Group Project – Part 2

Team 19

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1 Part 1 Revision

No changes have been made due to no marks lost in part 1 for the specified sections.

1.1 Context

Group projects are a familiar routine to many university students, and some may experience several, sometimes simultaneous, group projects in their student life. These activities are often done through an online medium through a computer, tablet, phone, or in-person. Typical meeting locations include the school campus, libraries, or at home. Considering the agenda of a full-time student, scheduling group meetings may be difficult due to time or commitment conflicts between members. Moreover, effective cooperation requires networking, communication, time management, idea-sharing, and task assigning. The absence of any of these elements may evidently lead to suboptimal productivity. The intended use of the product is to provide a collaboration platform that incorporates common activities and tools that a group of users may use to enhance and streamline group performance.

1.2 User identification

Daniel Lee is a 21-year-old college student majoring in Interactive Arts and Technologies at SFU. He is in his 3rd year and consistently takes full course loads every semester, sometimes taking courses at different school campuses. Most of his free time during the day is spent on campus either studying or working on projects and assignments, often with classmates and friends. Despite his studious nature, he lives an unhealthy lifestyle due to lack of exercise and proper meals. Daniel also stays up late at night to play video games and barely balances his work-hard-play-hard lifestyle. He is looking for a video-conferencing application that can host his multiple group projects, meetings, and efficiently communicate his ideas.

Jane Smith is a 19-year-old college student majoring in Psychology at SFU. She is in her 1st year and takes a light course load every semester, as well as working at a part-time job. She enjoys socializing with friends and playing sports. She eats healthy, sleeps, and wakes up early. With COVID-19 on the rise, her preferred in-person collaboration with group mates for projects is no longer valid. She is looking for an application that can facilitate project collaboration virtually, easy to use as a beginner, and is able to compliment her tight schedule.

1.3 Functional Requirements

1. The system must allow users to video call, voice chat, text chat, and share common file types simultaneously.
    1. One, a combination, or all the above features should be compatible upon the user's discretion.
    2. Shared files should be accessible through the text chat interface.
2. The interface should provide the option to leave, mute, and toggle video during a call at any time.
3. The system must have application features to organize project materials, assign tasks, schedule meetings, and communicate ideas graphically.
4. The application must include a user profile page that contains basic user information such as username and a simple networking system to add contacts.

1.4 Non-Functional Requirements

1. Users can only participate in at most one live video or audio conference at any time, and each conference can support up to 50 simultaneous users.
2. Files shared have a 500 Mb size limit, removable, and do not expire.
3. Real-time video streaming quality should closely match the quality of the users' webcam, in terms of resolution and frames per second.
4. The mobile application must comply with Apple's App Store guidelines [5] and Google's Developer Content Policy [6].

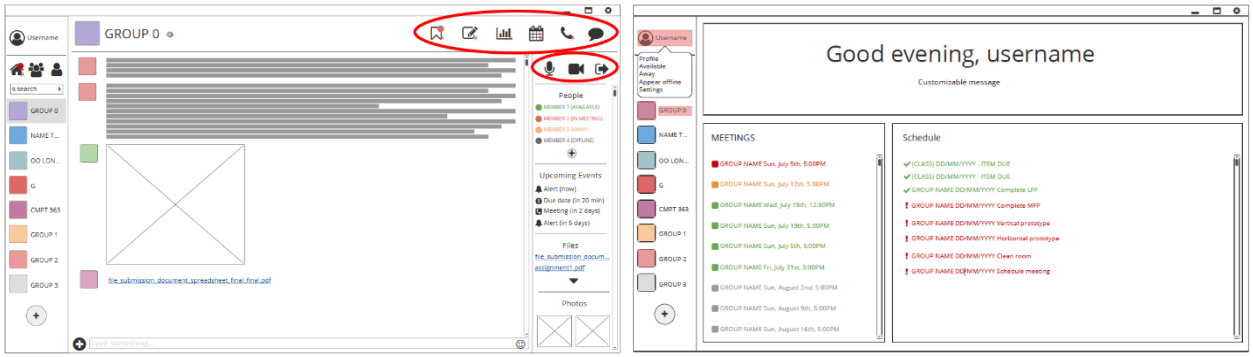
2 Low-fidelity prototypes

2.1 LFP 1

The low-fidelity prototype interface is designed to seamlessly integrate common university-level group project tasks in a multi-page design, with the goal of being less reliant on third-party applications to perform tasks and keeping users within the application.

When in a group, all members have access (via top-right icons) to a group chat, group conference call, group scheduler, quick poll, a group whiteboard, and shared files for basic version control and bookmarking. This fulfills the first and third functional requirement specified in part 1. The interface also has persistent access to toggling voice, webcam, and leaving an ongoing call.

This is the second functional requirement and is implemented in the top banner of the home page (during a call), right panel of any group page, or an out-of-app overlay (figure 1.1). The redundancy of this feature is intentional and promotes a feeling of control for the user and visibility of in-call status.

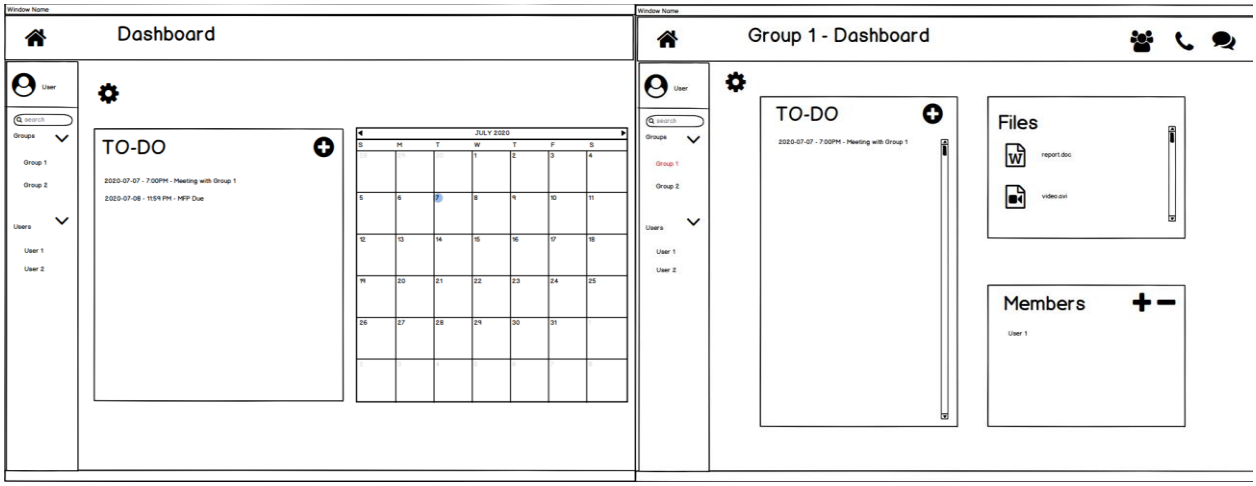


The last functional requirement is a basic profile page which shows username and the ability to add contacts. The username is shown both in the dashboard (unless during a call, figure 1.2) banner and on the left panel, with a personal message that the user may create. Adding contacts and creating groups are done by the ‘+’ button at the bottom of the left panel.

The non-functional requirements are satisfied through software requirements, and thus cannot be illustrated in the wireframe. For the case of 50 simultaneous users in a video conference, each person’s display will be scaled down to fit the number of people in the call. Files up to 500 MB are shared within the app and persist in the shared files/links page until removed. The application complies with app store guidelines for ethical development.

2.2 LFP 2

This low-fidelity prototype focuses on the Aesthetic & Minimalist Design heuristic by keeping the interface as simple as possible and drawing the user's attention to the important elements.



Above (left), we see the user dashboard, which is the central hub to access all the features of the application. It also contains the to-do list that allows users to assign tasks and schedule meetings, which partially fulfills the third functional requirement.

Groups that the user is a part of can be accessed through the sidebar, and clicking on a name will direct the user to the group's dashboard (above, right). The group dashboard allows users to video/voice call (phone button), text chat (message bubble button), and share files, which fulfills the first requirement and allows for organizing project materials stated in the third requirement.

When the user starts/joins a video call, the interface allows the user to leave, mute, toggle video at any time, implemented according to the second functional requirement. Sharing screens the video call will allow for users to communicate ideas graphically, which completes the implementation of the third requirement.

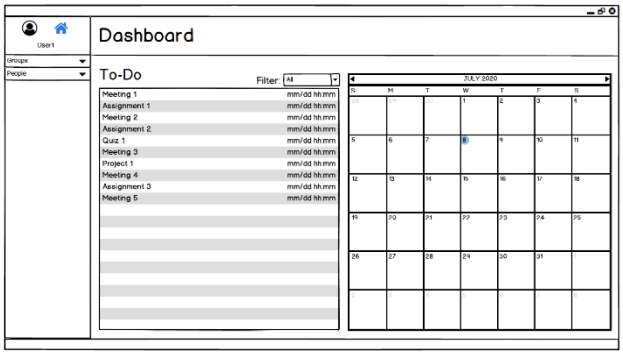
Clicking on any username on the sidebar will direct the user to their profile, which shows basic user information and allows for adding or removing contacts. This fulfills the fourth requirement.

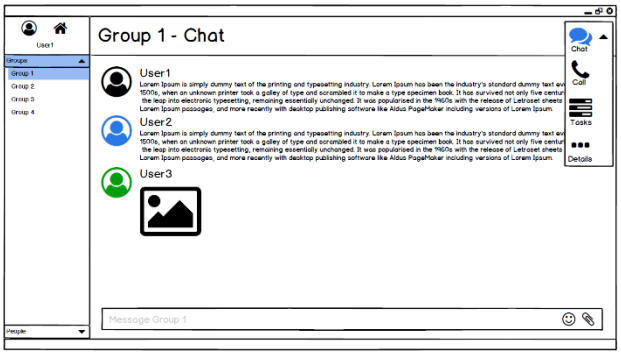
The non-functional requirement of allowing 50 users is fulfilled by scaling to each user screen smaller to fit the whole screen. Files in the group dashboard will have a 500 Mb size limit, are removable, and do not expire. The video streaming quality of the video call feature will closely match the quality of the users' webcam and the application will comply with various app store guidelines.

2.3 LFP 3

This low fidelity prototype is designed to provide university students a simple multi-page design for group collaboration and organization. The design also allows for personal organization of tasks, and provides basic tools for students to manage their workload.

The user is first greeted with the dashboard when opening the application. The dashboard provides quick access to important features and information, such as the user's upcoming deadlines, and a calendar for a more visual display of what their month will look like (below, left). The user's contacts and their current groups are found in the left pane, where a dropdown element for 'Groups' and 'People' contains a list of their respective categories. The upper left corner of the page also displays the user's profile picture, as well as their username, and provides access to a profile page where the user can view and edit their basic information (figure 2.1). This profile page also allows the user to add new contacts and remove existing ones, fulfilling the fourth functional requirement from part 1.





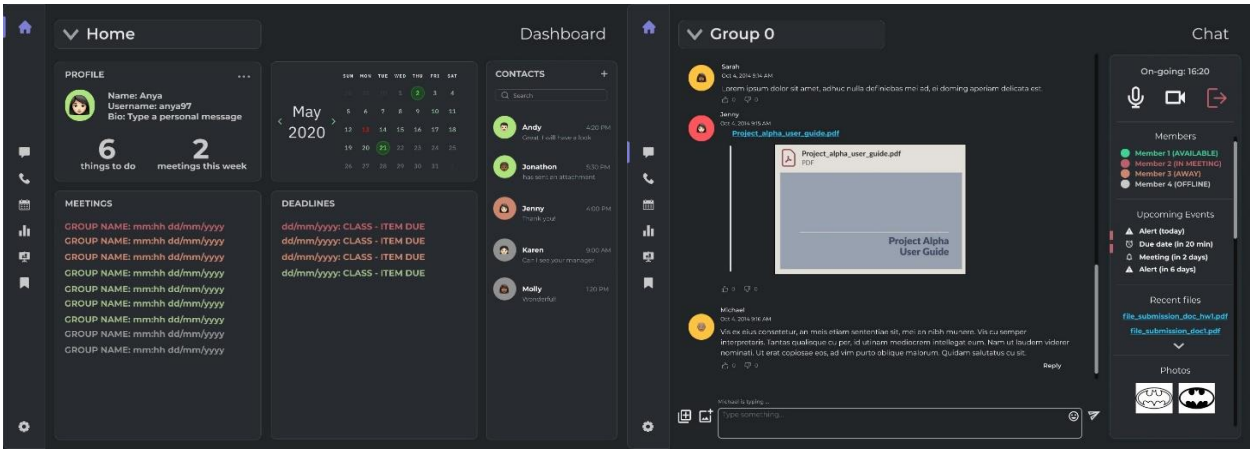
After selecting a specific group from the left pane, that group's text chat interface will open (above, right). Within this text chat interface, group members are able to communicate and share images and files, through the use of the paperclip icon to the right of the chat box at the bottom of the page. Images can be directly displayed in this chat interface.

At the upper right corner of the chat interface is an icon displaying the page that is currently being used. Clicking on this icon reveals a dropdown menu providing access to other important group features, such as task/meeting management features, group information, and group video/voice chat, fulfilling the first functional requirement.

The video/voice chat page allows the user to leave, mute their microphone, adjust call volume, share screens, and toggle video at any time (figure 2.2). This fulfills the second functional requirement. The tasks page allows group members to assign tasks and organize meetings, and the details page gives members access to past shared files and project materials (figure 2.3, 2.4). This satisfies the third functional requirement.

3 Medium-fidelity prototypes

3.1 Horizontal MFP



To the left is the Dashboard page that greets users in the H-MFP. **Functional requirement #4** is met with a simple user profile panel, that includes name, username, and details on tasks and meetings. Other details that users would want to know at a glance are included in a meetings, deadlines, and contacts panel. On the left panel, the navigation icons take users to the other pages of the group. The chat page (above, right) shows a group chat view where team members can chat, share files, and start a video call. This fulfills **functional requirement #1**. Note that file attachments have a max size of 500 MB, fulfilling **non-functional requirement #2**.

The right panel is persistent within all group pages, and shows recently uploaded files and photos, members, and upcoming events. It also has quick access to conference call control, fulfilling **functional requirement #2**.

Figure 3.1 shows the conference room interface. Note that the same right panel is included here. Redundant and additional call control options are offered on this screen and allows users to see each other's faces, screens, or profile picture. **Non-functional requirement #3** is fulfilled by showing high quality video on the screen. The calendar page in figure 3.2 shows the scheduling and organizing interface. It has a schedule panel that shows the detailed upcoming events. The central calendar has a calendar view of the events, and the bottom panel has a personal note section that can be integrated with the calendar. This is part of **functional requirements #3**. A bookmarks and whiteboard are also integrated for **functional requirement #3** by adding brainstorm features and basic file version control.

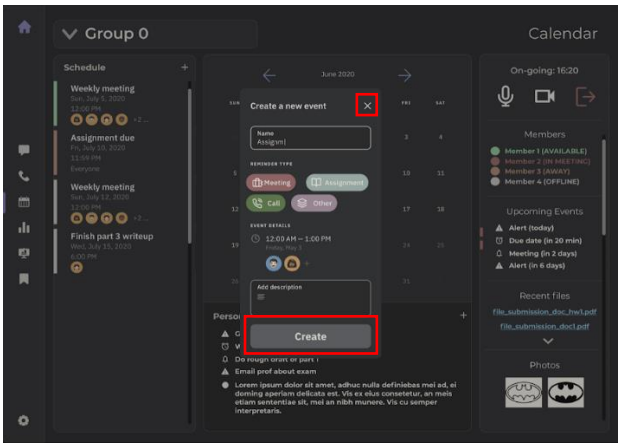
Non-functional requirement #4 is applied in software and is followed not because it is on the app store, but due to ethical programming practices. **Non-functional requirement #1** would be implicit when users try to keep adding members to conference calls, capping at 50 members.

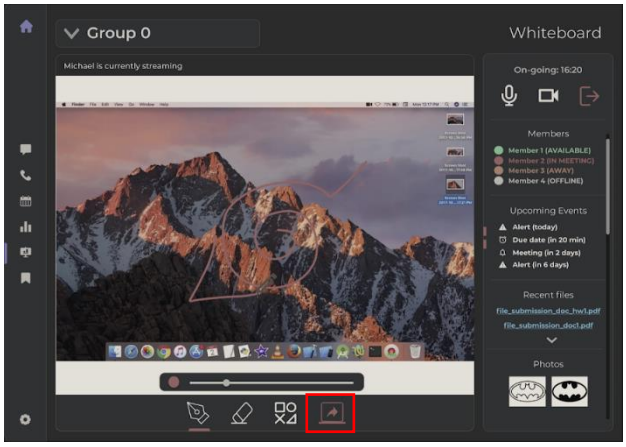
3.2 Vertical MFP

The vertical implements a typical walkthrough of our prototype's dashboard, group chat, scheduler, and whiteboard. First, the user starts off in the main home **dashboard**. Here the user gets an overview of their to-do tasks, upcoming deadlines, meetings, as well as a contact list to see who is online and available to chat. Then the user will navigate to our specified group by clicking on the **dropdown selection** button at the top (figure 4.1), which will then show all the groups the user is in, and then clicking on **Group 0**.

The default landing page is the **group chat**, and the user can see that there is an on-going conference at the top right. The user can leave this call by clicking on the **leave call button** (right most button in top right), with the option to join back in.

The user can navigate to the **calendar** page (below, left) by clicking on the calendar icon on the left panel (3rd from the top). The calendar view organizes the schedule. It is also where the user can set reminders and meetings, as well as see upcoming events. Specifically, the **+** button on the top right of the schedule or personal notes panel allows the user to **add a new event** to the calendar. Either click exit, create or outside the box to close the overlay, as shown below to the left.





The user can then navigate to the **whiteboard** page (above, right), where group members can brainstorm, share drawing, and have a real time whiteboard to draw on. Click on the share screen button (bottom right button), to start sharing the user's screen, which can be seen in the figure above to the right. The user can select tools to draw with (actual drawing not implemented due to Figma constraints.

This walkthrough of the vertical MFP demonstrates part of functional requirement #1, where users can text chat and share files in the group chat page. Functional requirement #2 is also demonstrated as users can leave or join a call outside of the conference room page (call control on the dashboard is yet to be implemented on the profile panel due to Figma complexity restraints, replacing the tasks and meetings section). Functional requirement #3 is demonstrated in the calendar and whiteboard pages to organize project materials, assign tasks, schedule meetings, and communicate ideas graphically.

3.3 Creating the MFP

The MFP was created with a majority of its components taken from LFP 1 with some placement rearrangements that are not present in any LFP, such as the persistent right panel containing important group details and voice/video chat controls, and the left (on MFP) navigation panel. The call, whiteboard, and bookmarks pages were based on the wireframes in LFP 1 as well. The calendar page was based on a combination of LFP 1 and LFP 3's implementations. We also decided to minimize the profile page to a panel due to its lack of content. A majority of the MFP was based on LFP 1 because we felt that LFP 1 was able to most fully meet the functional requirements set out in Part 1, while doing it in a simple and easily usable manner.

4 Learnings and Discussion

The connection going from LFP to MFP was more difficult than we had originally thought. In LFP, it was straightforward to implement the interface's appearance with minimal interaction. However, the MFP (in Figma) required each component to be built with an interaction, causing the group to make a lot of adjustments from the LFP designs. Examples include how we navigate on the interface between conference, chat, whiteboard, groups, etc. and figuring out how many different ways a user can leave a call. Trade-offs had to be made in terms of complete interactivity due to the time and complexity constraints in making our MFP in Figma (such as Figma only allowing one active overlay at a time.

The strength of our design is that the overall structure and flow of the MFP looks polished and all major functions are working well. The weakness in our design is that it has not been tested well in terms of usability, due to limited available time to make a more interactive MFP, and lack of user-based testing. We are confident that in our high fidelity prototype these interactions will be well tested.

5 Appendix

Figure 1.1

Figure 1.2

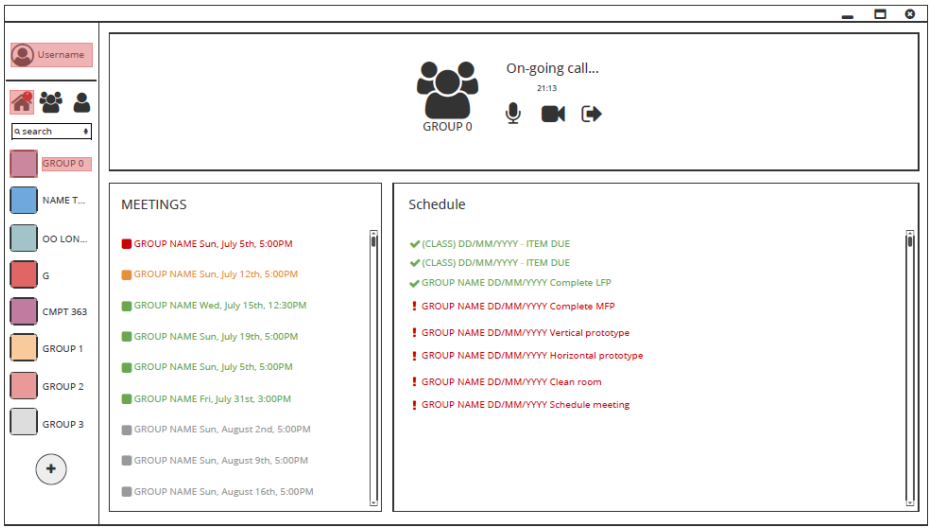


Figure 2.1

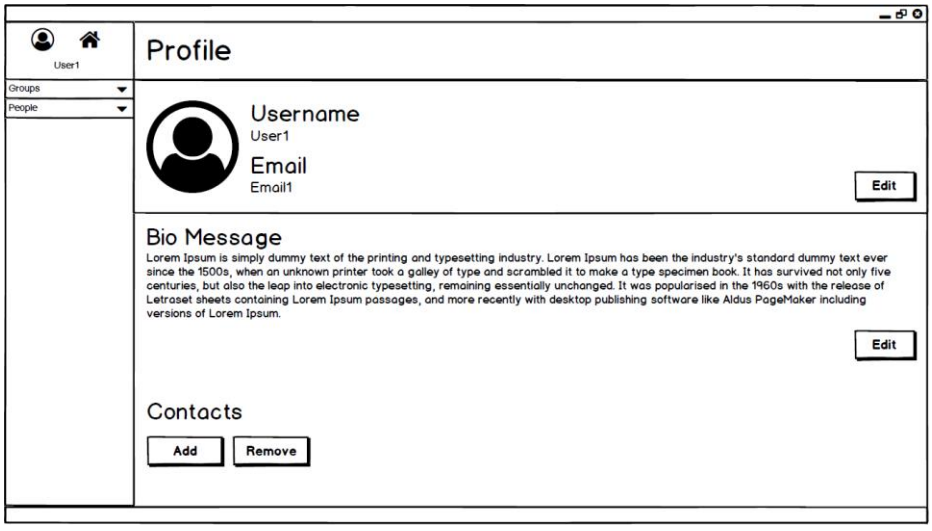


Figure 2.2

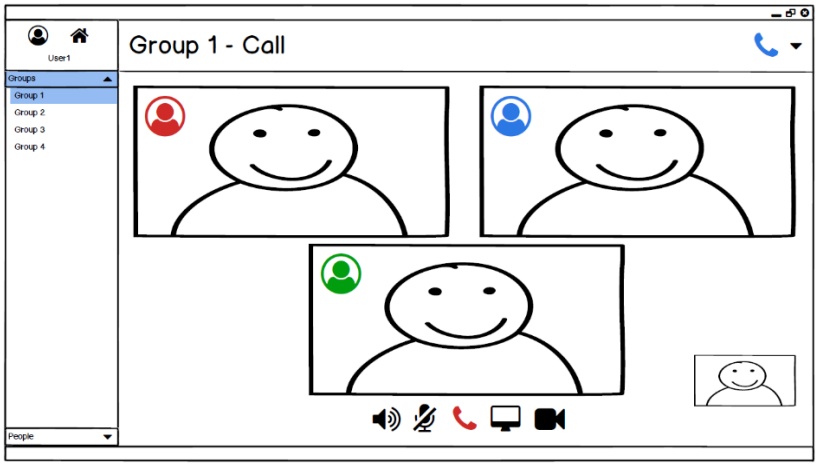


Figure 2.3

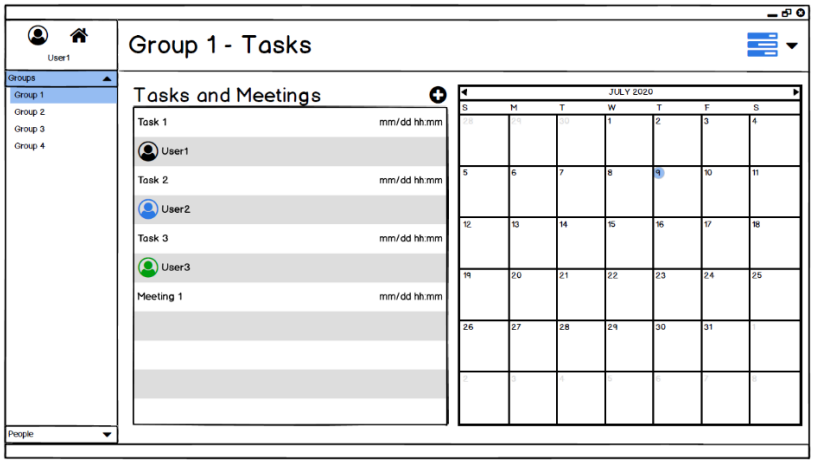


Figure 2.4

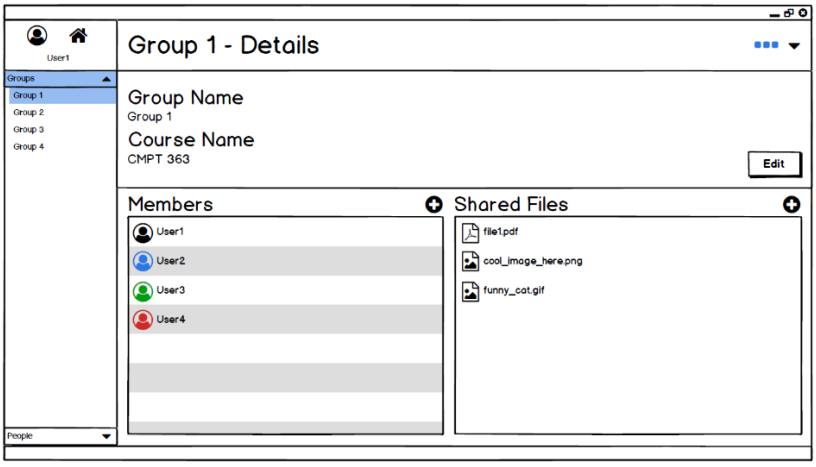


Figure 3.1

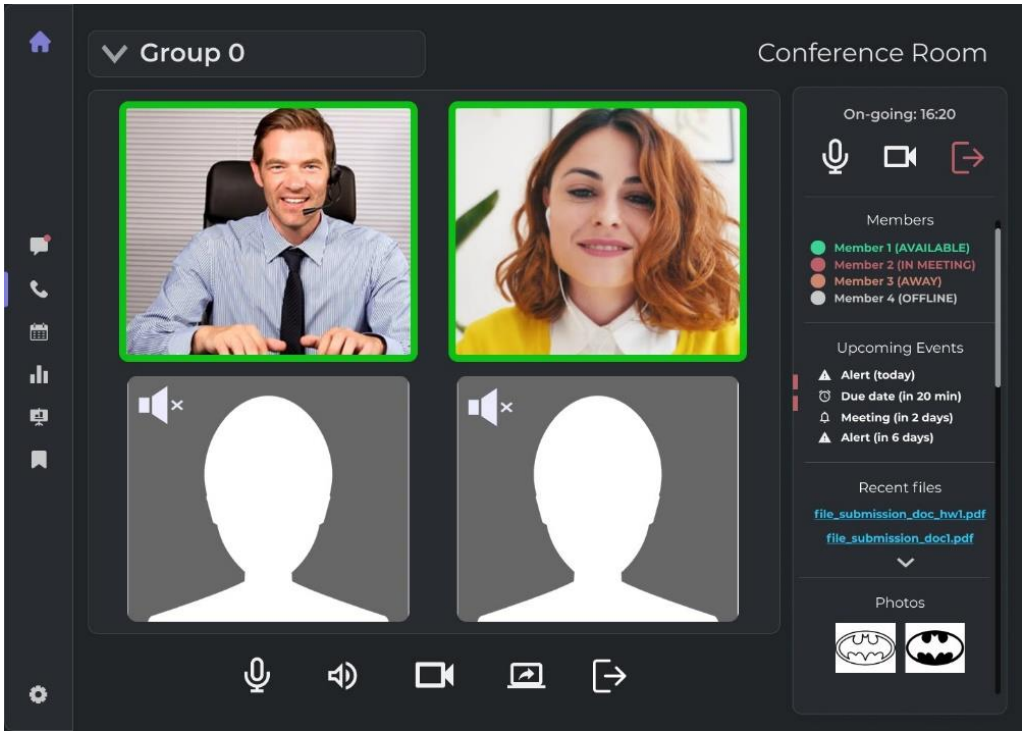


Figure 3.2

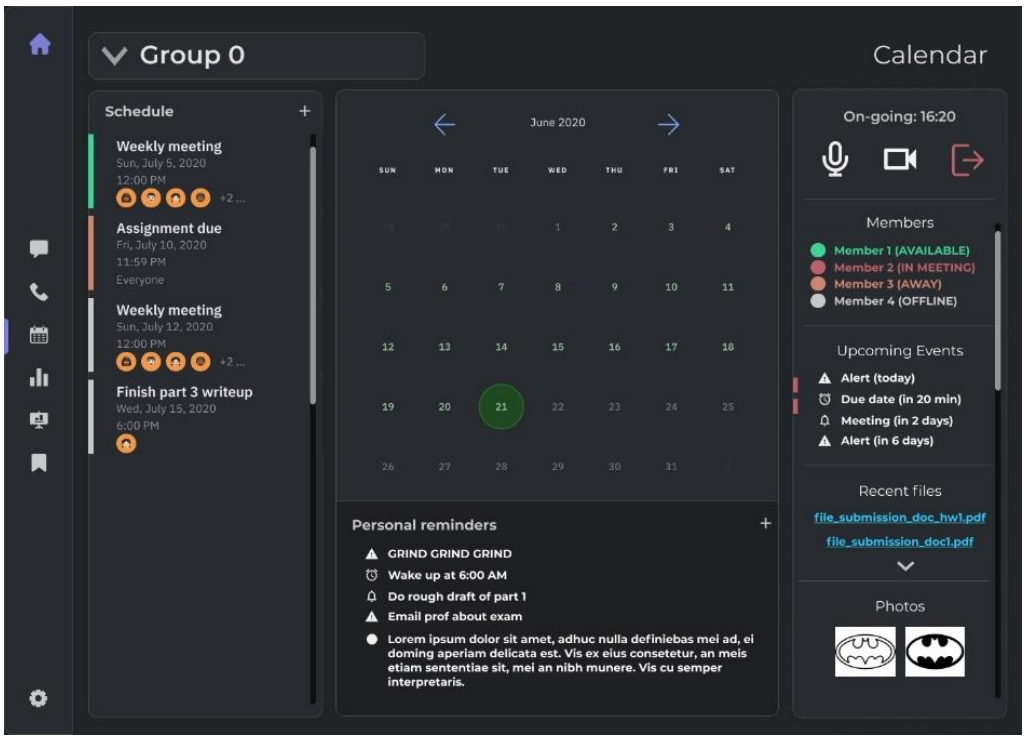


Figure 4.1

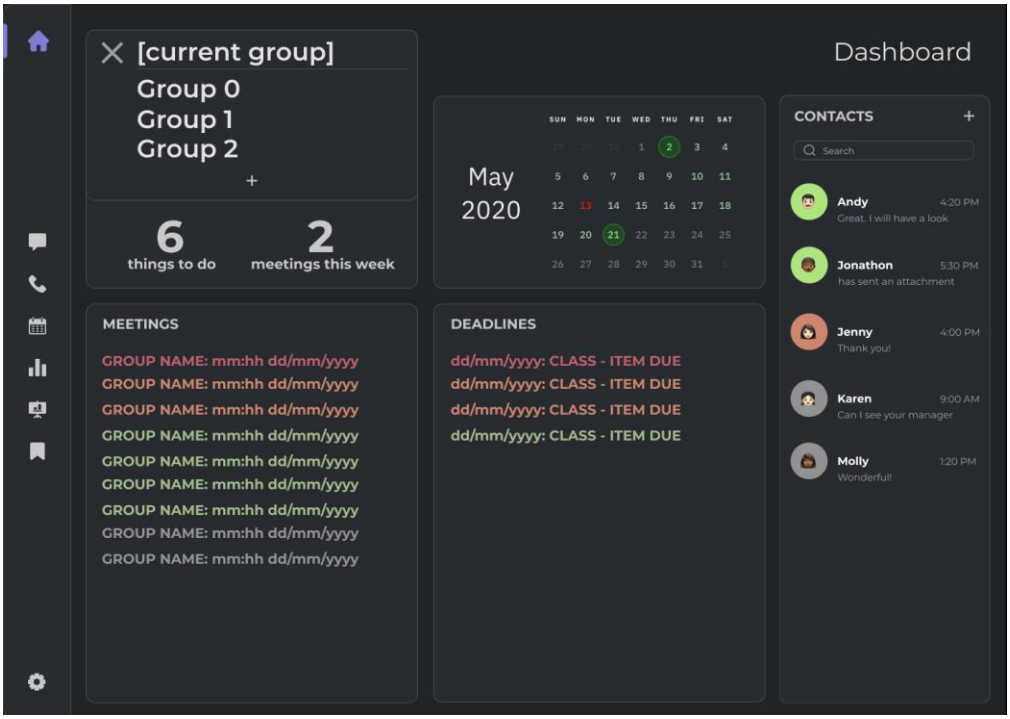


Figure 4.2

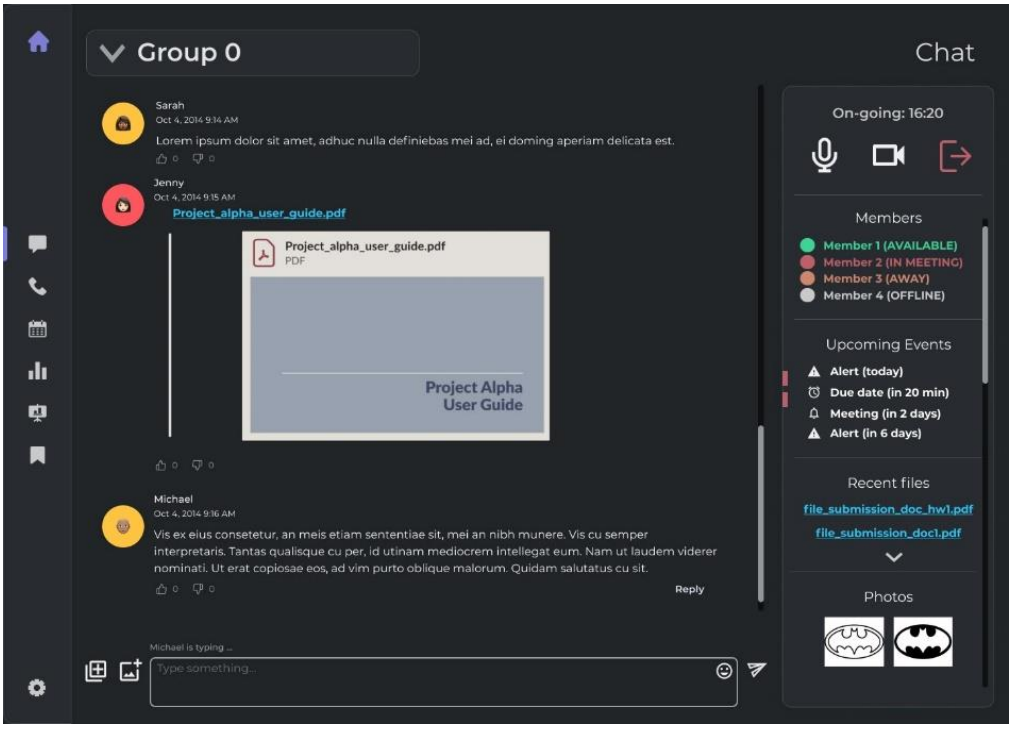


Figure 4.3

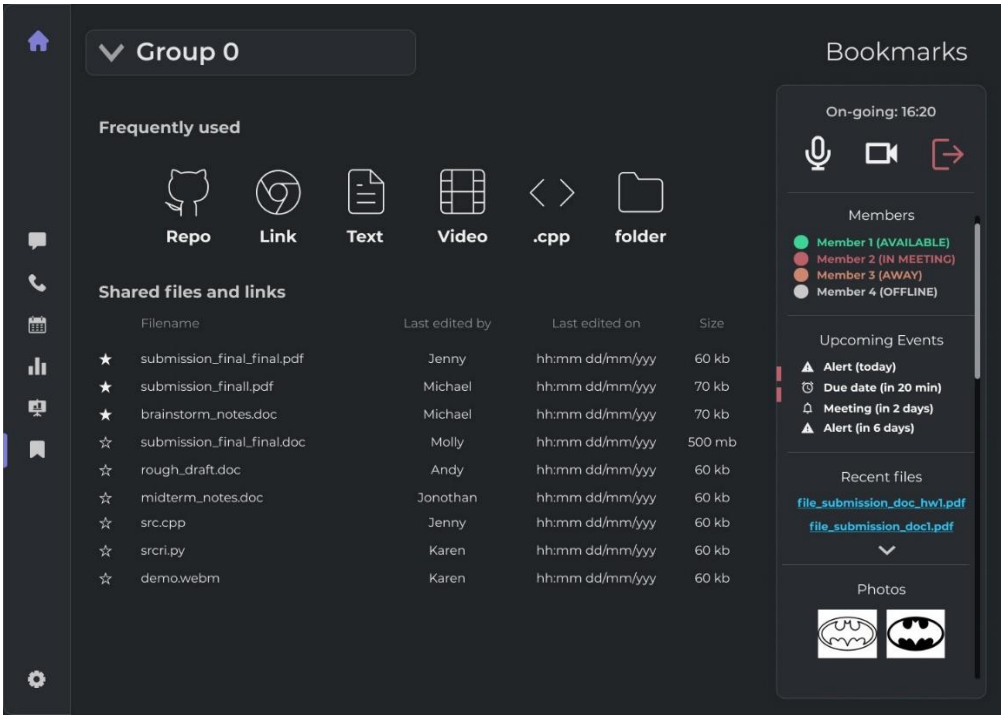


Figure 4.4