

A. User Experience Requirements

1. Decompose your proposed solution from [Milestone 2](#) into related [user stories](#).

It is highly recommended that you organize your user stories into a hierarchy based on related [activities](#) and [tasks](#).

- a. Epic: As a professor I want to be able to write on the whiteboard while providing legible, easy to see annotations over zoom so that students will have the same traditional learning experience whether in person or online on zoom.
 - i. As a professor, I want to have the option to transcribe my writing onto a whiteboard so I can lecture in a traditional classroom setting.
 - ii. As a professor, I want to have the option to transcribe onto a shared screen (Zoom) so I can better replicate the experience of an in-person class while lecturing online.
 - iii. As a professor, I want to install the transcription software as a Zoom plugin so that I can use it for class.
 - iv. As a professor, I want to outline and calibrate my whiteboard so I can use the transcription software.
 - v. As a professor, I want to have the option to save my writings as a pdf so I can share/review it later.
 - vi. As a professor, I want to be able to change the color and weight of the pen that I am using in order to draw/annotate with distinction.
 - vii. As a professor, I want to have the option to turn on auto-correct to make my handwriting more legible for the students.
 - viii. As an in-person student, I want to be able to learn in the traditional classroom setting and not have to log into zoom because I am in person.
 - ix. As an online student, I want to be able to have the same view as in-person students so I can have the same experience as in-person learning.

2. Which user stories are most relevant to your proposed solution and why? It could be all of them or perhaps only a few. Whatever you pick, please provide a strong justification with supporting evidence.
 - a. User Stories (i) and (ii) are most important to our proposed solution because they describe the main idea of our solution to create a uniform learning experience for both in-person and online students. Studies have shown that students perform better when in a face-to-face class setting^[1]. It also increases teacher-student engagement which has been shown to help minimize the difference between student outcomes when going between online and in-person^[2]. (i) has the professor as the user, and it describes the importance of this solution as it would assist the professor in his/her role. (ii) also has the professor as the user, and it exemplifies his/her desire to fulfill his/her students' needs in this new and difficult learning environment.

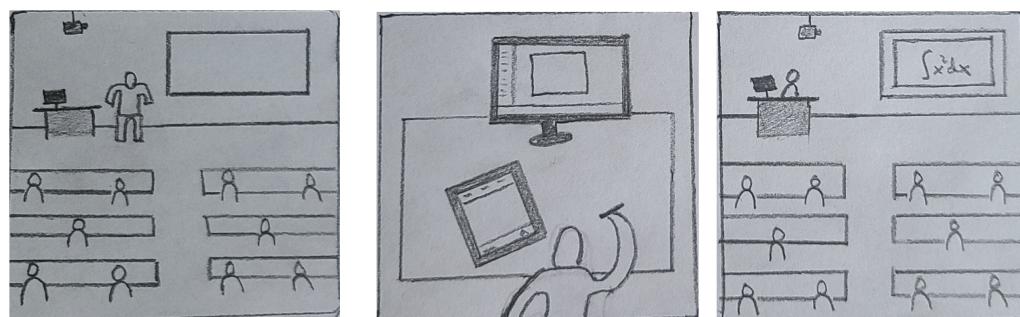
B. Ideation and Preliminary Designs

1. For each of the relevant user stories you identified and justified in (A), generate ideas for alternative designs that could be used to tell that story.
 - a. i: As a professor, I want to have the option to transcribe my writing onto a whiteboard so I can lecture in a traditional classroom setting.
 - a. The professor could write on a tablet with a stylus and the writing on the tablet would be transcribed onto the Zoom screen.
 - b. The professor could have a modified marker that allows the professor to stand and write at the white board while also tracking their pen strokes that would be transcribed onto zoom.
 - b. ii: As a professor, I want to have the option to transcribe onto a shared screen (Zoom) so I can better replicate the experience of an in-person class while lecturing online.
 - a. For (ii), the professor or host of the meeting would have an icon on the bottom of the Zoom screen (located with the other icons such

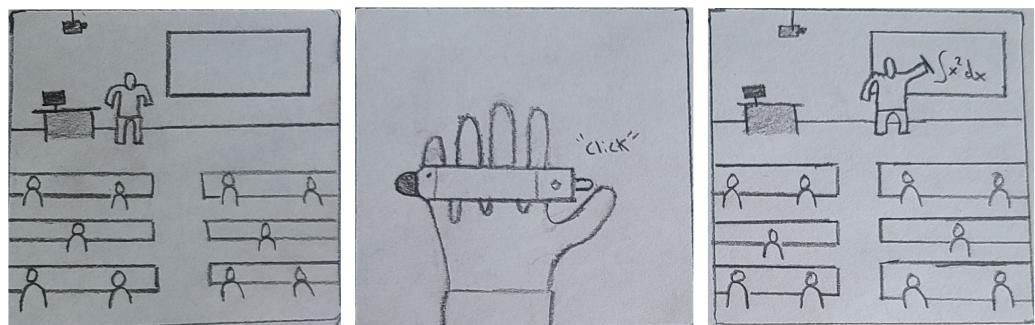
as share screen, record, etc) that would be an image of a pen with the word “Transcribe”. When the teacher clicks the “Transcribe” button, the Zoom screen turns completely white allowing the professor to transcribe what is written on the whiteboard onto the Zoom meeting.

- b. Another option for designing number (ii) would be to modify the share screen button. When the professor clicks the share screen button, he/she would be presented with the option to share a web screen or to share a whiteboard screen.
2. For each alternative design of a user story, produce a [wireframe](#) with enough artboards (i.e., pages, screens, etc.) that a potential user might be able to provide useful feedback. Each wireframe should: be presented in a way that viewers can see all artboards at once and individually (perhaps by clicking); and include a justification for why design decisions were made.
 - a. i: As a professor, I want to have the option to transcribe my writing onto a whiteboard so I can lecture in a traditional classroom setting.

Design alternative A: In this design the professor would write on a tablet with a stylus then their writing would be projected onto the whiteboard while also being shown on zoom by sharing the tablet’s screen. As tablets are readily available this design is easy to implement.

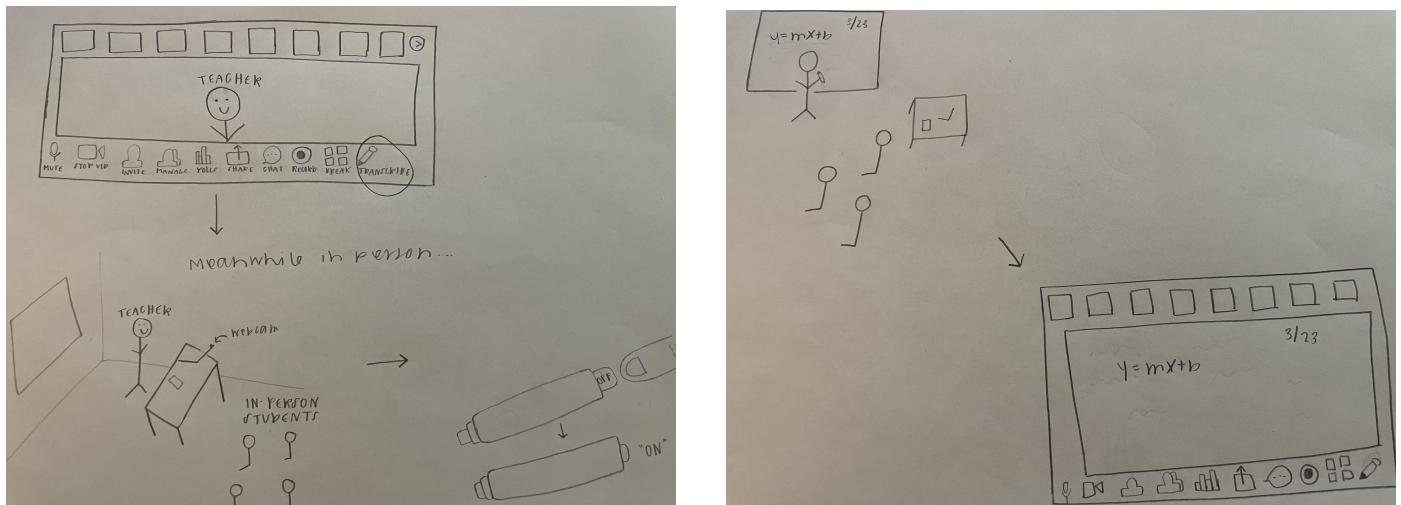


Design alternative B: In this design the professor would use a modified marker that can track their pen strokes that can then be transcribed onto a digital whiteboard on zoom. In this design the professor has the ability to stand in the front of the classroom and lecture to in-person students in a traditional sense. In this design the professor can lecture as they normally would while also accommodating students on zoom.

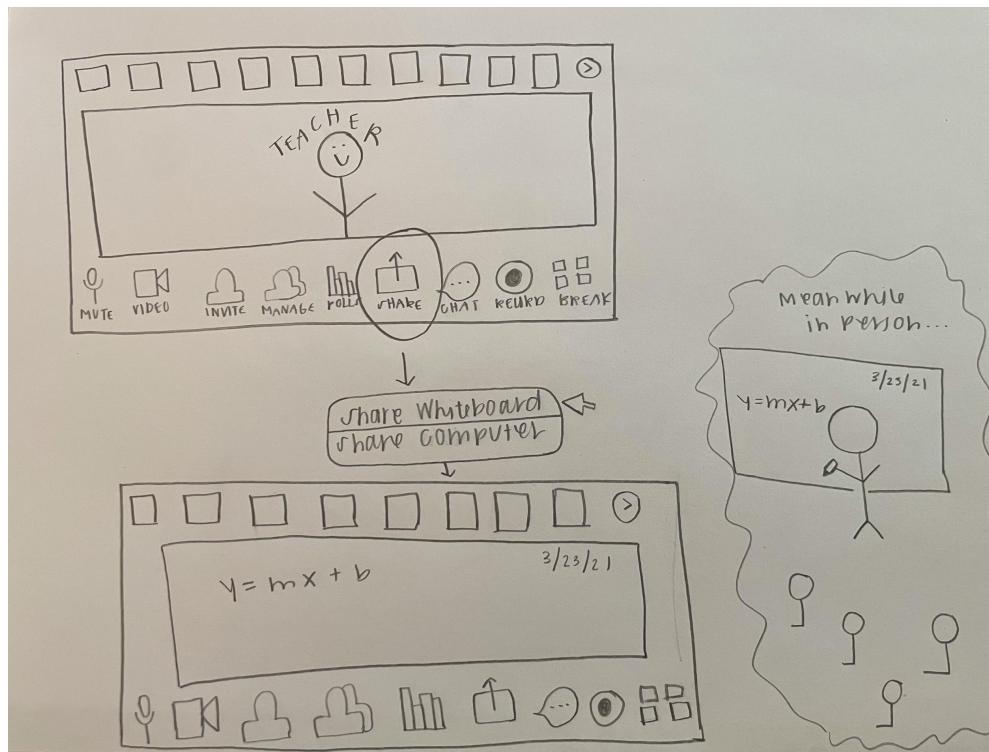


- b. ii: As a professor, I want to have the option to transcribe onto a shared screen (Zoom) so I can better replicate the experience of an in-person class while lecturing online.

Design alternative A: In this design, the professor would have a new icon located on the bottom of the screen. The icon would be an image of a pen with the word "Transcribe". Once clicked, the button would activate the whiteboard feature on Zoom and begin transcribing onto the Zoom screen. The placement of a new button, however, adds a small learning curve.



Design Alternative B: In this design, there would be an addition to the share screen button. Once clicked, the button would give the option of sharing the whiteboard or sharing the computer. In the example of our solution, the professor would select to share the whiteboard, and then the whiteboard writing would be transcribed to the zoom screen.

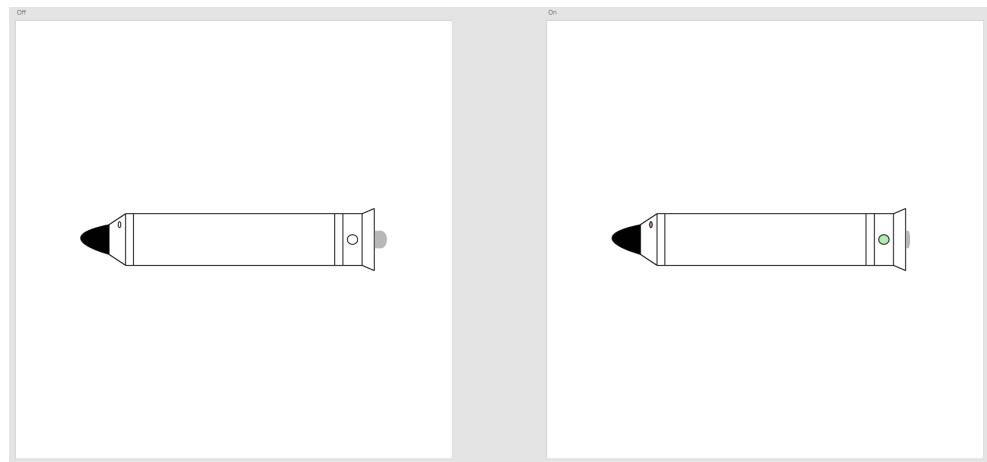


C. Detailed Designs

- For each of the relevant user stories you identified and justified in (A), pick what you think is the best design alternative you wireframed in (B), then produce a higher fidelity **mockup** of the wireframe. Each mockup should:
 - be presented in a manner consistent with your wireframes in (B);
 - include a justification for why you think it is the best design; and
 - include a justification for why design decisions were made.

2. You are expected to use a software tool (e.g., Adobe XD) to create your mockups. For each mockup, you must provide a download link for the source file in addition to one or more exported PNG files.
 - i: As a professor, I want to have the option to transcribe my writing onto a whiteboard so I can lecture in a traditional classroom setting.
 - i. We decided the best design alternative to this solution was the modified white board pen, which allows the professor to write on the whiteboard while transcribing the pen strokes to the Zoom screen. While the other option of a stylus that is used with a traditional piece of paper on a table might be slightly more comfortable for the teacher, we ultimately decided that having a pen that allows the teacher to write on the whiteboard and cater to online students at the same time would have the added benefit of motivating students to come to class in person when possible.

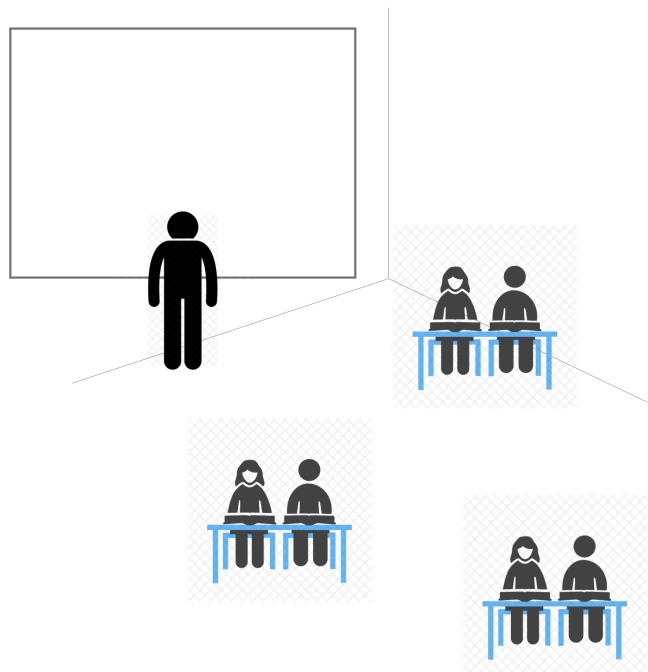
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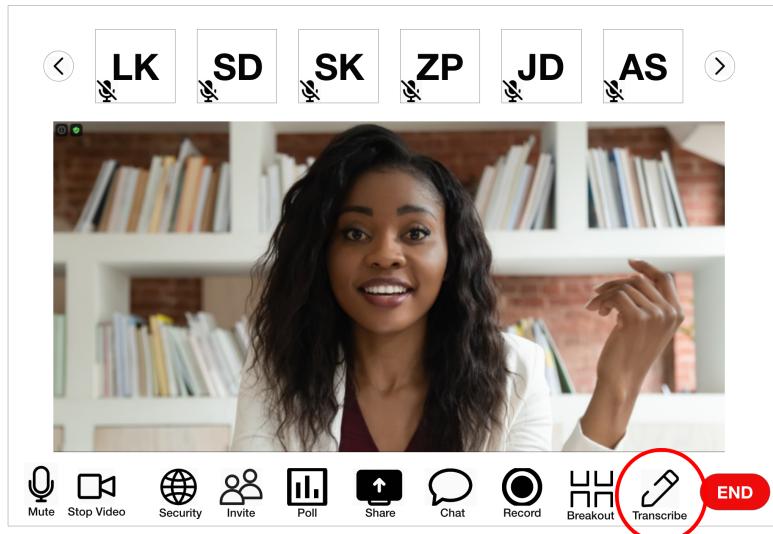
- ii: As a professor, I want to have the option to transcribe onto a shared screen (Zoom) so I can better replicate the experience of an in-person class while lecturing online.

- i. We settled on the adding the Zoom “Transcribe” button as the best design because we believed that a new button would best portray that there is an entirely new capability on Zoom. While our other option of adding the transcribe capability as an add-on to the share screen option might look more familiar to users, it could also cause the function to go unused since it is slightly more hidden. Despite the “Transcribe” button having a small learning curve, it minimizes the amount of clicks and therefore effort required to use the transcribe capability.

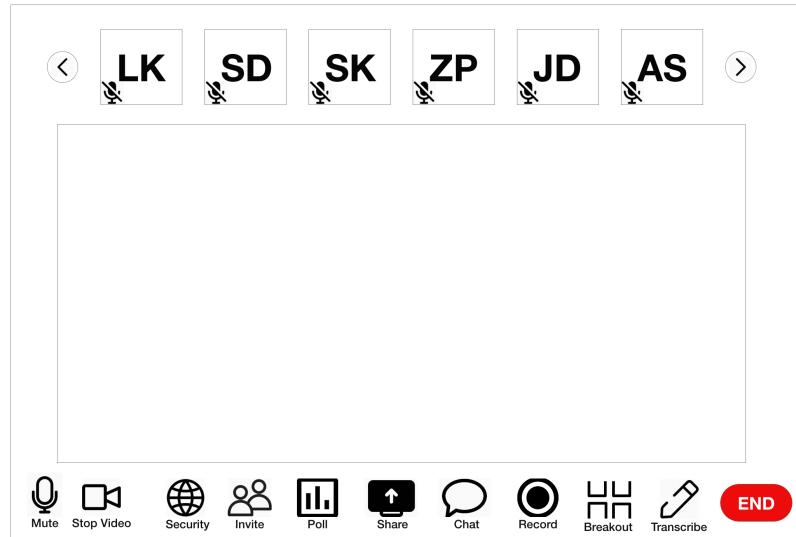
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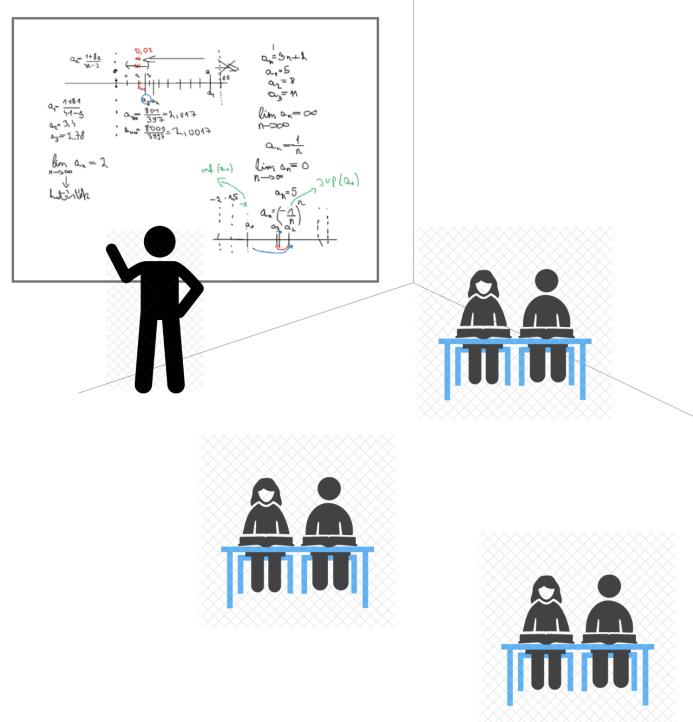
1.



2.



3.



4.

◀
LK
SD
SK
ZP
JD
AS
▶

Mute
Stop Video
Security
Invite
Poll
Share
Chat
Record
Breakout
Transcribe
END

5.

D. Summary Video

1. Create a 5-10 minute video that summarizes the information in parts (A), (B), and (C). The creation of this video should involve all team members, and the video itself should contain credits at the end describing who did what.
 - a. <https://youtu.be/iP0uiq1-u-s>
 - b.

References:

- [1] Bettinger, Eric P., Lindsay Fox, Susanna Loeb, and Eric S. Taylor. 2017. "Virtual Classrooms: How Online College Courses Affect Student Success." *American Economic Review*, 107(9):2855-75.
- [2] Academic and Business Research Institute. 147 Medjool Trail, Ponte Vedra, FL 32081. Tel: 904-435-4330; e-mail: editorial.staff@aabri.com; Web site: <http://www.aabri.com>