design and software development. And because the team members are students and part-time workers, their work should not be overloaded. The EC app team is proposed to be project-oriented so that team members' work could be clearly defined and dedicated to one particular project every time to ensure they're responsive and flexible to the expectations of their customers.

FUNCTIONS & USER FLOW

The current flow on how to use the app is shown below.
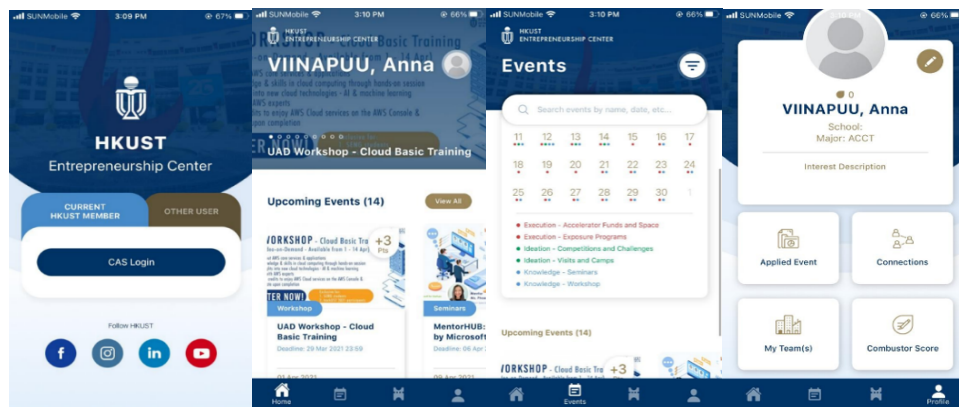
Users are first presented to login or create an account, once successfully login they are directed to the home button which shows an overview of upcoming events. Under profile users can edit their profile by adding a bio or photo. They can also join teams, connect with people, and overview events they have joined.

Case competition: To join a case competition, interested applicants must join through the app. In order to join they must have a team. A team can be created by (1) users connecting with others by sending a connection request. Once accepted they can be added to a team. (2) if a team has already been formed, users have the option to search for the team's name and request to join.

Workshop and other events: Users have multiple options for signing up for events on the app. On the calendar all events are presents and users can simply scroll and choose.

Optionally, under the home-button the most popular or recent events are presented, and users through there can join them.

PROBLEMS FACED

1. Unchangeable Profile
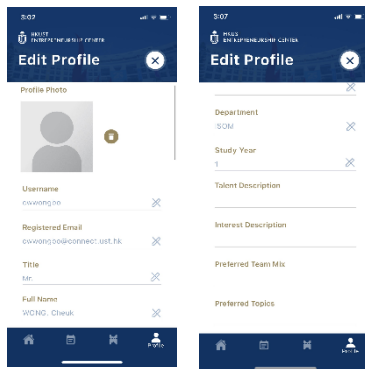
From the user perspective, most of the columns in the profile is unable to be edited. However, the information that appeared is inaccurate. For example, one of our members, Wong Cheuk Wah, is a year 2 female student but the name, title and study year shown on the left are not correct. This will bring inconvenience for users to connect with people due to the misleading profile.

2. Inconsistent search errors

When looking to connect with people or search for others, if the name of the account is not spelled in the order it was created i.e., Anna Viinapuu vs Viinapuu Anna. The account may or may not show up. In short. it is very inconsistent.
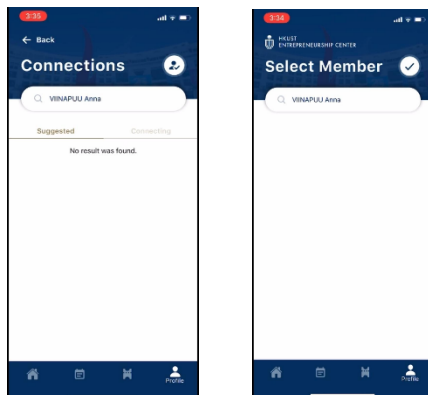
3. Connection Failure

After forming a team, it is difficult to add team members. VIINAPUU Anna is an existing account name from one of our group members, but it cannot be found neither in the connections section nor when selecting members after team creation. Such inconvenience is a hindrance to achieve one of organizational goal of the app, to bring likeminded people together.

4. Possible to apply for the joined events

When users have signed up for an event there is no reminder on the event that they have already signed up for. This causes double-booking which, for events with limited seats, creates an unfair situation for other users as it reduces their chances to attend popular events. Without a function to disable users from applying for already joined events, the goal for users to connect with like-minded people and enhance their entrepreneurial spirit is not met.

To summarize, some of the key functions to join and create teams are not serving their purposes. With the uncertainty of finding the people you are looking for creates irritation among users. The double-booking can over time potentially discourage users to sign up for popular events as they feel they will never get a spot. To top it all up, the back-and-forth flow of first having to connection with people before you can add them to your team is time consuming as the requestee need to wait for approval of their request. With no other option to sign up for case competitions and events but through the app, the need for changes in the flow and functions is a matter of fact rather than a suggestion.

POTENTIAL PROJECTS

Based on the information above our team brainstormed, using our knowledge as well taking user's opinion (more info will be provided later in report) into consideration when drafting these potential projects.

A: Connect with users: Users are currently struggling to connect and form teams which is a vital step to be eligible for signup. To enhance the search function by allowing user to write any order of surname and first name would ease the process of finding and connecting with others, also by dropping the friend request it would speed up the formation process.

B: Double-booking: when user sign up for events, they are not blocked by the event to sign up again which creates double booking. Suggested solution is to create a tracking system so when clicking on an already signed up event a message will delivered saying they already joined.

C: Account editing: Some students have encountered inaccurate information about either their major or year where this information cannot be edited as it is link to our SIS system and is automatically filled out. To allow user to edit their all their personal info would solve this issue.

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The EC app is seasonal meaning there is high pressure and demand on the app during case competition signup period. This happens twice a year, late spring and late fall. In order not to risk any complications during peak season it is suggested to work on improvement during the dry season.

We used a **weighted scoring model** to select project. Based on our knowledge, the matrix can visualize, by clearly showing quantitative measure, which potential issue(s) to address first.

Criteria	Explanation
Ease of implementation	The degree of technical knowledge needed for implementation of the function.
Time consumption	The team on the EC app would like to implement these updated changes before peak season thus, potential duration of project will be of matter.
Risk of implementation	This is the overall negative consequence the change in function may have on the overall experience of the app.
Easen usage of app	This is a quantified criterion over the amount of time users will save on setting themselves up on the app and is of high importance.
Urgency	To compliment the time consumption the EC app would also like to start off with a project most users find urgent as it correlates to their main purpose of using the app.

WEIGHTED SCORING MODEL

Criteria	Weight (%)	Project A	Project B	Project C
Ease of implementation	15	4	1	1*
Time consumption	25	3**	2	1
Risk	15	4	3***	2
Easy usage	20	4****	4	3
Urgency	25	5*****	4	2
Score total	**100**	**3.95**	**2.9**	**2.1**

Rating	Score
Unsatisfied	1
Below Average	2
Average	3
Above Average	4
Excellent	5

Notes:

* A lower number suggest feasibility of implementation will be easy.

** The implementation may have a higher duration which risk project to last even when we are going into peak season.

*** A higher number tells us the initiation of this project can affect the overall experience of the app.

**** A higher number tells us to what degree users will experience a more positive attitude towards the changes within the app.

***** A high number indicates sense of urgency, what to priorities based what main functions users use and goals EC has for the app.

Conclusion

The crucial issues are **(1) create/join teams, (2) double-booking of events, (3) edit account info**. After asking users which one they value as more important, the majority believed **create/join teams** was more urgent to fix. They stressed main purpose to use the app was to connect with others. They are not really working with their cases on the app, it is more of a platform to get an overview of the people and reach out.

BUSINESS CASE

KEY OBJECTIVES

By improving the interface through changes in the flow of the EC App on mobile phones users will find the app more intuitive which will lead to an increase in usage and retention rate. The ultimate objective for the project is to optimize the user-friendliness of the team creation, connection and joining team functions in order that more users can expand their network within and out of HKUST to develop their business.

Method to obtain information:
• Questionnaire to main users: HKUST students and faculty
• Interview with developers of the EC App

BENEFIT TO ORGANIZATION

The current EC App contains several issues, such as non-intuitive interface and over complicated procedures to join events and create teams for case competitions. By changing the interface primarily by simplifying the steps to create and join teams and by adding subfunctions, the following benefits are to be expected:

1. Decrease in un-installment of EC App
2. Increase in the retention rate
3. Upholding HKUST's reputation of quality
4. More aligned with organizational goals

With an easy-to-use application, the vision is for the app to become an essential platform for business and case competitions where external and internal users can join and enjoy events created by HKUST to a greater extent.

CONSEQUENCES OF NOT TAKING UP PROJECT

For the EC:

- Increase in un-installment of app
- Lowering the switching cost for users which will decrease usage of app over time
- Fewer signups and participation in events and competitions, shrinking the community

For HKUST:

- Potential damage to HKUST reputation

For users:

- Minimizing the opportunity for current and new users of EC app to engage in the community
- Lowering the chance to extend social network
- Discouraging new potential users from joining

Move on from the quantitative approach, we further investigated quality to see if there is chance of synergy between projects which could improve the user experience even further. We decided based on users request to first improve the interface and function of join and create teams. However, to connect with people and join teams account information needs to be updated. We found they complement each other and by improving the account editing function it will make the app more user friendly.

STAKEHOLDERS' ASSESSMENT

The following matrix is to overview the various stakeholder that will be involved in this project to improve the team joining function. By identifying the people involved, coordination and communication will be clearer which you will see at a later stage in this report.

Impact is decided on a low/medium/high scale.

STAKEHOLDERS' ASSESSMENT MATRIX

Name	Title	Impact	Influence
EC Management	Management	**Medium**	The app was in-house, apart from interface design, the management team will be of value so to ensure changes are align with organizational goals.
HKUST Management	Management	**Low**	
Flipdigital	Design	**High**	EC outsourced the initial design of the EC app. The scope and feasibility of this project will be influenced by Flip since they know the key designer elements.
Developers	Software engineer	**High**	Their current knowledge on how to change the interface on the app will influence time and scope.
Student and staff	End user	**High**	User's input will be of high importance as we want to accommodate and meet/surpass their expectations on the team creation function.
Jonathan	Project Manager	**Medium**	Jonathan was part of the team creating the original app. He has prior knowledge as he was part of the team creating the original app. They have

PROJECT CHARTER

After selecting to enhance team creation, connection and join fucntions as our project scope, a project charter is constructed to define objectives, resources, deliverables of the project. The charter is then handed over to project sponsor – The HKUST Entrepreneurship Center for approval and sign-off.

PROJECT CHARTER

Project Title: <u>The HKUST Entrepreneurship Centre Application (EC App)</u> **Date:** <u>9th April 2021</u> **Version:** <u>2021 – V1</u>
Description: Redesign the interface of the HKUST Entrepreneurship Centre Application to enhances the user journey. The project will primarily focus on the improvement in its team creation, connection and join functions.

Project Manager: Jonathan	**Authority level:** 20% of budget

Objectives: • To fix the unusable functions such as editing profile and connection search • To optimize the utility of the team creation, connection and join functions of the app • To add a new function: instant messaging/ chat room for teams/ Entrepreneurship-themed social media platform • To optimize user experience in connecting with like-minded people and form teams to start growing their businesses.

Major Deliverables:	Duration Estimates:
Project Scope Planning	2 days
Requirement Collections	9 days
Improve team creation function	5 days
Improve connection function	5 days
Improve join function	5 days
UI redesign	4 days
Prototyping	7 days
Rollout of App	1 day

Critical Success Factors: • Reduce uninstall rate by 40% • Increase user satisfaction rating by 30% • Complaint rates decrease by 50% • Allow users to form teams with easy navigation • Allow users to search and connect with new people without delay, lag or database update issues
Assumptions/ Constraints/ Risks: • Requirements collected are clear and sufficient • Unpredictable technical problems might occur • Technician resources might not be available within the tight schedule and budget
The HKUST Entrepreneurship Centre, Client

> - Represent the interests of the project
>   - ○ Support the project implementation by offering funds and approvals of the scope
>   - ○ Project Manager
> - Manage the relationships with clients, and other stakeholders
>   - ○ Coordinate human and technical resources
>   - ○ Ensure the project meets the scope within budget and schedule
>   - ○ Design and optimize the overall process of the project
>   - ○ Application Design Team, including the mobile app developers, UX/UI specialists, and testers
>
> Design the interface of the EC app according to the requirements collected before deadline
>
> **Approvals:** The HKUST Entrepreneurship Centre

PHASE 2: PROJECT PLANNING

PROJECT STYLE

The project will use a **traditional approach (i.e. waterfall methodology)** to implement the new functions since the scope is known and well-defined in advance with few changes possibly needed. Due to the time pressure we have, the agile approach may had been a preferred option. Since the development team are all students, they are not familiar with the intense nature of agile, which will require training and experience. Plus, as a part-time worker, they are not completely dedicated to the project. Furthermore, the training itself will take up time and budget which is why this project will use the traditional method which is more straight-forward in its approaches.

SCOPE PLANNING: REQUIREMENTS COLLECTION

(1) COMPANY REQUIREMENTS

The company has not been collecting feedback, so does not understand negative user experiences. They have not effectively identified the users' wants and needs. The company also tried to implement the user flow of creating profile, connecting with other users, joining teams, but encountered technical restraints as the EC database had to be successfully integrated with the ITSC database.

(2) USER REQUIREMENTS

To further understand the users' requirements, our group has conducted both focus groups and surveys.

2.1 Focus Group

Our focus group comprised of **10 students**, whom were all involved in student start-ups, or joining events held by EC.

The two startup enthusiasts expressed that they had terrible user experience with the EC app. As these users wanted to join start-up competitions, they had to connect with users and join teams. However, searching users had a technical issue of not correctly updating user profiles according to the database. For example, when searching for users, User X's name and photo would be shown for User Y's profile description. It was impossible to connect with the target users.

They proposed few new functions that can enhance usage and ease of use. They suggested to add a method of instant messaging, and a social media platform for connection. All the respondents responded with positive reactions and stated that a function to message other users before connecting would be able to ease their experience to connect with target users.

2.2 Questionnaire

To further elaborate on our focus group findings, we sent out a survey to target users of Start-Ups enthusiasts and HKUST students, whom have used the EC app. We collected a total of **20 results** by the end of our scope planning period.

Link to questionnaire: https://ust.az1.qualtrics.com/jfe/form/SV_25LnZLzqnG97KD4

The key questions in the survey aimed to understand the key functions they appreciated and to rate the user friendliness. The takeaways are:

1.   The top 2 rated functions are to **sign up for EC events**, and **finding teams to join for relevant competitions.**

2.   The survey results rate user-friendliness for **inviting people to join teams, and creating team is the most problematic user experiences**. Therefore, we will be focusing on those to fixed on those flows to ensure user needs are met.

3.   The survey asked respondents to rate our new proposed function of **chat messages and social media linkage** and rated them with the highest priority and most likely to be used.

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SCOPE PLANNING: FUNCTIONS MAPPING

Requirements	Functions
Individual Profile Creation	• Sign in through ITSC and map system database student info into app. • Display full name on search function. • Edit "preferred name" for user
Create a Team	• Display a list of people that are "looking for a team" to easily add them. • Upload PDF files, then update on database side and client side
Connecting with Users	• Successfully update users' profile on search functions, and avoid wrong profile displays • Successfully display users that are "looking to connect" on search function • Successfully contact all users by requesting to send a message on search function
Join a Team	• Display description input field for user to enter "strengths, interests, reasons for joining, contact information" • Add a search function to find teams by name
Sign up for Event/Competition	• Successfully display event information and description for specific event

SCOPE PLANNING: SCOPE STATEMENT

The requirements collected from the focus group and end users enables the team to understand what should be included in the scope. They have been evidently revealed that the Connection and Teaming functions are given the highest priorities that require improvement. The following is the scope statement as a result.

SCOPE STATEMENT

Project: Improving team creation, connection, join functions	Date: 15/3/2021
Project Justification Initially, the project aims to enhance the user-friendliness of the EC app as the main objective. Due to the time and cost constraints, and after putting the requirements collected into account, the project focus is now limited to improving the efficiency in user invitation to teams and team creation. In the app, the user profile column, 'Connection' and 'My team(s) will be the critical functions.	

Project Description

To redesign the interface of the HKUST Entrepreneurship Centre Application to enhances the user journey, the project will mainly focus on the improvement in its team creation, connection and join functions.

Project Deliverables

(1) Functional Requirements

[User Profile]
- The databases of EC and ITSC should be concatenated.
  - Information on user profile should be in sync with ITSC.
- Users can manually edit their preferred name and select whether they are looking for a team or looking to connect on the user profile.
- Uses can add their social media accounts on the user profile.

[Connect + Invite people to join team]
- Search functions should be updated with user profile combined with filtering (by users or by teams)
- When searching users, there should be two lists of people 'looking for a team' and 'looking to connect' respectively.
- When searching teams, filtering by name should be used.
- A chat box is needed.
  - Users can send messages to other users on search function upon connection.

[Create teams]
- Users can input "strengths, interests, reasons for joining, contact information" on the description filed upon team creation.
- There should be a database where team members can upload files and create folders for information storage.

(2) Non-functional Requirements
- Software failures should be minimized.
- Critical functions as stated in the requirement collections should be tested for usability and user-friendliness.
- Data privacy should be audited and protected.
- Bilingual interface

User Acceptance Criteria

- Correct profile displays.
- Fix the bugs in team creation and sending invitation to people to join teams.
- Add two new functions: Chat box and linking to social media.
- Improve the user experiences in inviting people to join teams and creating team.

Constraints

- The updated version of the app should be launched by May.
- The cost of this project is within $60,000.
- There might be unpredictable technical difficulties that limit the success rate of the project.
- Team members are not solely focused on this project.

Assumptions

- Technicians' skill set is available to support the project.
- The HKUST Entrepreneurship Centre can fund the project.

Project Exclusions

- Improve the display of event information and description for specific event.
- Enhance user-friendliness in terms of signing up for an event/ a competition.
- Clarify and optimize unclear functions e.g., 'Passes' and 'Combustor Scores'
- Beautify the user interface.

SCOPE PLANNING: INTEGRATIVE CHANGE CONTROL

Although the waterfall methodology is suitable for the project with short-term nature, there is a potential risk that scope creep might easily occur due to any fluctuation in time or cost. To ensure the team can attain the scope by deadline. Integrative change control would be performed to ensure the approval of all deliverable changes. Another reason for using such control is that it enhances the communication of decisions to be made while the impact of changes are tracked and addressed promptly within the tight schedule.

The process and guidelines are as follows:

Regardless of the change being approved, the request should be documented in status report for future reference.

Identify a change that needs to occur or has already occurred

Collect Additional Information A Work Performance Report will be generated for decision making. It should include: Resource availability, schedule progress, delays and the related causes, critical path activities and remaining budgets etc.

Request for Change (See template below)

Screener (i.e., Project Manager) Review RFC

If disapprove   If RFC is approved   Update Change Log and Schedule, Inform all status

Change Advisory Board (i.e., HKUST Entrepreneurship Centre) Review Changes

If the change is approved

Schedule change and make change

WBS, WBS dictionary, scope, schedule, cost, and critical path will be updated

Sample of change request form can be found in appendix.

WORK BREAKDOWN STRUCTURE

After defining the scope of the project, a work breakdown structure is built by the project manager. We referred to the previous WBS from the original app development cycle as they share high similarities. Objectives are broken down into definite tasks and clear deliverables for activity estimation and scheduling later on. Due to limited space, explanation of the WBS items are put in appendix.

WORK BREAKDOWN STRUCTURE

Improve Team Creation, Connection, Join Functions

1   Project Initiation

    1.1   Identify Potential Projects

    1.2   Build Business Case

    1.3   Use Weighting Scoring Model to select project

    1.4   Create Project Charter

    1.5   Create Stakeholder Assessment Matrix

    1.6   Complete Project Charter

    1.7   Get Sponsor Sign-off

2   Project Planning

    2.1   Define Project Requirements

      2.1.1   Define User Requirements

        2.1.1.1   Conduct User Questionnaire

        2.1.1.2   Organize Focus Group

      2.1.2   Define Company Requirements

        2.1.2.1   Conduct Interview with Entrepreneurship Center Staff

      2.1.3   Define Non-functional Requirements

    2.2   Scope Planning

      2.2.1   Deliver Scope Statement

      2.2.2   Define Scope Management Plan

    2.3   Defining Activities

      2.3.1   Develop Work Breakdown Structure

    2.4   Sequencing Activities

      2.4.1   Develop Network Diagram

      2.4.1.1   Define Task Dependencies

      2.4.1.2   Estimate Resources Needed

      2.4.1.3   Estimate Activity Duration

      2.4.1.4   Identify Critical Path

      2.4.1.5   Apply Scheduling Techniques: PERT/CCPM

    2.5   Project Scheduling

      2.5.1   Generate Gantt Chart

      2.5.2   Conduct Resource Levelling

      2.5.3   Generate Project Schedule
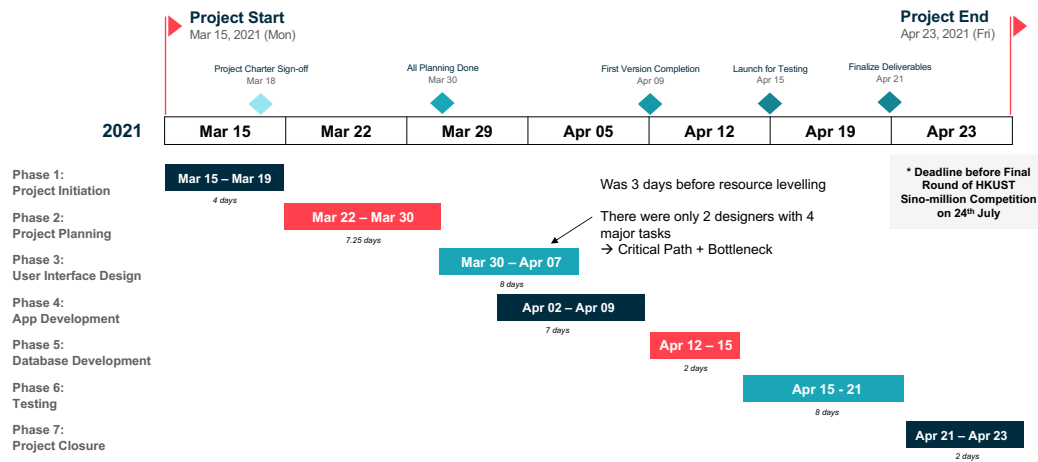
PROJECT SCHEDULING

The project is planned to complete before May. Since the primary objective of the project is to ameliorate the user experience of creating, connecting, and joining teams in the EC application, the app must be launched before the peak season of case competitions. It is important to note that one of the most significant contests in HKUST, Sino-million Competition is due on 24th July. Hence, the date of the project closure should be scheduled earlier so that users could form teams and connect with the like-minded as soon as possible by harnessing the EC app.

To estimate each task duration and sequences, we made use of **Delphi Technique** because the team is comprised with students with limited industry experience. Using industry function point standards might not be as applicable to their actual ability. Delphi Technique allows teammate to express their forecasting feedback anonymously, taking in their realistic opinion to formulate accurate estimation. As the facilitator, the project manager engages both the project team members and programmers into face-to-face meetings for task forecasts. The process is stopped once we reached estimation consensuses on 3 major scenarios: pessimistic, and optimistic case. Task estimates are then put into **Program Evaluation Review Technique (PERT),** which calculates the weighted average duration from the 3-point estimates. The total project duration after adopting PERT is 36 days.

After that, we have also combined **PERT with Critical Chain Project Management** for more accurate scheduling. PERT is used to plan, schedule and control activities which involve high uncertainties in the implementation, especially for the UI design process. Since it is unique and on-repetitive, high precision time estimation is required to avoid severe delays. To minimize the cost incurred, CCPM is conducted to manage certain and routine activities in Flips Digital such as database development and app testing as the completion date is easily predictable.

Putting the complexity of the project into account, the accuracy of the estimation is usually not guaranteed, according to the experience of the Project Manager. As a result, 50/50 estimate is taken as a challenge to motivate the student team members to be more dedicated to meeting such a hash deadline. The occurrence of the Parkinson's law is also minimized. Project buffer and resource buffer are added along the critical chain or at the end of the project to ensure the timely availability of all resources and the schedule is realistic. **As a result, after applying all scheduling techniques (Delphi, PERT and CCPM), the total estimated project duration becomes 28 days.**

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PROJECT OVERALL SCHEDULE

Project Start
Mar 15, 2021 (Mon)

Project End
Apr 23, 2021 (Fri)

Project Charter Sign-off
Mar 18

All Planning Done
Mar 30

First Version Completion
Apr 09

Launch for Testing
Apr 15

Finalize Deliverables
Apr 21

| 2021 | Mar 15 | Mar 22 | Mar 29 | Apr 05 | Apr 12 | Apr 19 | Apr 23 |

Phase 1:
Project Initiation — **Mar 15 – Mar 19** — *4 days*

Phase 2:
Project Planning — **Mar 22 – Mar 30** — *7.25 days*

Phase 3:
User Interface Design — **Mar 30 – Apr 07** — *8 days*

Phase 4:
App Development — **Apr 02 – Apr 09** — *7 days*

Phase 5:
Database Development — **Apr 12 – 15** — *2 days*

Phase 6:
Testing — **Apr 15 - 21** — *8 days*

Phase 7:
Project Closure — **Apr 21 – Apr 23** — *2 days*

Was 3 days before resource levelling

There were only 2 designers with 4 major tasks
→ Critical Path + Bottleneck

* Deadline before Final Round of HKUST Sino-million Competition on 24th July

COST ESTIMATION

A budgetary estimate is adopted in the cost management after scope planning to develop an approximation of the resource costs needed to complete the project. Project sponsors, managers and Flip Digitals have been involved in the hardware and app testing estimation process. Their previous project experience and industry insights helped the project team gain a shared understanding of the budgeted cost of direct materials and ensure the accountability of the initial estimate.

In addition, we have also consulted our fellow schoolmates who are currently working as part-time designers or software engineering interns regarding their hourly rate. As a result, the costs of the human resources in this project are determined based on the general wage in the industry.

While we have identified and attempted to minimize potential risks, 20% of total budget is reserved as a contingency budget to cover unexpected costs during the project. Usually, most projects use a rate of 5% - 10% from the total budget to determine contingency. Due to the limited experience of student team members and complexity of implementation, it is doubled to cover any extra cost that might come up.

We selected **budgetary estimate** over phased estimate because this project is short-term and not new to Flips Digital which is a amendment project for its previous service. Also, the clearly-defined scope enables the team to allocate funds on a periodic basis according to its past history. Phased estimates are usually used for large projects which have never been conducted in an organization.

BUDGET

*: hours/pcs

	# of units*	$ / units	Total	
Software Cost (monthly subscription)	3	$1,000	$3,000	
Database (monthly subscription)	3	$2,500	$7,500	
Smart Phone Devices	1	$5,000	$5,000	
Subtotal			$15,500	25.9%
Project Manager	137	$100*	$13,700	
Project Team Members x 2	114	$60*	$6,840	
Designers x 2	72	$70*	$5,040	
Software Engineers x 2	96	$75*	$7,200	
Subtotal			$32,780	54.8%
App Testing Focus Group	10	55	$550	
Miscellaneous Cost			$1,000	
Subtotal			$1,550	2.6%
Risk (Contingency) – 20% of total estimate			$9,966	20%
Total (Scheduled)			**$59,796**	

RISK MANAGEMENT

After understanding requirements and past user experiences through focus groups and surveys, the team has a thorough understanding of risks associated with EC App. Our aim is to identify the risks and decide how to address them in the most optimal way to manage and/or potentially reduce risks.

The risks were discussed in a "brainstorming" format, whereby the team members gave their opinions based on their own areas of expertise. The team wanted to maximize the quality of brainstorming through "power of minds". The risk severity, likelihood and level were all agreed collectively, and the decision to avoid, mitigate, transfer, or accept the risk was made by the responsible person(s). Most importantly, the risk response was developed to maximize quality of response, but also using minimal resources to achieve the deliverables.

It is important to note that, in waterfall projects, user feedback is limited. And problems and issues only occur at the end of implementation. The feedback received will always be too late. To enhance the visibility of risks, a probability impact matrix is held in up-front planning to reduce time wasted on identifying and eliminating risks along the project. It helps the team rank the risks in terms of their priority and overviews how they could handle the risks when it occurred.

PROBABILITY IMPACT MATRIX

Risk	Trigger	Consequence	Risk Severity	Risk Likelihood	Risk Level	Avoidance, Mitigation, Transference and Accpetance	Responsibility	Risk Response
Unclear technical feasibility with integrating with ITSC	Not assessing technical integrations prior to development	Database is not updating with new users and information from EC	Not Tolerable	Probable	High	Transfer	Peter, John	Both ITSC and EC databases must be consulted by a team of experts, and a technical team and integrate them together
Server overload with instant messaging	Too many requests for instant messaging, storage of messages overload server	EC App will be slow, and may be down if there is a server overload	Undesirable	Possible	Medium	Mitigation	Peter, John	Conduct function point analysis, estimate number of queries, and select server to handle the requests
Apple App Store takes longer than expected to approve	New functions must be reviewed by Apple Store and have the chance to be rejected	Delayed launches with new updated app, and users continue to use old app	Tolerable	Possible	Low	Acceptance	Jane, Anna	This is something out of control and fully relied on Apply's policies and teams. Before launch, team must do a review of features to ensure that they are aligned with policies
Security of Database	Malware or hackers attempting to steal data	There may be data leaks, which may hold sensitive information, especially messages	Intoloerable	Improbable	Medium	Mitigation	Peter, John	Install SSH key connection, to require authentication to server
Users not showing up to events after signing up	Users sign up to many events but they may not show up to events/competition	Database will start increasing in data storage size, and will have innaccurate data	Undesirable	Possible	Low	Mitigation	Liesl, Ryan	Ensure there is a penalty system which prevents users from signing up for future events if they miss out on committed sign ups
Inappropriate usage of message functions	Users do not approrpiately use the messaging function to connect professionally	The new function will end up being undesirable, increasing churn and app deletions	Intoloerable	Possible	Medium	Mitigation	Liesl, Ryan	Set up a complaint/reporting function which will directly inform the EC team for review and possibility of suspension of user
Low quality of connection possibilities	Users not filling in their profile, so it is difficult for people to connect with like-minded people	Low quality of connections lead to low sign ups to team events. This is a "chicken and egg problem"	Undesirable	Possible	Medium	Mitigation	Liesl, Ryan	Users must complete their profile page before moving on to signing up for events and connecting with people.
Lack of focus from project team members	Project multi-tasking, overcapacity or burnout	Project will experience delays, and cost may be affected	Tolerable	Possible	Low	Mitigation	Johnathan	Assign a project manager to ensure resources are working productively.

Notes:

- Scope risk: Considering the various UX problems within the app, the scope of the problem should be limited to a certain aspect to ensure its feasibility.
- Time risk: Due to the tight schedule and potential unavailability of project members, the project might be over schedule.
- Technology risk: There might be unpredictable complications faced by technicians along the project which will result in project delays.
- Miscellaneous risk: Project members may be multitasking while working on this project.

HUMAN RESOURCES PLAN

All the tasks on the Work Breakdown Structure are distributed as responsibilities based on team roles. Project Manager, as the leader of the team, has been given authority to make decisions that are within the scopes defined. If the decision/ change is out of scope, Project Manager must seek approval from Project Sponsor. While Project Manager is in charge of the planning process, team members should provide feedback for him and are allowed to request necessary changes along the project implementation. The following table is a roles and responsibilities matrix that has defined the roles and responsibilities of the relevant stakeholders in each WBS task, and the skills required. **RACI Matrix** is used to streamline the project lifecycle to ensure every team member and stakeholder understand their position in each milestone/ task.

ROLES, RESPONSIBILITIES AND COMPETENCY MATRIX

Key:
R – Responsible for completing the task
A – Accountable for approving the task completion/ sign off
C – Consulted before making any decision
I – Informed after making a decision/ taking an action

The rationale behind the keys is that it needs to increase the transparency of the authority and position of each stakeholder so as to prevent the unexpected conflicts along the project. Also it enables stakeholders to understand how they can contribute in each task to mitigate free-riding issues or confusion.

WBS Code	Roles / Responsibilities	Project Sponsor	Project Manager	Designer	Developer	Competency
1	Select and initialize the project	A	R	R	I	Decision Making
2.1	Collect Requirements		C	R	I	Communication Documentation
2.2	Define Scope Statement	A	R	I/C	I/C	Planning Analytical Skills
	Scope Change	A	A/C	R (request)	R (request)	
2.3 - 2.4	Define Activities and Sequences		R	I/C	I/C	Prioritizing Leadership
2.5 - 2.6	Schedule and Budget	C	R	I	I	Planning Leadership

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2.7	Define and Manage Risk		R	I/C	I/C	Planning Leadership
2.8 - 2.9	Allocate human resources and Communicate with stakeholders		R			Organizing Communication
3	Design the User Interface		A/C	R	C	Graphic Design UI Design
4. – 5.	Develop the application and database		A/C		R	Application Programming Interface, Database management, coding
6.1.1, 6.2.1	Collect User Feedback		I	R	I	Communication Documentation
6.1.2, 6.2.2	Test, review and enhance the app flow		A		R	Decision Making
7.	Close the project	A	R	I	I	Communication

Apart from assigning roles and responsibilities, there is a holistic assessment on the availability, time commitment and resource cost of each project member in order to have a better resource allocation and a more accurate estimation on the project schedule and cost. As all the members are students, they are assumed to be part-time designers/ developers and only available after class. The resource cost is determined based on the general wage of a student worker in a software company.

STAFF MANAGEMENT PLAN

Name	Role	Availability	% commitment	Resource Cost
Johnathan	Project Manager	Monday – Friday 9am – 5pm	100 %	$100 / hour
Liesl	Designer	Monday – Friday 3pm – 9pm	Part Time (75%)	$70 / hour
Ryan	Designer	Monday – Friday 3pm – 9pm	Part Time (75%)	$70 / hour

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Jane	Software Engineer	Monday – Friday 3pm – 9pm	Part Time (75%)	$75 / hour
Anna	Software Engineer	Monday – Friday 3pm – 9pm	Part Time (75%)	$75 / hour
Peter	Project Team Member	Monday – Friday 3pm – 9pm	Part Time (75%)	$60 / hour
John	Project Team Member	Monday – Friday 3pm – 9pm	Part Time (75%)	$60 / hour
Macy	App Tester	Monday – Friday 3pm – 9pm	Part Time (75%)	$55 / hour

COMMUNICATIONS PLAN

For this project we want to have effective communication channels since a new team will work on re-designing the current design which was made by Flipdigital. It will be crucial to have a clear channel for the student developers since the project can only continue subject to their availability. The manager needs an up to date on when our UST developers can continue their work. Since the original design was made by Flipdigital we need to be in close contact so our developers can be informed about the key mechanisms and structure behind the design to minimize the risk of delay which will have negative consequences on the user experience during peak season.

Below is our communication plan showing communication channel, frequency, and purpose of communication method. Due to the pandemic some face-to-face meetings will be moved over to Zoom and/or if key individuals are out of town.

Communication Type	Stakeholders	Frequency	Purpose
F2F / Zoom	• Project Manager • Developers • Flipdigital	Weekly	To update everyone on the process, completion of tasks, delays or concerns raised as the project continues.
Email	• Project manager • EC management	Weekly	To update the customer, in this case the EC, on time, scope and cost of project stage
F2F / Zoom	• Developers Project Manager	Daily	End of day meeting to update PM and other developers on accomplishments, setbacks, and a plan for next day's

			work. This is to ensure everyone knows what we have done and yet to do. It is also to minimize any potential risks as the manager can timely step in to prevent any delays.
F2F / Zoom (email)	• Developers Flipdigital	Bi-weekly	Continues contact with original designer and the developer to ensure sufficient information on design mechanism. If problems arise in-between meetings, email should be used to arrange extra meeting alternatively agree on another preferred medium for correspondence.

PHASE 3: PROJECT EXECUTION

PROTOTYPE

In the prototype, we have modified the layout of the user profile. While the personal information is coordinated with ITSC, users can also describe themselves and link with their social media/email accounts so that other uses can have a more basic understanding of their potential teammates. The 'WANT TEAM' label indicates they are looking for team members. Clicking on the 'Connections' button, users are allowed to send team invitation and request to connect. A chatroom is also incorporated. Uses can organize their teams in the 'My Team(s)' tab. For instance, they can attach documents, write descriptions and chat. Also, they can search for other teams and ask to join. In short, the new design has enhanced the ease of use in the team creation and initiation functions.

Prototype to the improved functions: https://cutt.ly/CbPx2hW

PHASE 4: PROJECT CONTROL

PROGRESS REPORT

Project Manager is responsible for filling in status report every 2 weeks. The report will document project progress and earned value management statistics. This keeps all stakeholders: the project team members and sponsor, all on the same page with project status. All project changes are also required to be documented in the report.

CURRENT PROGRESS

As of April 26, 2021, the original project completion date, the project has accomplished 58% of its tasks.

PROJECT OVERVIEW

MON 3/15/21 -	THU 4/29/21

% COMPLETE

58%

MILESTONES DUE
Milestones that are coming soon.

Name	Finish
Hand Over Code to Entrepreneurship Center	Thu 4/29/21
Acceptance Sign-off by stakeholders	Thu 4/29/21

% COMPLETE
Status for all top-level tasks. To see the status for subtasks, click on the chart and update the outline level in the Field List.
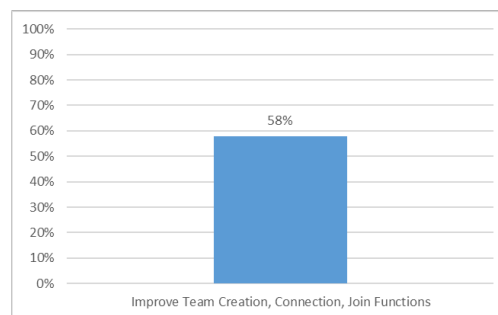
LATE TASKS
Tasks that are past due.

Name	Start	Finish	Duration	% Complete	Resource Names
iOS App Coding	Fri 4/2/21	Mon 4/12/21	5 days	20%	Anna Viinapuu[75%]
Android App Coding	Fri 4/2/21	Mon 4/12/21	5 days	20%	Jane Wong[75%]
Connect with existing ITSC Database	Fri 4/9/21	Tue 4/13/21	1 day	40%	Anna Viinapuu[75%]
Connect with Entrepreneurship Center Event Database	Fri 4/9/21	Tue 4/13/21	1 day	50%	Jane Wong[75%]
Collect UAT User Feedback	Tue 4/13/21	Fri 4/16/21	3 days	0%	Liesl Leung[75%]
Enhance App Flow	Fri 4/16/21	Tue 4/20/21	2 days	0%	Anna Viinapuu[75%]
Collect Beta User Feedback	Tue 4/20/21	Tue 4/27/21	5 days	0%	Ryan Wan[75%]
Review App based on Beta User Feedback	Tue 4/27/21	Thu 4/29/21	2 days	0%	Jane Wong[75%]
Closeout Meeting with Entrepreneurship Center	Thu 4/29/21	Thu 4/29/21	3 hrs	0%	Jonathan Kwok

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COST OVERVIEW

MON 3/15/21 - THU 4/29/21

COST
$42,278.64

REMAINING COST
$16,928.32

% COMPLETE
58%

COST STATUS
Cost status for top level tasks.

Name	Actual Cost	Remaining Cost	Baseline Cost	Cost	Cost Variance
Improve Team Creation, Connection, Join Functions	$25,350.32	$16,928.32	$42,278.64	$42,278.64	$0.00

PROGRESS VERSUS COST
Progress made versus the cost spent over time. If % Complete line below the cumulative cost line, your project may be over budget.
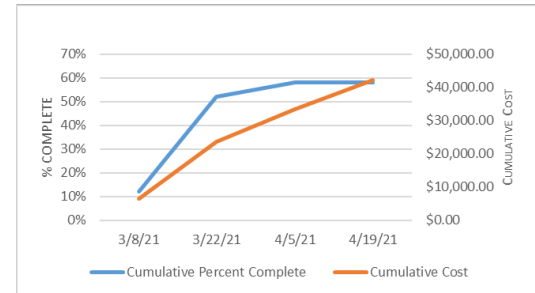
COST STATUS
Cost status for all top-level tasks. Is your baseline zero?
Try setting as baseline
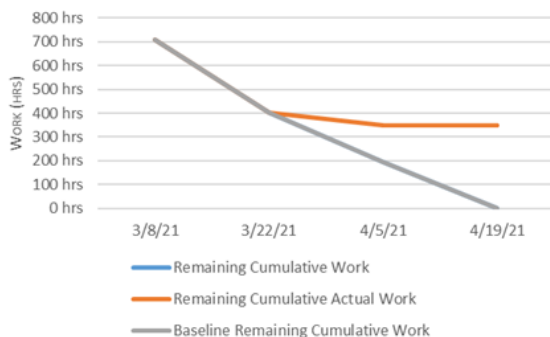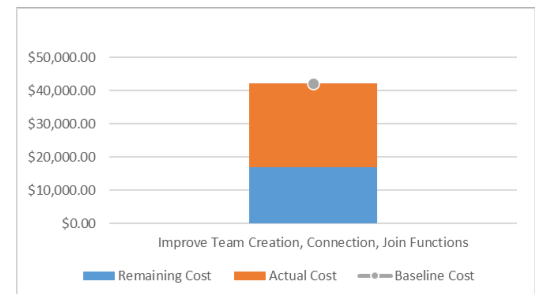
WORK BURNDOWN
Shows how much work you have completed and how much you have left. If the remaining cumulative work line is steeper, then the project may be late.
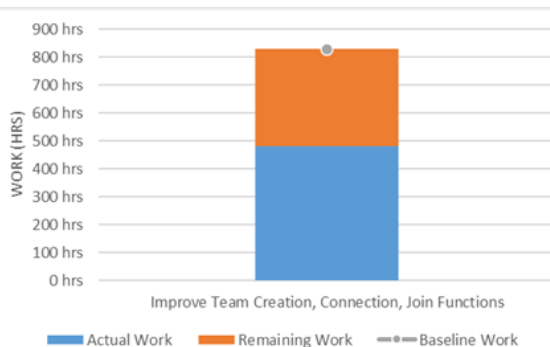
WORK OVERVIEW

Mon 3/15/21 - Thu 4/29/21

% Work Complete
58%

Remaining Work
348.86 hrs

Actual Work
483.09 hrs

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EARNED VALUE MANAGEMENT

Earned value management report is as follows:
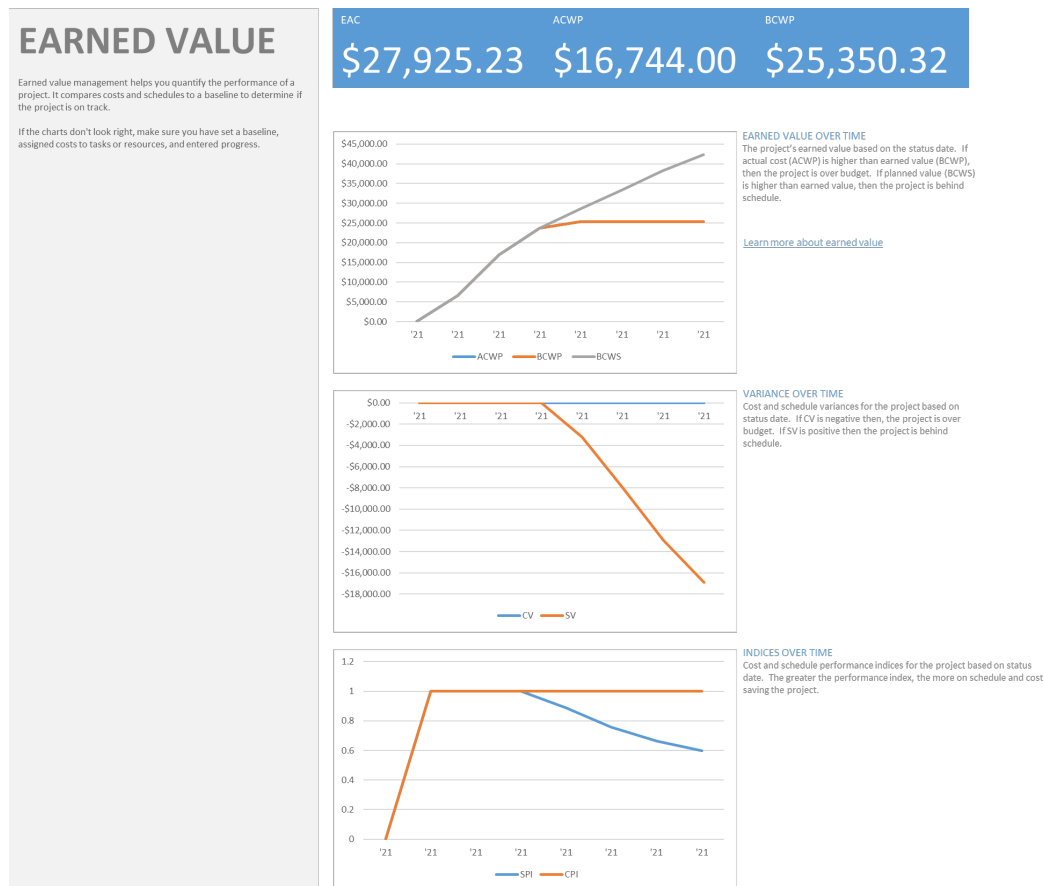
The cost is maintained with CPI of 1 indicating the project is on budget. However, it is indicated that the SPI is lower than 1 so our project is a bit behind the schedule despite fulfilling the 50/50 estimate in the project planning process

PHASE 5: PROJECT CLOSURE

CLOSEOUT MEETING

The team will hold a closeout meeting to learn from the positives and negatives from this project. We will assess the project and product's performance from the scope that has been added from the requirements we have identified. Additionally, there will also be knowledge sharing amongst the team members so lessons learned can be used for future projects to streamline and reach better goals.

The team members will be assessed with performance appraisals, then reassigned to other projects according to their strengths and skills.

Most importantly, the HKUST EC app is to cultivate an entrepreneurial spirit within the community, so we will measure the lift in competition/event sign ups and churn rate of the app. This can also be a measure of user acceptance.

SCOPE MANAGEMENT PLAN

CHANGE REQUEST FORM

<u>Request for Change (Template)</u>

Project Name: _____   Date Submitted:_____

Submitted by: _____   Change Req. #: _____

Priority: _____ (E, H, M, L)   Status: _____

Description of change:

Category of the expected impact: _____ (Major, Significant, Minor, Operational)

Business Reason for change:

[Need to conduct cost benefit analysis]

Business Impact If change denied:

Indicate impact on:

Suggested Implementation Schedule

Required Approvals:

Name	Date	Approve/ Reject
EC Management		
Jonathan		

WBS DICTIONARY

WBS Code	Task Package	Description
0	**Improve team creation, connection, and join functions**	**The entire project is broken down into task packages below. Each task package is at their smallest unit so that each worker can be managed easily.**
1	**Project Initiation**	**This is the first phase of the project, where sponsor works together with project manager to kickstart and lay out a project proposal.**
1.1	Identify Potential Projects	The team will analyze possible pain points of the project target and identify project options.
1.2	Build Business Case	Business Case is a document where the project team submits to project sponsor, capturing the reason of initiating the current project.
1.3	Use Weighting Scoring Model to select project	The project team analyses and weighs cost and benefits of the project in a WSM. WSM assists the team to make decision on which project to prioritize.
1.4	Create Project Charter	Project Charter describes the project objectives and deliverables at a high level.
1.5	Create Stakeholder Assessment Matrix	SAM is a tool to look into stakeholders' interest regarding the current project.
1.6	Complete Project Charter	The team should conclude findings from the previous steps into Project Charter.
1.7	Get Sponsor Sign-off	The Project Charter is handed to project sponsor for approval.
2	**Project Planning**	**This phase of the project includes all necessary steps to define activities to achieve project goals.**

WBS Code	Task Package	Description
2.1	Define Project Requirements	The project team should take in requirement from all stakeholders in formulating application functions.
2.1.1	Define User Requirements	A list of requirements from app users should be delivered.
2.1.1.1	Conduct User Questionnaire	Survey allows the team to collect user requirements in a greater scale. A survey will be distributed to relevant users through Qualtrics.
2.1.1.2	Organize Focus Group	The project team will interview a small group of users who had experience with the application to collect current user feedback and foster discussion in application functions.
2.1.2	Define Company Requirements	A list of requirements from the company (HKUST EC) should be collected.
2.1.2.1	Conduct Interview with Entrepreneurship Center Staff	Interview will be conducted to collect requirements from the company.
2.1.3	Define Non-functional Requirements	Non-functional requirements includes performance attributes or intangible functions that enhances the application. A list of requirements should be concluded.
2.2	Scope Planning	After this step, project goals, objectives, tasks, resources and timeline should be clearly defined.
2.2.1	Deliver Scope Statement	The deliverable outlines all details about the project and what should be the scope of the project.
2.2.2	Define Scope Management Plan	The plan should describe all necessary scope management steps about how the scope is defined, monitored and managed.
2.3	Defining Activities	Tasks packages should be defined.
2.3.1	Develop Work Breakdown Structure	WBS is a hierarchical form of the activities that helps the team with subsequent scheduling and sequencing activities.

WBS Code	Task Package	Description
2.4	Sequencing Activities	Relationships of the activities is identified.
2.4.1	Develop Network Diagram	The Diagram is a visual representation of the task relationships. MS Project can be utilized as a project management software.
2.4.1.1	Define Task Dependencies	The team should identify dependencies between tasks. (FS, FF, ST, or SS)
2.4.1.2	Estimate Resources Needed	The team should estimate the resources needed for each task.
2.4.1.3	Estimate Activity Duration	The team should estimate the time needed for each task. Delphi Technique is applied.
2.4.1.4	Identify Critical Path	Critical Path can be identified on MS Project for applying CCPM later.
2.4.1.5	Apply Scheduling Techniques: PERT/CCPM	PERT and CCPM is applied to estimate project completion time.
2.5	Project Scheduling	The team should identify the key milestone and estimate an accurate completion date of the project.
2.5.1	Generate Gantt Chart	Gantt Chart is a visual representation of project schedule, task dependencies are included as well.
2.5.2	Conduct Resource Levelling	Duration Estimation should be adjusted according to resource bottleneck.
2.5.3	Generate Project Schedule	Overall project schedule with all adjustment should be generated.
2.6	Cost Estimation	Cost will be estimated through referencing with industry standards.
2.6.1	Create Project Budget	A budget report should be generate with the use of MS Project.
2.7	Define Risks and Risks Management Approach	Risks should be identified, prioritized and managed with the deliverables under this stage.
2.7.1	Risk Register	This Register documents all potential risks concluded in a brainstorming session of the project team.

WBS Code	Task Package	Description
2.7.2	Complete Probability Impact Matrix	A qualitative assessment of risk occurrence and impact on project objectives.
2.7.3	Develop Risk Management Plan	The document should include all responses once a risk event is triggered.
2.8	Define Human Resources Plan	Availability of each human resources and their roles should be well defined in the deliverables.
2.9	Define Communications Plan	Information about communication channel and personnel will be included.
3	**User Interface Design**	**Designers will create mock-ups of the improved application interface.**
3.1	Design Team Creation Flow	Interface flow for team creation function will be created.
3.2	Design User Connection and Interaction Function Flow	Interface flow for user connection and interaction function will be created.
3.3	Design Event Sign Up Function	Interface for event sign up function will be created.
3.4	Design Calendar View	Interface for event calendar page will be created.
4	**App Development**	**In this phase, developers will programme the interface design into the application with codes.**
4.1	iOS App Coding	Swift is used to complete iOS version of the application update.
4.2	Android App Coding	Java is used to complete iOS version of the application update.
5	**Database Development**	**The phase will connect the application with back-end database.**
5.1	Connect with existing ITSC Database	Developers will integrate the application with existing ITSC database.
5.2	Connect with Entrepreneurship Center Event Database	Developers will integrate the application with the EC Event database and new events are shown.
6	**Testing**	**Prototype are given to users to test.**
6.1	UAT Testing	User acceptance test is conducted to observe gaps between user

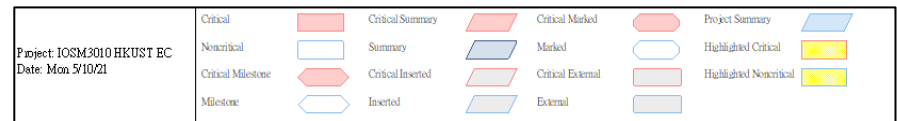| WBS Code	Task Package	Description
		requirements and the current prototype.
6.1.1	Collect UAT User Feedback	A UAT user is hired to use the app in the given time period.
6.1.2	Enhance App Flow	The application is enhanced based on feedback collected.
6.2	Beta Testing	Beta testing is conducted after the UAT testing.
6.2.1	Collect Beta User Feedback	More users are invited to this test.
6.2.2	Review App based on Beta Users Feedback	Developers will revise the app based on all rounds of testing.
7	**Project Closure**	**This phase officially concludes the project and application should be launched to the public.**
7.1	Closeout Meeting with Entrepreneurship Center Staff	A meeting is conducted between project sponsor and team. All deliverables will be reviewed.
7.2	Hand over code to Entrepreneurship Center	Code is passed to the center for submission to application store.
7.3	Complete Final Status Report	Final status report is completed to document all deliverables and achievements.
7.4	Acceptance Sign-off by stakeholders	Final review and sign-off from project sponsor. This signifies the end of the project.

PROJECT SCHEDULING: SCHEDULE

PROJECT DETAILED SCHEDULE

ID	ⓘ	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	% Complete	CPI
1		➥	**Improve Team Creation, Connection, Join Functions**	33.53 days	Mon 3/15/21	Thu 4/29/21		Database[1],Mis Contingency,Sm	58%	1.51
2	✓	➥	**Phase 1: Project Initiation**	3 days	Mon 3/15/2	Thu 3/18/21			100%	1
3	✓	➥	Identify Potential Project	0.5 days	Mon 3/15/2	Mon 3/15/2		Jonathan Kwok	100%	1
4	✓	➥	Build Business Case	1 day	Mon 3/15/2	Tue 3/16/21	3	Peter Tam[75%],	100%	1
5	✓	➥	Use Weighted Scoring Model to select project	2 hrs	Tue 3/16/21	Tue 3/16/21	4	Jonathan Kwok	100%	1
6	✓	➥	Create Stakeholder Assessment Matrix	2 hrs	Tue 3/16/21	Tue 3/16/21	5	John Chan[75%],Peter	100%	1
7	✓	➥	Complete Project Charte	1 day	Wed 3/17/2	Wed 3/17/2	6	Jonathan Kwok	100%	1
8	✓	➥	Get Sponsor Sign-off	0 days	Thu 3/18/21	Thu 3/18/21	7	Jonathan Kwok	100%	0
9	✓	➥	**Phase 2: Project Planning**	7.25 days	Fri 3/19/21	Tue 3/30/21			100%	1.79
10	✓	➥	**Define Project Requirements**	5 days	Fri 3/19/21	Thu 3/25/21		**Jonathan Kwok**	100%	1.97
11	✓	➥	**Define User Requirements**	5 days	Fri 3/19/21	Thu 3/25/21		**Jonathan Kwok**	100%	1.57
12	✓		Conduct User Questionnaire	5 days	Fri 3/19/21	Thu 3/25/21	8	John Chan[75%],Peter	100%	1
13	✓	➥	Organize Focus Gro	2 days	Fri 3/19/21	Mon 3/22/2	8	John Chan[75%],	100%	1
14	✓	➥	**Define Company Requirements**	1 day	Fri 3/19/21	Fri 3/19/21			100%	1
15	✓	➥	Conduct Interview with Entrepreneurship Center Staff	1 day	Fri 3/19/21	Fri 3/19/21	8	Jonathan Kwok,Peter Tam[75%]	100%	1
16	✓	➥	**Scope Planning**	0.25 days	Fri 3/26/21	Fri 3/26/21			100%	2.78
17	✓	➥	**Deliver Scope Statem**	0.25 days	Fri 3/26/21	Fri 3/26/21		**Jonathan Kwok**	100%	2.78
18	✓	➥	Define Scope Management Plan	2 hrs	Fri 3/26/21	Fri 3/26/21	10	John Chan[75%]	100%	1
19	✓	➥	**Defining Activities**	0.25 days	Fri 3/26/21	Fri 3/26/21			100%	1
20	✓	➥	Develop Work Breakdown Structure	2 hrs	Fri 3/26/21	Fri 3/26/21	17	Peter Tam[75%]	100%	1
21	✓	➥	**Sequencing Activities**	0.75 days	Fri 3/26/21	Mon 3/29/2			100%	1
22	✓	➥	Develop Network Diagram	2 hrs	Fri 3/26/21	Fri 3/26/21	20	Peter Tam[75%]	100%	1
23	✓	➥	Define Task Dependencies	1 hr	Fri 3/26/21	Fri 3/26/21	22	Peter Tam[75%]	100%	1
24	✓	➥	Estimate Resources Needed	1 hr	Fri 3/26/21	Fri 3/26/21	20	John Chan[75%]	100%	1
25	✓	➥	Estimate Activity Duration	1 hr	Fri 3/26/21	Fri 3/26/21	24	John Chan[75%]	100%	1
26	✓	➥	Identify Critical Path	1 hr	Fri 3/26/21	Fri 3/26/21	23	Peter Tam[75%]	100%	1
27	✓	➥	Apply Critical Chain Project Management on Estimations	2 hrs	Mon 3/29/21	Mon 3/29/21	26	Jonathan Kwok	100%	1
28	✓	➥	**Project Scheduling**	0.75 days	Fri 3/26/21	Mon 3/29/2			100%	0
29	✓	➥	Generate Gantt Chart	0 days	Fri 3/26/21	Fri 3/26/21	20	Peter Tam[75%]	100%	0
30	✓	➥	Conduct Resource Levelling	0 days	Mon 3/29/21	Mon 3/29/21	27	John Chan[75%]	100%	0
31	✓	➥	Generate Project Schedule	0 days	Mon 3/29/21	Mon 3/29/21	30	Jonathan Kwok	100%	0
32	✓	➥	**Cost Estimation**	1 day	Mon 3/29/2	Tue 3/30/21			100%	1
33	✓	➥	Create Project Budget	1 day	Mon 3/29/21	Tue 3/30/21	30	Jonathan Kwok	100%	1
34	✓	➥	**Define Risks and Risk Management Approach**	0.88 days	Fri 3/26/21	Mon 3/29/21	20		100%	1
35	✓	➥	Complete Risk Registe	4 hrs	Fri 3/26/21	Fri 3/26/21		Peter Tam[75%]	100%	1
36	✓	➥	Fill in Probability Impact Matrix	1 hr	Mon 3/29/21	Mon 3/29/21	35	John Chan[75%]	100%	1
37	✓	➥	Develop Risk Management Plan	2 hrs	Mon 3/29/21	Mon 3/29/21	36	John Chan[75%]	100%	1
38	✓	➥	Define Human Resources Plan	2 hrs	Mon 3/29/21	Mon 3/29/21	31	John Chan[75%]	100%	1
39	✓	➥	Define Communications	2 hrs	Mon 3/29/2	Mon 3/29/2	38	Peter Tam[75%]	100%	1
40	✓	➥	**Phase 3: User Interface Design**	4.8 days	Tue 3/30/21	Tue 4/6/21			100%	1

PROJECT DETAILED SCHEDULE (CONT.)

ID	ⓘ	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	% Complete	CH
41	✓	➡	Design Team Creation Flow	3 days	Tue 3/30/21	Mon 4/5/21	9,42FF,43FF	Ryan Wan[75%]	100%	1
42	✓	➡	Design User Connection and Interaction Functions	3 days	Tue 3/30/21	Fri 4/2/21	9	Ryan Wan[75%]	100%	1
43	✓	➡	Design Event Sign Up Function	3 days	Tue 3/30/21	Fri 4/2/21	9	Liesl Leung[75%]	100%	1
44	✓	➡	Design Calendar View	3 days	Tue 3/30/21	Tue 4/6/21	9	Liesl Leung[75%]	100%	1
45		➡	**Phase 4: App Development**	**6.3 days**	**Fri 4/2/21**	**Mon 4/12/2**			**20%**	1
46		➡	iOS App Coding	5 days	Fri 4/2/21	Mon 4/12/2	40	Anna Viinapuu[7	20%	1
47		➡	Android App Coding	5 days	Fri 4/2/21	Mon 4/12/2	40	Jane Wong[75%]	20%	1
48		➡	**Phase 5: Database Development**	**1.9 days**	**Fri 4/9/21**	**Tue 4/13/21**			**45%**	1
49		➡	Connect with existing ITSC Database	1 day	Fri 4/9/21	Tue 4/13/21	45	Anna Viinapuu[75%]	40%	1
50		➡	Connect with Entrepreneurship Center Event Database	1 day	Fri 4/9/21	Tue 4/13/21	45	Jane Wong[75%]	50%	1
51		➡	**Phase 6: Testing**	**12 days**	**Tue 4/13/21**	**Thu 4/29/21**		**App Tester**	**0%**	0
52		➡	**UAT Testing**	**5 days**	**Tue 4/13/21**	**Tue 4/20/21**			**0%**	0
53		➡	Collect UAT User Feedback	3 days	Tue 4/13/21	Fri 4/16/21	48	Liesl Leung[75%]	0%	0
54		➡	Enhance App Flow	2 days	Fri 4/16/21	Tue 4/20/21	53	Anna Viinapuu[7	0%	0
55		➡	**Beta Testing**	**7 days**	**Tue 4/20/21**	**Thu 4/29/21**			**0%**	0
56		➡	Collect Beta User Feedback	5 days	Tue 4/20/21	Tue 4/27/21	54	Ryan Wan[75%]	0%	0
57		➡	Review App based on Beta User Feedback	2 days	Tue 4/27/21	Thu 4/29/21	56	Jane Wong[75%]	0%	0
58		➡	**Phase 7: Project Closure**	**5.4 days**	**Thu 4/22/21**	**Thu 4/29/21**			**3%**	1
59		➡	Closeout Meeting with Entrepreneurship	3 hrs	Thu 4/29/21	Thu 4/29/21	51	Jonathan Kwok	0%	0
60		➡	Hand Over Code to Entrepreneurship	0 days	Thu 4/29/21	Thu 4/29/21	59	Anna Viinapuu[75%],Ja	0%	0
61		➡	Complete Final Status Report	4 hrs	Thu 4/22/21	Thu 4/29/21	59FF	John Chan[75%],Jonat	5%	1
62		➡	Acceptance Sign-off by stakeholders	0 days	Thu 4/29/21	Thu 4/29/21	61	Jonathan Kwok	0%	0

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PROJECT SCHEDULING: SCHEDULE

NETWORK DIAGRAM

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PROJECT SCHEDULING: GANTT CHART

GANTT CHART

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GANTT CHART (CONT.)

ID	Task Mode	Task Name	Duration
43	✓	Design Event Sign Up Function	3 days
44	✓	Design Calendar View	3 days
45		**Phase 4: App Development**	**6.3 days**
46		iOS App Coding	5 days
47		Android App Coding	5 days
48		**Phase 5: Database Development**	**1.9 days**
49		Connect with existing ITSC Database	1 day
50		Connect with Entrepreneurship Center Event Database	1 day
51		**Phase 6: Testing**	**12 days**
52		**UAT Testing**	**5 days**
53		Collect UAT User Feedback	3 days
54		Enhance App Flow	2 days
55		**Beta Testing**	**7 days**
56		Collect Beta User Feedback	5 days
57		Review App based on Beta User Feedback	2 days
58		**Phase 7: Project Closure**	**5.4 days**
59		Closeout Meeting with Entrepreneurship	3 hrs
60		Hand Over Code to Entrepreneurship	0 days
61		Complete Final Status Report	4 hrs
62		Acceptance Sign-off by stakeholders	0 days

Project: IOSM3010 HKUST EC
Date: Mon 5/10/21

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split	Manual Progress
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Late	Slack
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Progress	

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