Heuristic Evaluation of Collide

1. Problem/Prototype Description

We evaluated Collide, an app that helps gen-Z and millennials, from college students to new college graduates, make authentic connections with others in close proximity who otherwise would not have interacted with each other.

2. Violations Found

Task 1

1. H1 Visibility of system status C
    a. After clicking "Add to Network," the button does not change. Users may exit the page and re-enter without knowing whether they already clicked the "Add to Network" previously.
    b. Fix: Make the button react/change in some way to indicate which profiles users have already added to the network.
    c. Severity: 2
2. H1 Visibility of system status
    a. After clicking "Add to Network," users receive a popup that says "Task completed!" However, users may be confused on what a "task" is.
    b. Fix: Change the notification to a confirmation that the user has been added to the network.
    c. Severity: 4
3. H1 Visibility of system status
    a. On the profile screen, it says Anna is "0.3 mi away." However, many users may be constantly moving. Thus, it is unclear to the user whether Anna is still 0.3 mi away when they check the Collide app.
    b. Fix: Add an indication on how accurate the distance is. For example, "0.3 min away" → "last updated: 1 min ago."
    c. Severity: 2
4. H2 Match between system and the real world
    a. At first glance on the "Others near you" screen with the bubbles, it is unclear what the 96% blue line around the user picture means.
    b. Fix: Add some type of context for first-time users that makes it clear this percentage is talking about similarity matching (without having to read the presentation).
    c. Severity: 3
5. H2 Match between system and the real world

      a. Users can view others who are nearby and click the prominent "Add to Network" button. However, it's unclear to the user what "Add to Network" means—especially if the users do not meet up in person or interact through messages.

      b. Fix: Deemphasize or move the "Add to Network" button so that users only click this after messaging/interacting with the other user.

      c. Severity: 3

6. H3 User control and freedom B

      a. On the "Message screen," there is a back button that cannot be clicked. It is unclear what clicking this back button would lead to.

      b. Fix: Add the back button, preferably to the previous screen so that users can reference interests and other user information.

      c. Severity: 2

7. H3 User control and freedom

      a. On the "Others near you" page, users cannot navigate to other screens such as the network and profile on the prototype.

      b. Fix: Add links to the other pages so that users can navigate in and out of this page. c. Severity: 2

8. H4 Consistency and standards

      a. On the "Others near you" screen, the match percentage around the bubble is in a shade of blue. When you click on a person, the "similar" traits are in purple while the "others" traits are in the same shade of blue. This makes it confusing on whether the blue match percentage refers to the similar or others traits.

      b. Fix: Change the match percentage circle to be the same color as what it is the app is measuring by so users can make the connection between features on one screen to the next.

      c. Severity: 1

9. H5 Error prevention

      a. On the user profile screen after clicking on the bubble, the image takes up ½ the screen. If the user doesn't upload a photo, I am confused on what the user would see instead.

      b. Fix: Reorganize the profile page if the user doesn't have a profile picture.

      c. Severity: 1

10. H11 Accessible

      a. The sound message on the third screen of the task flow doesn't have a text alternative.

      b. Fix: If users send audio messages, include text transcriptions for

greater accessibility.

c. Severity: 3

Task 2

1. H1 Visibility of system status C

a. On the "You collided!" page, users can click x in the top right to exit. It is unclear whether the location sharing stops after clicking x or not.

b. Fix: Make it clear to the user whether the location sharing stops or not after clicking x.

c. Severity: 3

2. H1 Visibility of system status C

a. On the "You collided!" page, users can click x in the top right to close the collision. It is unclear what this would notify the other person. Users may be concerned about social norms such as selecting "Close collision" sends the signal to the other person that the user is avoiding them. Also, after closing a collision, would this still count as a "Recent Collision" in task three when the user adds a new friend?

b. Fix: Make it clear what the consequences of closing the collision mean, especially if the user takes no action such as sharing the location before closing the collision.

c. Severity: 4

3. H2 Match between system and the real world B

a. First-time users may be confused with what "you collided" means. The notification said there's an opportunity to collide. When you open up the screen, you are not yet at the location where the other users are (maybe 0.3 miles nearby). "You collided" seems to convey that the users have already met up through exchanging location.

b. Fix: Make the wording more straightforward and understandable to everyday use. Make it clear that users have to find each other in-person to have "collided." c. Severity: 2

4. H3 User control and freedom

a. After tapping on the home screen notification which states "there's an opportunity to collide," users are taken to a "You collided!" screen. Users may be concerned about not receiving an option to choose.

b. Fix: After opening the app, give users the option to choose whether they would like to be collided with the other person. This could entail whether or not to share their profile with the other user.

c. Severity: 3

5. H3 User control and freedom

a. On the notification screen, there is only one person the user is notified of. On the map, there is only one person the user can navigate to. If users receive multiple notifications at the same time, users are not able to navigate between the different

       collisions (since it seems like the only point of entry is from the notification on the home screen).

    b. Fix: Add a mechanism that allows users to navigate between the different people they have collided with at the same time.

    c. Severity: 3

6. H9 Help users recognize, diagnose, and recover from errors

    a. After tapping the home screen notification, the other user might already have moved far away in the time span. The user would then be colliding with another user that is very far away.

    b. Fix: Add some type of error mechanism that cancels the "You collided!" if the other user is too far away.

    c. Severity: 2

7. H6 Recognition rather than recall

    a. After exchanging location, there is an animation of how the user can get to the other user. However, it is unclear where users have to turn to navigate.

    b. Fix: Keep the visual but also add text instructions so that directions are accessible and clear to the user.

    c. Severity: 2

8. H6 Recognition rather than recall

    a. After exchanging location, users navigate to another screen to see the map. However, once the user meets the person, they have to navigate back to see what their interests and similarities are (possibility to start a conversation). This makes it hard for the user to recall information from one part of the screen to another.

    b. Fix: Add the interests on the navigation screen so users can see both the map and the interests.

    c. Severity: 3

9. H11 Accessible

    a. On the "You collided!" page, all the similarities are in pictures. However, users who are vision imparied may not be able to see these pictures.

    b. Fix: Add text or alt text so that screen readers can pick up on what the similarities are.

    c. Severity: 3

10. H13 Value alignment

a. One of the values of the app is privacy. However, the first screen of task 2 says "Emily Hsu" is nearby. There's a concern if users don't want others to be notified of their name when they are nearby.

b. Fix: Add on option where users can choose whether Collide shares their name with other users or not.

c. Severity: 3

Task 3

1. H1 Visibility of system status B

a. As the bottom bar scrolls backward, some of the user bubbles move away and become disconnected from the user icon. It's unclear what this means.

b. Fix: Add more context for what it means for an icon to be disconnected from the user but still remains on the network page.

c. Severity: 3

2. H3 User control and freedom

a. Users can click on "Add to Network" and the button changes to "Request Sent." However, there's no way to unsend a request.

b. Fix: Add a way for users to unsend the request in case they clicked the big button on accident.

c. Severity: 3

3. H4 Consistency and standards C

a. In task 1, when users click on "Add to Network" (like in task 3), users receive a different notification feedback than in task 3.

b. Fix: Fix the "Add to Network" notification feedback in task 1 so that it's consistent with task 3.

c. Severity: 2

4. H4 Consistency and standards

a. Users click "add to network" and receive a notification that says "Ekin has accepted your friend request." Users may be confused on the difference between a network request vs a friend request.

b. Fix: Change to the same wording so users can associate the action and reaction. c. Severity: 2

5. H5 Error prevention

a. On the "add a friend" page, all users are listed by only their first name and profile picture. If multiple users have the same common name like "John" or do not upload a profile picture, it will be very hard for users to distinguish which is the correct user.

b. Fix: Add more information and ways for users to confirm they are finding the

correct friend (i.e. last name, user name, special identification number, etc). c.
Severity: 3

6. H6 Recognition rather than recall
   a. The network graph displays pictures of users. However, it does not display other information that may be beneficial for the user such as name and interests. This may make it hard for the user to recognize people in their network—especially people they just recently collided with.

   b. Fix: Add more information about the network either on the graph or when the user clicks on a specific icon.
   c. Severity: 3
7. H11 Accessible
   a. The network graph is purely visual. It is unclear how users without vision can see which users are in their network.
   b. Fix: Add text or a way for users to understand who is in their network without the visual graph.
   c. Severity: 4
8. H13 Value alignment
   a. One of the values of the app is privacy. However, in the network graph, it shows not just who the user is connected to, but also other users and who they are connected to (and their history when scrolling back the bottom bar). Users may not want others to know who they are connected to and what their historical network graph looks like.
   b. Fix: Add the option for users to choose whether their connections show up on other's connection graph.
   c. Severity: 4

Overall

1. H1 Visibility of system status
   a. After users click "Add to network," it seems that they have to wait for the other user to accept the friend request. However, it is unclear where the other user goes to see all their friend requests and where to accept and decline.
   b. Fix: Add a way for users to accept and decline network requests.
   c. Severity: 3
2. H13 Value alignment BC
   a. One of the values of the app is privacy. However, users have no collected way of knowing what type of information is being shared and who can see it.
   b. Fix: Add an information page that shows what data is being shared and who is able to see it.

   c. Severity: 4
  3. H10 Help and documentation M S
    a. Users may be concerned about sharing their locations and others seeing
     their location.
    b. Fix: Add FAQs page that explains how user safety is enforced.
    c. Severity: 4
  4. H10 Help and documentation B

  Users may be confused with some aspects of the app such as what the percentage
  around the bubbles mean and what "you collided!" means.
    a. Fix: Add information about what the match percentage is and what
     "you collided!" means.
    b. Severity: 3
  5. H12 Fairness and inclusion C
    a. The design of the app notifies users when others are nearby. However, this
     could further pre-existing inequities where communities are segregated. For
     example, some real-life communities/locations are inaccessible to others due
     to
     socioeconomic barriers and other factors. Thus, Collide might be
     segregating disadvantaged populations due to the way users are being
     collided.
    b. Fix: Enhance the way users collide to decrease the reproduction of pre-existing
     inequities. For example, have users collide in an area that is neutral and
     accessible (such as a college campus).
    c. Severity: 4

—--—--- 1. H2:
  Match between System and World
    a. Task 2
    b. Problem Description: Using verbiage "You collided!" with another user c. Rationale: The
    connotation of the word collide has negative implications to me. It has undertones of
    something forced, violent, and chaotic.
    d. Suggested Fix: Add some kind of clarity to this internal jargon, I feel that "collide" could
     be read in a few ways.
    e. Severity: 2
  2. H3: User Control and Freedom C
    a. Task 2
    b. Problem Description: Exchange location button immediately sends your location to the
     other user involved

       c. Rationale: If I accidentally press exchange location, my very personal
          information, my location, has already been sent to the other user.

      d. Suggested Fix: Although slowing down the task completion, I feel that the
         exchange location button should open a screen with more information and
         parameters or we should show that the other person is willing to share theirs
         before I make my decision.

      e. Severity: 4

  3. H10: Help and Documentation
      a. Task 3
      b. Problem Description: The branches extending from the profile photo in the middle
         confuse me on their meaning.

      c. Rationale: I feel that this design warrants further explanation, hence it concerns H10. I
         want to understand why users are immediately connected to my profile and why
         other users in my network suddenly are not connected by a branch as time goes on.

      d. Suggested Fix: I think the design should communicate the meaning of these lines,
      maybe they say recent connections on top of the web or some other structure that makes
      me understand who is more active in my network currently. e. Severity: 3

  4. H8: Aesthetic and Minimalist Design C
      a. Task 3
      b. Problem Description: The ruler subdivisions between the year do not
         communicate natural groupings of a year.

      c. Rationale: This design communicates unnecessary information, as a year is more
         commonly structured into 12 months or 4 seasons.

      d. Suggested Fix: I think the rulers should have 12 subdivisions for the months of the
         year for a more intuitive timeline scrolling.

      e. Severity: 2

  5. H1: Visibility of System Status
      a. Task 1
      b. Problem Description: Once I have sent a friend request to another user, there is
         nothing else on the screen except "Requested"

      c. Rationale: Especially for newer users, I think it would be helpful to tell them that the only
         other actionable item on a match profile is to message them, as opposed to looking
         around the profile for other things to do.

      d. Suggested Fix: After a user requests a match, prompt them to message them or take
         them back to the home screen in a more intuitive way.

      e. Severity: 2

  6. H8: Aesthetic and Minimalist Design
      a. Task 1
      b. Problem Description: I really like the design, but I think it could be elevated. c.
      Rationale/Suggested Fix: The stroke around a user profile could be a gradient and less
      strong matches could be blue and very strong connections could be more green. I find

the blue one on the 41% to look a bit out of place with the others. Possibly just a percentage could suffice.

        d. Severity: 1

    7. H8: Aesthetic and Minimalist Design

        a. Task 1

        b. Problem Description: The title of page 1 that says "Others Near You"

        c. Rationale/Suggested Fix: I think that the title could be centered under the logo for this page. It will continue to be first read, and I think that it will contribute to the center alignment the rest of the page design has.

        d. Severity: 1

    8. H11: Accessible

        a. Task 2

        b. Problem Description: The moving profile photos on the collide screen could be inaccessible to certain visually-impared users.

        c. Rationale: An epileptic user or someone experiencing a form of visual impairment could find this movement triggering or unsettling. And even to everyday user like me, it makes me feel a little dizzy.

        d. Suggested Fix: I think these icons should be stationary, as their wiggling does not seem to have a major impact on meaning.

        e. Severity: 3

    9. H13: Value Alignment

        a. Task 2

        b. Problem Description: There is no button to block a user from your others near you.

        c. Rationale: A user should be able to block users that make them uncomfortable or who they just don't want to interact with on Collide.

        d. Suggested Fix: Add a block user button on a potential connection's profile screen e. Severity: 4

    10. H11: Accessible

        a. Task 1

        b. Problem Description: The percentage of match strength on the home screen is difficult to see, especially when it is a weaker connection.

        c. Rationale: Users with visual impairments such as nearsightedness would have a very difficult time trying to read the percentages. They were slightly difficult on a laptop screen.

        d. Suggested Fix: Make the percentage match larger or more readable in some way e. Severity: 2

    11. H13: Value Alignment

        a. Task 1

        b. Problem Description: The interest bubbles all sort of blend together.

        c. Rationale/Suggested Fix: More vibrant interest bubbles would bring more attention to the actual interest at hand and will make it more legible to all users, especially those with less than perfect sight.

        d. Severity: 3

12. H10: Help and Documentation
  a. All tasks
  b. Problem Description: There is not an information screen or about the application tab
     to reference.
  c. Rationale: As I was using the prototype, I was confused at certain steps and would
     look for an information page to clarify.
  d. Suggested Fix: Add an information tab or page to talk about the application's
     intentions, its structure, etc.
  e. Severity: 4
13. H8: Aesthetic and Minimalist Design
  a. Task 1
  b. Problem Description: The small bubbles are difficult to see and read.

  c. Rationale: Even if a connection is still strong, as a user, I want to see that
     information.
  d. Suggested Fix: Standardize circle size as the percentage match on the bubble will
     already tell the user how " similar" a potential match is.
  e. Severity: 2
14. H13: Value Alignment AC
  a. Task 2
  b. Problem Description: One's location is very personal information, and I think we need
     to be as clear as possible about when it is being used. I personally would find the
     application frightening without an active/inactive status.
     c. Rationale: Since the application is heavily built around location, I wish there was
  essentially an emergency exit button from all location-based functionality. d. Suggested
     Fix: Add a button that tells us if location is being used and an emergency exit from the
                          location services for personal safety reasons.
  e. Severity: 4
15. H4: Consistency and Standards
  a. Task 2
  b. Problem Description: The match bar with Emily is blue–not necessarily a
     problem.
  c. Rationale: Since the bar is a visual representation of how similar another user is to us I
     feel that it would be more intuitive if the color was green.
  d. Suggested Fix: Make the bar green for matches if it can be integrated into your color
     scheme.
  e. Severity: 1
16. H2: Match between System and World
  a. Task 3
  b. Problem Description: I am unsure what the length of a branch means from my
     profile photo.
  c. Rationale: Since the user has already been added to my network, I feel that
     everyone would be on the same level of friendship.
  d. Suggested Fix: Standardize the length of the branches out to connections in Task 3.

e. Severity: 2
    17. H13: Value Alignment A
            a. Task 2
            b. Problem Description: I am not sure how I would feel with my distance away from
                another user being accessible at all times.
            c. Rationale/Suggested Fix: I think that your distance from another user should only be
            offered if you allow the other person to see that. If that can be integrated efficiently into
            the task flow, I know I would be more comfortable as a user. d. Severity: 4
    18. H10: Help and Documentation
            a. Task 1
                    b. Problem Description: I am unsure what each icon of the navigation bar means.

            c. Rationale: I'm not sure what these symbols mean in the context of Collide and some
                of the icons like the center one I've never seen before.
            d. Suggested Fix: Add labels to each element of the navigation bar to clarify their
            functionality to a user and help them complete three tasks more efficiently. e. Severity:
            3
    19. H12: Fairness & Inclusion
            a. Task 1
            b. Problem Description: I am unsure of a person's trustworthiness from their profile. c.
            Rationale: Since we are dealing with location, I would like an inkling of this user's
            credibility, so I can decide to meet them or not on the safety front.
            d. Suggested Fix: Add a verified profile or a credibility score to a person's profile. e.
            Severity: 3
    20. H9: Help Users with Errors A
            a. Task 1
            b. Problem Description: When you enter messaging with anyone, you cannot go back
                through a click on the screen.
            c. Rationale/Suggested Fix: If I accidentally click a messaging tab with a user, I want to
                recover quickly. Add a functional back button (what I am assuming the arrow
                is),but it is currently not functioning.
            d. Severity: 4

    21. H6: Recognition not Recall A
            a. Task 1
            b. Problem Description: There are not names on the bubbles of other profiles. c.
            Rationale: A user should be able to see the other user's name with their profile photo,
            so they do not have to recall it.
            d. Suggested Fix: Add names to the bubbles of other users on the home screen. e.
            Severity: 2
    22. H8: Aesthetic and Minimalist Design
            a. Task 1
            b. Problem Description: There is no differentiation between the fixed bottom bar (add
                to network and messaging) and the profile.

c. Rationale/Suggested Fix: A small line would make the distinction between a user's profile and the actionable items on the bottom. Without it it can look like the titles on the profile are referring to the bottom buttons like below:
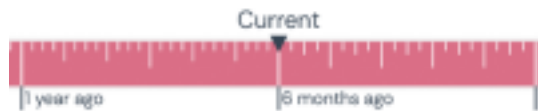

d. Severity: 2

23. H7: Flexibility and Efficiency of Use C
   a. Task 3
   b. Problem Description: The timeline ruler could be more intuitive, as the spacing and the time periods are variable for the same amount of space on the ruler.

   c. Rationale: I found the ruler structure to be a bit confusing as an initial user and even as an experienced one as I played with the prototype more.

   d.
   e. Suggested Fix: Add a search month bar and standardize the units of time per space on the ruler so scrolling is the most intuitive it can be. Any connection from the past could be as valuable as recent ones.
   f. Severity: 3

24. H12: Fairness & Inclusion
   a. Task 1
   b. Problem Description: There is not a space for optional pronouns on the potential match profile.
   c. Rationale: For all users to feel safe and heard, I think there should be a space for optional pronouns, so a user can be referred to by their preferred pronouns. d. Suggested Fix: Add pronoun option to profiles.
   e. Severity: 4

25. H12: Fairness & Inclusion
   a. Task 1
   b. Problem Description: We are choosing to look into a user's profile mostly by their photo.
   c. Rationale: A person's appearance should not be the only reason we click into their profile. Emphasize the match percentage and their amount of mutual friends.
   d. Severity: 3

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Heuristic Violation List

1. H1. Visibility of system status A

In task 2, after adding Emily to your network, it is unclear whether the request has been sent or if she has successfully been added to your network. Users might be wondering whether the request was sent successfully, and they can exit the collision.

Fix: Once you click 'Add to Network', the button can change to 'Request Sent' or a notification can pop up quickly that says 'You have successfully added Emily to your network!'.
Severity: 4

2. H1. Visibility of system status

In task 2, after clicking 'Exchange Location' the button changes to 'Stop Sharing Location' which is helpful. However, users may not notice and are unsure whether their location is being shared.
Fix: Add a quick notification that says something like 'You are sharing your location with —--- now!'.
Severity: 3

3. H2. Match between system and the real world B

In task 3, the timeline bar to look at your connection history looks more like a ruler than a timeline. This may feel unintuitive or awkward to the user to move a ruler to look back in time.
Fix: Use a timeline (straight line with dates branching off) or calendar design so it feels more natural and intuitive to the user.
Severity: 2

4. H2. Match between system and the real world A

In task 2, when two screens the user can swipe between both have an X which asks when pressed, 'Are you sure you want to close out of this collision with Emily?'. Users are not familiar with this language and might be confused by what this means. Does 'close out' mean return to home, or does it mean canceling and losing the collision with Emily? Fix: Make a clearer message that tells users exactly what is happening, for example: 'Are you sure you want to go back to home?'.
Severity: 4

5. H2. Match between system and the real world

In task 2, if the user collides with a complete stranger, they will most likely want to view their profile first to see their interests and what they look like before sharing their location with them. In this case, their main action will be to 'view profile' first, and 'exchange location' second so the button layout will be unintuitive.

Fix: Have the three buttons in this order: view profile, exchange location, chat. Severity: 3

6. H2. Match between system and the real world

In task 3, the user adds Ekin to their network by pressing on the + button in the bottom left corner. The + icon is vague and may not be clear to new or inexperienced users. Fix: Have the icon be a person, or people with the plus icon on the side. This way, it is clear to the user that this button will allow them to add people.

Severity: 2

7. H2. Match between system and the real world B

In task 3, the timeline has different time increments for the same length on the timeline. For instance, the timeline begins with an increment of 1 day, and ends with an increment of one year. This might feel unnatural to the user as they may assume that every increment of time should be the same.

Fix: choose a fixed time increment that won't make the timeline too long, but will allow users to explore their network history, such as one month, or two months. Or, have the time increments change, depending on how long the user has been on the app. For instance, a new user may have time increments of 1 day but a user who has been on the app for 5 years would want increments of 6 months to a year.

Severity: 3

8. H3: User Control & Freedom

In task 3, when the user clicks on Ekin and is brought to his profile, there is no way to X out of his profile and return directly to the home screen. Users have to use the back button to return to the 'Add a friend' page, and use the back button again to return to the home page. (In task 2, there is an X button on both screens which allows the user to X out at any point).

Fix: Add an X button in the top right corner of the screen once the user has clicked on a profile so they have the freedom to return to home whenever they want without extra steps.

Severity: 2

9. H4. Consistency and standards

In task 2, the screens combine swiping left to go back and using a back button to go back. For instance, when the user chooses 'Share Location' the user swipes left to return to the first collision screen. But when the user chooses 'view profile' they use the back button to return to the first screen. This may confuse users because they are

using two different actions to achieve the same result.

Fix: use back buttons for every action, or use swipe for every action to remain consistent. Severity: 2

10. **H4. Consistency and standards**

In task 2, the 'Add to network button' is white and not gradient colored, like when you click on someone's profile and add them to your network that way. The 'Exchange Location' is gradient colored while the 'View Profile' and 'Chat' buttons are white. Possible Fix 1: Change all the buttons to have color gradients so the buttons can match across the entire platform

Possible Fix 2: I realize it looks more aesthetically pleasing to have white buttons because the background has a color gradient in task 2. Have the 'Exchange Location' button be white to match the rest of the buttons on the screen and change it to a color gradient once you have started sharing location.

Severity: 2

11. **H4. Consistency and standards A**

In task 3 when the user presses 'Add to network' the button changes to 'request sent' but the button remains the same in the other tasks. Users may become confused if their request was successfully sent if they are notified for some tasks but not for others. Fix: Have the button change to 'Request Sent' whenever the user presses 'Add to Network'.

Severity: 2

12. **H4. Consistency and standards**

In task 2, the 'chat' button on the first screen is a long button that says 'chat', whereas everywhere else in the app uses the chat bubble icons. It is not terribly confusing, it's just inconsistent.

Fix: To maintain aesthetics, you could keep the elongated button, but just use the chat bubble icon instead of the word 'chat'.

Severity: 2

13. **H5. Error Prevention B**

Exchanging locations with someone is a pretty big deal and it seems pretty easy for the user to accidentally start sharing their location with someone they don't want to if they accidentally press the 'Exchange Location' button.

Fix: After pressing the 'Exchange Location' button, there should be some kind of notification that asks 'Are you sure you want to share your location with —?'.

Severity: 4

14. **H6. Recognition rather than recall**

When the user decides to message a user near them in task 1, the chat screen has the name of the user but does not include the icon. Users may forget what the person

looked like and have to go back to the home screen to remind themselves of who they are talking to.

Fix: On the chat screen, include the users icon next to their name at the top of the screen. Severity: 2

15. H8. Aesthetic and minimalist design

In task 3 when the user moves the timeline, the word 'current' feels a little unnecessary above the arrow because it takes up extra space and users already understand that the arrow corresponds to where the user is at in the timeline. It also feels a little confusing because if the user is moving back in time, then they are not 'current'.

Fix: remove the word 'current' and just have the arrow or make the arrow a little bigger. Severity: 2

16. H8. Aesthetic and minimalist design

The plus icon to add people to the user's network is a circle - the same shape as the user icons all over the screen. This may make it hard to easily see the + icon, especially for visually impaired people.

Fix: Make the + icon a different shape, maybe a square. Or, make it a more vibrant color that still matches the aesthetic of the app like pink or yellow.
Severity: 3

17. H8. Aesthetic and minimalist design

In task 3, the placement of the + icon is on the same screen where users can move and see previous connections which means there is the possibility of the + icon covering user icons. Users may also make a mistake by pressing the + icon instead of the user icon, and vice versa, because they are so close to each other.

Fix: Move the + icon somewhere less busy. One place may be to put it in the bottom right corner next to the timeline so that the timeline and + icon are in line with each other. Severity: 1

18. H8. Aesthetic and minimalist design

In task 2, the second screen (that says "you need to exchange location with Emily before you can see each other's locations") feels unnecessary if users have not shared their location already. Why would a user swipe right to see someone's location if they are not sharing their own location with that user?

Fix: Only allow users to swipe right to see locations if they are already sharing their locations with each other.
Severity: 4

19. H8. Aesthetic and minimalist design

In task 2, when users have already shared their location and are looking at the map, and then choose to stop sharing their location, the screen that pops up (that says

"you need to exchange location with Emily before you can see each other's locations") feels confusing because it has a completely different layout and makes it unclear whether the actions were connected.

Fix: Instead of blanking out the entire screen with just the message and 'exchange location' button, gray out the map so the user can no longer see locations, and paste the message over the grayed out map. This makes it clear to the user that there is hidden information that can be unlocked.

Severity: 4

20. **H9. Help users recognize, diagnose, and recover from errors**

In task 2, if users were previously sharing their location with another user and decided to stop sharing it, the error message feels confusing and like there is a disconnect because it is unclear whether the error message is telling the user that they had to share their location first, in order to stop sharing it. This is also compounded by the fact that there are no notifications telling users whether they were sharing the location or not. Fix: The error message could be more clear if the user has previously shared their location but decided to stop sharing. For instance, it could say "You have stopped sharing your location with —-. Exchange your location to see each other's locations!" If this is the first time the user is interacting with this person, then I think the error message is fine. Severity: 3

21. **H10. Help and documentation AB**
There doesn't seem to be a place where users can ask for help within the app. Users may need to ask questions regarding the app and will want a place they can go to get their questions answered quickly.
Fix: There could be a question mark icon or settings icon in the top left corner which could include information about the app such as a FAQ page and a search bar for users to type questions.

Severity: 4

22. **H11. Accessible A**

In task 3, I love that you thought to change the color around the user's own icon to differentiate it from the user's connections. However, for visually impaired people, it may be hard to experience and separate their own icon from the others.

Fix: make the border around the user's icon thicker as well so it's easier for visually impaired people to identify and differentiate themselves from other icons. Severity: 3

23. **H11. Accessible**

In task 2, the map is extremely hard to see and navigate because it is constrained to such a small amount of space (especially for visually impaired people).

Fix: Maybe when the user taps on the map, the map can open up to full screen to make it a little easier to see and navigate the map.

Severity: 3

24. **H12. Fairness and inclusion A**

For people who aren't able to leave their houses much due to disabilities or some other reason, it may be hard for them to have collisions because they are not around as many people. They might feel isolated and like the app does not cater to

their needs. Fix: On the home screen or in the settings portion of the app, it would be cool to add a feature that could adjust the radius of the area where users can receive collisions. This way, users who can't go out much can still collide with many other users. Severity: 3

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3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)

Category			# Viol. (total)
H1: Visibility of Status	3	4 2	9
H2: Match Sys & World	4	3	7
H3: User Control	3	3 1	7
H4: Consistency & Standards	2 5		7
H5: Error Prevention	1	1	2
H6: Recognition not Recall	2	2	4
H7: Efficiency of Use		1	1
H8: Minimalist Design	3 4	1 2	10
H9: Help Users with Errors	1	1	2
H10: Help & Documentation		3 2	5
H11: Accessible	1	4 1	6
H12: Fairness & Inclusion		2 2	4
H13: Value Alignment		2 3	5

Total Violations by Severity 0 6 23 27 13 69 *Note:* **check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)**

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C
Sev. 0 (yours/0)	0	0	0
Sev. 1 (yours/6)	33.33%	50.00%	4.17%
Sev. 2 (y/23)	39.13%	34.78%	37.50%
Sev. 3 (y/27)	55.56%	25.93%	33.33%
Sev. 4 (y/13)	53.85%	53.85%	25.00%
Total (severity 3 & 4) (y/40)	55.00%	35.00%	58.30%
Total (all severity levels) (y/69)	47.83%	36.23%	34.78%

**Note that the bottom rows are *not* calculated by adding the numbers above it.*

5. Summary Recommendations

Amazing job with the medium fidelity prototype! Some of the biggest strengths of your design include the efficiency of use and aesthetic design. Specifically, I was not able to find any violations to H7 and H8 as I think your app does an amazing job in these areas of design. There's good use of the Gestalt principle, groupings, white spaces, and layout that makes it very intuitive for the users to navigate. While the interface is simple and minimalistic, I feel that it may be missing some key details that can leave users confused about their current state in the app. The first trend is in **visibility of system status**. For example, since the app is very location-based, the information on the app can change quickly as people move. Thus, I would consider adding more elements to communicate the system status so that users know they have accurate information.

A lot of our concerns lie on the privacy front, and more specifically location. There were a lot of scenarios that I could imagine the user being unsafe. I love the possibility of connecting with a stranger, but how do we vet who can see my location? Even a distance like 0.5 can mean a lot to a stalker or a user with bad intentions. I want to recommend choosing your location preferences at every step and a **status button** of if your location is currently being shared.

The aesthetic of your design with the color gradient is really beautiful and there are so many fun and novel functionalities, such as the bubble icons on the homescreen and the timeline with visuals showing the users' collision history, that users will really enjoy using. The app feels pretty intuitive without reading any extra information, but there are a few points that I think could make your app even better and enjoyable to use. Specifically, making changes to create more **consistency and standards** within the app. For instance, make sure the 'chat'

buttons are consistent throughout the app, either using the chat bubble icon, or the word 'chat'. In addition,

the app would feel more intuitive if tasks did not **combine 'swipe' and 'click' gestures** within the same task.

Severity Ratings

0 - not a usability problem
1 - cosmetic problem
2 - minor usability problem
3 - major usability problem; important to fix
4 - usability catastrophe; imperative to fix

Heuristics

H1: Visibility of System Status
- Keep users informed about what is going on

H2: Match Between System & Real World
- Speak the users' language
- Follow real world conventions

H3: User Control & Freedom
- "Exits" for mistaken choices, undo, redo
- Don't force down fixed paths

H4: Consistency & Standards
- Words, actions, and UI elements should be consistent across the entire platform ● Follow platform and industry conventions

H5: Error Prevention
- Minimize error-prone conditions
- Remove memory burdens, support undoing, and warn your users when necessary

H6: Recognition Rather Than Recall
- Make objects, actions, options, & directions visible or easily retrievable

H7: Flexibility & Efficiency of Use
- Accelerators for experts (e.g., gestures, keyboard shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

H8: Aesthetic & Minimalist Design
- No irrelevant information. Focus on the essentials.

H9: Help Users Recognize, Diagnose, & Recover from Errors
- Error messages in plain language
- Precisely indicate the problem
- Constructively suggest a solution

H10: Help & Documentation
- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too large

H11: Accessible
- Users can interact with the system using alternative input methods. ●
Content is legible with distinguishable contrast and text size.
- Key information is upfront and not nested for screen readers.

- Purely visual or auditory content has text-based alternatives for users with low vision and low hearing.

H12: Fairness and Inclusion
- Users shouldn't feel that the design is not made for them.
- The design should meet all users' needs equally and prevent the reproduction of pre-existing inequities.
- It should not create additional burdens for members of disadvantaged populations.

H13: Value Alignment
- The design should encode values that users can understand and relate to. ● Conflicting collateral values should not emerge when the user interacts with the product. ● Encoded values should match users' values in a broad set of use-contexts.

CS 147 Winter 2022 website
https://hci.stanford.edu/courses/cs147/2022/wi/index.html