



Pedestrian bridges App

SAIFEDEEN KHAROUF
19110044

Contents

UX design	2
My concept and idea	2
Don Norman principles and Nielsen heuristics used in the application	3
Don Norman principles	3
Nielsen heuristics.....	4
End users and tools used for designing	8
Adobe XD vs Figma	10
Prototypes.....	11
First prototype:.....	11
Second prototype:	11
Screen prototype.....	11
User testing.....	12
References	15

UX design

(What Is UX Design? [Fully Updated Guide For 2022], no date)

(What Is UX Design? User Experience Definition / Adobe XD Ideas, no date)

(The importance of UX design in the SDLC / iborn.net, no date)

User experience (UX) is how we interact with things like products or apps. For instance, how we deal with a bottle we interact with its cap how we open it and close it and how we interact with the bottle as a whole from the design like its material and colour and appearance. It includes also about what humans or our users feel and think, also it depends also on the environment the product or app used in because it will play a role in the user live.

User experience design is going through a process. Firstly, the designer understands and observes to grasp the challenge or problem they are trying to solve, this will be by doing interviews or surveying the people who might be engaged with this product or app. Then the designer use this data to define users' goals and emotions and their behaviour. Then the designing process will begin by designing wireframes then prototypes. After creating the designs we will ask the users about how usable the product and their interactivity, so the designer will know if the user completed their desired tasks or not and if it needs any changes to make more interactive and usable.

The most important thing in the UX designing is making the user happy, pleasant and make him loyal to the product or app. If anything happened against that it will have a negative impact and reflect a bad image about it, and they will stop using it and will not return to the app or product and will not recommend to anyone wither it is a family member, a friend or even to a complete stranger on the internet.

Integrating UX design into SDLC will have a great impact as it will show problems in early stages as we doing user researchers and analyse them to make sure from the beginning that the app or product is functional and usable, and it will also give the developers the basis as it will save time while improving quality. Also, better UX design can provide more conversion rate and revenue, lowering the development time, increasing user retention and being more loyal to the bran and high efficiency to the product with less support.

My concept and idea

The concept is trying to solve the problem of people not going to the pedestrian bridges and how this is dangerous for them and on the drivers. The solution is simply a royalty/rewards application that can give points by scanning to QR code to make users go to the pedestrian bridges and it will have coupons and discounts to different shops. I will be [testing](#) the concept by making both verbal description in forms, interviews (asking) and visual.

Don Norman principles and Nielsen heuristics used in the application

For second iterations changes it will be highlighted

Don Norman principles

- **Discoverability:**

The QR code sign can be an indication of how to use it and to start the action.

When the QR code scanning opens it tells the user where he is at which stage of scanning and tells him what to do.

The icon of a person can be an indication how to log out or seeing his account.

Buttons and their backgrounds can be indicate where to get the coupons and inside of them the way to redeem it.

The '<' sign telling to get back.

The 'X' sign telling get out of the action.

There will be a screen that demonstrated how to use the application using either videos or pictures.

- **Visibility:**

The points he have is visible from the start in the home page at the centre and in the account icon and in the coupons page.

A text under the QR code to tell him here to start scanning.

A progress bar in the QR code scanning to what stage of scanning he is in.

A message telling him the points has been redeemed.

A see more button to view more.

Every coupon shows the amount of discount it has and how points it needs to be redeemed.

In the redeeming process if the user used the copy option the feedback message is in the bottom not affecting the visibility of the whole page.

When the user selects the transfer to another application he has an alert to make sure he wants to transfer or not.

- **Affordance**

The icon of a person can signifies the account and personal information of the user.

The QR code icon can be a signifier to be the QR code scanning action.

The background on the button of the coupon is telling the user "click me".

The '<' sign to get back.

The 'X' sign to get out of the action.

The celebration at the end of the scanning the QR code process.

- **Mapping**

The progress bar mapped with where the user is right now.

The text under the QR code is mapped to the QR code action.

- **Simplicity**

The application will be able you to get points and use them to get discounts at different shops.

Clear and specific texts like:

- Click here to get started under the QR code icon.
- Total points you have.
- You have 60 minutes left for next scan.

The users can find the buttons fast within three seconds.

The error or alert messages have a clear messages like:

- When the user choose the go to another app choice it asks "are you sure you want to continue to another application".
- When the user choose the copy code option the message says "code is copied".

- **Feedback**

When the user start scanning the QR code a feedback message shows where he is in a progress bar and when he finishes by saying you have rewarded the points. And how many time he have to get another scan.

When the user choose to copy code a feedback message "the code is copied" or the When the user choose the go to another app choice it asks "are you sure you want to continue to another application" and if he approved another feedback message shows and it says "wait until the app opens".

Nielsen heuristics

- **User control and freedom**

When the user enters the redeeming process he can leave it by pressing the "X" or get back by "<".

When the user selects the transfer to another application he has an alert to make sure he wants to transfer or not.

The user can choose either use the copy button to copy the code and go to the app by himself or the application can do all of that by itself.

The application provide either a code (if the shop has an app) or a barcode if he is in the physical store.

The app leave the choice to the user either enter his username or phone number when log in.

- **Consistency and standards**

The points is available in two pages in the app.

The account icon is available through the app with the same options.

The application has some standards of the rewards/loyalty application:

- Ease of registration as it needs only a phone number or a user name with a password.
- Smooth payments, as the application provide either a code (if the shop has an app) or a barcode if he is in the physical store.
- Digital loyalty cards as the application as a whole is based on points and coupons.

Login and sign up system will be the same as other applications.

- **Error prevention**

When the user enters the redeeming process he can leave it by pressing the “X” or get back by “<”.

When the user selects the transfer to another application he has an alert to make sure he wants to transfer or not. This will make sure if he does press it intentionally.

When the user finishes scanning the code will be refreshed after a time to prevent from endless scanning from users.

The app leave the choice to the user either enter his username or phone number when log in. which will be preventing of a human error of forgetting either one of them.

- **Recognition than recoil**

The QR code sign can be recognized to start the action of scanning the code. Also a text under the QR code to tell him here to start scanning which helps with better recognition.

When the QR code scanning opens it tells the user where he is at which stage of scanning and recognize what he can do.

The icon of a person can be recognized of logging out or seeing his account information.

Buttons and their backgrounds can be recognized where to get the coupons and inside of them the way to redeem it.

The '<' sign telling to get back.

The 'X' sign telling get out of the action.

The points he have is recognized from the start in the home page at the centre and in the account icon and in the coupons page. This helps with not remembering the points at each point of the application.

A progress bar in the QR code scanning to recognize what stage of scanning he is in.

Every coupon shows the amount of discount it has and how points it needs to be redeemed.

A timer in the home page to remind him about how much time left for another scan.

- **Flexibility and efficiency**

The user can choose either use the copy button to copy the code and go to the app by himself or the application can do all of that by itself. And both are accelerators as they lower the effort of remembering or copy the code manually letter by letter.

The points he have is available at the top of the coupons page instead of being in the account icon to be less steps of clicking on the user.

The user have two options either redeeming a code or a barcode and he has the choice (if the shop has both).

When the user enters the redeeming process he can leave it by pressing the "X" or get back by "<". Instead of forcing him to close the application to cancel out the operation.

The app leave the choice to the user either enter his username or phone number when log in.

- **Aesthetic design**

A celebration at the end of the scanning the QR code process will make the application more memorable and emotional for the user.

The application will be a simple interface and attractive when they first enters it as there are clarity with the design as there are not unnecessary information and used visuals to help with the journey of the application.

Clear and specific texts like:

- Click here to get started under the QR code icon.
- Total points you have.
- You have 60 minutes left for next scan.

- **Visibility of System Status**

The points he have is visible from the start in the home page at the centre and in the account icon and in the coupons page. Also, the timer showing how many time have left. Also, a progress bar in the QR code scanning to what stage of scanning he is in.

The celebration at the end of the scanning the QR code process to indicate that he finished the scanning process.

A message telling him the points has been redeemed.

Every coupon shows the amount of discount it has and how points it needs to be redeemed.

When the user choose to copy code a feedback message “the code is copied” or the When the user choose the go to another app choice it asks “are you sure you want to continue to another application” and if he approved another feedback message shows and it says “wait until the app opens”.

- **Match Between System and Real World**

The celebration at the end of the scanning the QR code process. Which will match the real world celebrations.

The icon of a person can matches the personal information of the user.

The QR code icon can be a matching to the QR code scanning action.

The background on the button of the coupon is telling the user “click me”.

- **Help, Diagnosis**

When the user selects the transfer to another application he has an alert to make sure he wants to transfer or not. This will make sure if he does press it intentionally.

- **Documentation**

There will be a screen that demonstrated how to use the application using either videos or pictures.

There are texts that shows how everything works, like:

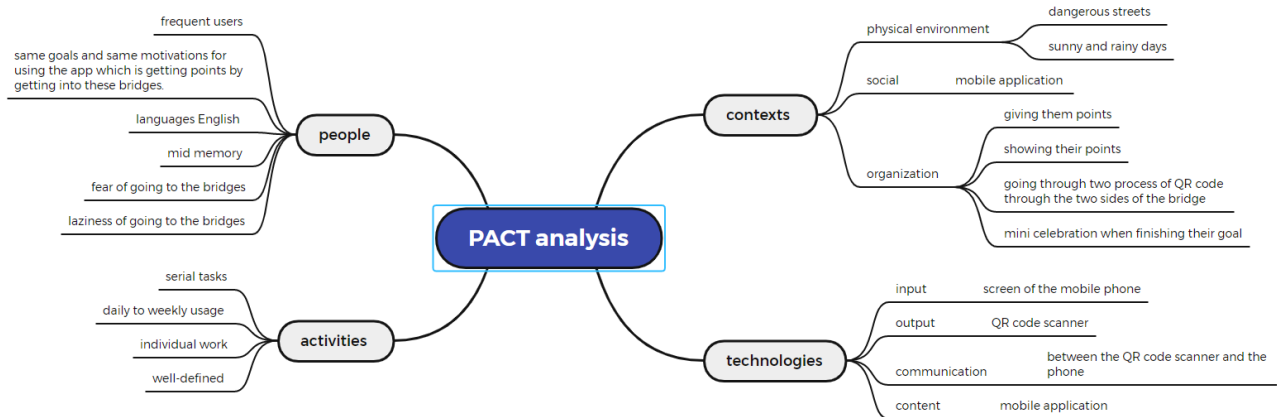
- Click here to get started under the QR code icon.
- Scan the QR code twice to get points.
- Scan the QR code again to get points.
- A tip for the prototype “tap instead of scan for now”.

When the user choose the coupon and ask him code or the barcode it will tell him when to use it, and inside each of them telling the user how to use them.

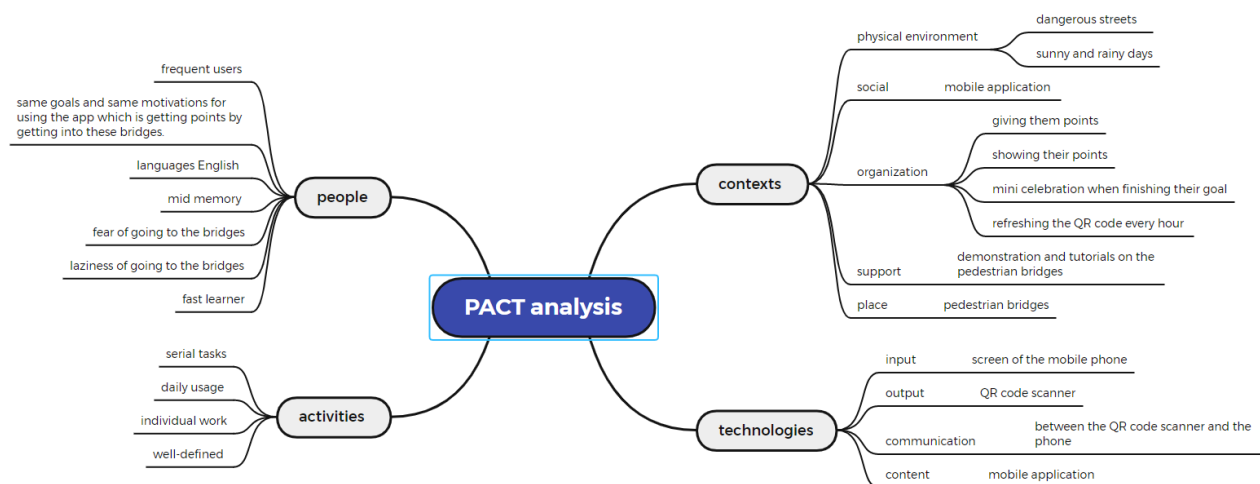
End users and tools used for designing

Pact analysis

First iteration



Second iteration



User categories:

Naïve and sophisticated users (experts)

User classification:

Environment: personal user.

Skill level: semiskilled and experts.

Frequency of use: frequent.

Features used: intermediate.

Location: internal.

Behaviour model

The users were lost at the first journey as they did not have an account and wanted to go to sign-up and they did not find it easily as it was not very noticeable, and they were in the sign-up page and could not find the go back to login page and the “<” sign easily as it was not in their perception. Also, the buttons to start redeeming the coupons were not giving a sign to be clicked so they were confused how to redeem these coupons and then figured out that these are clickable. I noticed also that users their memory had a load so they kept forgetting their points when they were in the coupons page and kept going to the home page to see their points which can be a reason they would not use this app again. The users needed a way to edit information if they needed to change their personal information. Also, the users were having a hard time copying the code manually letter by letter so they need a way to make it faster and easier. The users told me that they can scan the QR code multiple times in the same time. Moreover, the expert users told me if they found a QR code in a pedestrian bridge they would not know what this is doing here so there is no discoverability for my application.

Pros and cons of user testing: (*Advantages of Usability Testing and Some Drawbacks You Should Know Advantages of Usability Testing, Challenges, and Tips*, no date)

Pros

- It will help understanding the users and their needs and what is frustrating them while using the app. Also, distinguishing between their needs and concerns could put the application into a more user-targeted application.
- It tells us if the application met the user expectations or not.
- Improving the user experience by seeing if the users can be easily use the app and if they are motivated to use the app or not.
- Finding the hidden issues especially if they are minor like broken links. Or the user ignores a required element or page in the application.

Cons

- Hard to pick a target group especially if it is made for children.
- The tests results can be arguable since these tests are not represented to the real life 100% so the results would not be a 100% correct.

Adobe XD vs Figma

(Figma vs Adobe XD: main differences, no date)

Figma: it is an interface, vector design and cloud based software which is running in browsers. And it is considered the best app for supporting collaborative designs. It allows for designing and prototyping and presenting in the same tool, all the changes are synchronies with the prototype, getting a feedback from the team can be just sharing a link, the prototypes can be run through the mobile phones for better user testing and developers can copy and export CSS directly and adapt it to IOS and Android, any number of users can be logged in and make changes synchronously, automatic save and you can watch users while testing through seeing how they move around it by the observation mode.

Adobe XD: vector based design tool that can design anything from smartwatches to full websites. It is used also for designing apps, games which you can test game menus and setting and the interface components which can be done by Bluetooth game controller and for voice assistant apps because it has a powerful voice commands and it can be connected to an amazon Alexa and google assistant. Also, as it is an adobe product it can be synched with Photoshop and illustrator for bringing assets, it can be collaborated with the development teams.

Prototypes

First prototype:

<https://www.figma.com/proto/XQxZBMfoeTwBioLv90sYLA/first-prototype?node-id=1%3A2&scaling=scale-down&page-id=0%3A1&starting-point-node-id=1%3A2&show-proto-sidebar=1>

Second prototype:

<https://www.figma.com/proto/DRyvsEuJ0LdVSQRo4epEXd/second-prototype?node-id=1%3A2&scaling=scale-down&page-id=0%3A1&starting-point-node-id=1%3A2&show-proto-sidebar=1>

With a newly created screen beside the pedestrian bridges

Screen prototype

<https://www.figma.com/proto/ASzY6a63cHgY4D9q7B5fLp/screen-in-the-bridges?node-id=1%3A8&scaling=scale-down&page-id=0%3A1>

User testing

The users was overall satisfied with the first prototype. However, the users left some notes with observation and asking and inspection that is needed to change:

- The sign-up page navigation button in the login page was not very visible to users they searched for it for a little a bit of time.
- The back to login page navigation in the sign-up page was not very visible also to users.
- The buttons under the coupon section were not telling the user “click me” so they had a while to understand that is a clickable button.
- The users suggested that I have an edit information page. So they have a more flexible way to help them change a critical information like the phone number.
- The users when they clicked the see more button to watch more coupons they forgot the points they have so they went back to see it. So they we need a way to recognize their points faster and not recall it.
- The users noted that anybody can put an endless points by going to the bridge over and over again. So we need to find a way to prevent this error.
- The user suggested to find a way to transfer the code faster when applying the code. So we need to put an accelerator for the users.
- The users also suggested to put a demonstrations beside the pedestrian bridges. Which is will increase discoverability to our brand and recognize it better.

After these notes I build upon them and edited the [first prototype](#) then the [second prototype](#) came up. The main differences that I have changed based on the notes that users gave me and I noticed on their behaviour:

- The font was small so I made it a little bit bigger and added the word “register now” to make it more visible and more recognizable by the users so they find it better.
- The font was small and it was not in the right visual perception so I made the font a little bit bigger and put it at the top of the page.
- The buttons did not have a background that is why it was not visible or getting recognised so I did put a background behind them to make them say “click me”.
- The users could not change their account information so they can add a new phone number instead of an old phone number or to change the password if they forgot it. So I add it both in the account details and in the account icon tab.
- The users could not have a choice to see their points only in the homepage so it was not very efficient. So I did put the points both in the account icon tab and on the top of the page of the coupons page to recognize it better.

- There was an error that users can put an endless scanning and get an endless points, so to prevent this error the QR code will not be scanned until after a certain time.
- The code needed an extra feature to be more efficient and an accelerator to make it faster instead of remembering the code, so I put both ways either copy it or a faster way which is transfer to the application and apply it there.
- To increase recognition and discoverability about the app and how to use it, I added a new screen which will be available at the pedestrian bridges beside the QR code scanner. [The prototype for the screen.](#)

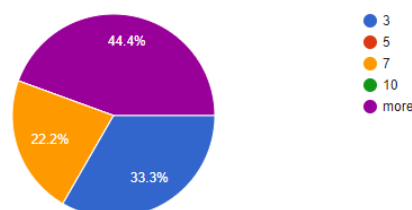
Steps to improve my UI better in future:

- Putting a map to view the nearest pedestrian bridges if the area that the user he is does not have a near pedestrian bridge. Which will be more efficient for the user by finding the pedestrian bridges faster.
- Adding the AR feature which will show coins in the steps you are walking and a sound of collecting, which will be feeling like a game and enhance the feeling of the matching real world with the system.

The overall success of this concept would be high as the problem I am solving is very dangerous for both users which they are the pedestrians and the non-users which they are the drivers, to understand how dangerous this on drivers I made a form asked these questions:

- **How many times in a day that people just pops up in the middle of the street even there is a pedestrian bridge near that street? Results:**

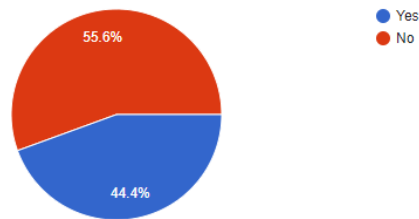
9 responses



These results shows that is a really dangerous act by the pedestrians which can they hurt themselves or others and they can even make accidents.

- **Did you almost hit someone and make an accident? Results:**

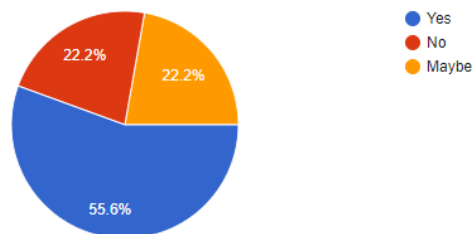
9 responses



These results shows more of how it is dangerous as almost half of them they almost make and accident.

- **Do you think if there are a rewards app going to these bridges it will solve this problem and let people go to these? Results:**

9 responses

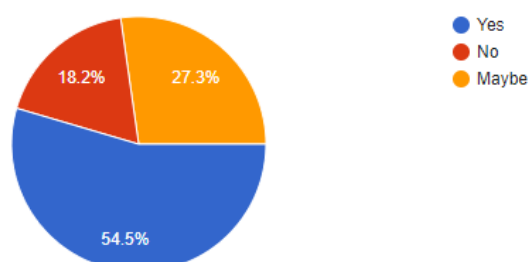


As the results shows for the last question that more than half of them thinks that this solution and concept will work out, which is a good sign that people will invest at least looking through this concept and application.

Also, I made interviews with the same questions above they were giving the same altitude and answers. Also, when I proposed the concept to them they were immediately invested with this concept.

Moreover, I made a form and an interview for the walkers which they are my main users and asked them if they are invested with this concept or not, the interview results that they are thrilled to be one of the early users of this application. The results from the form were saying the same thing as more than half of them are invested in this and they are saying this is going will work.

11 responses



References

Advantages of Usability Testing and Some Drawbacks You Should Know Advantages of Usability Testing, Challenges, and Tips (no date). Available at: <https://utor.com/topic/advantages-of-usability-testing> (Accessed: 6 September 2022).

Figma vs Adobe XD: main differences (no date). Available at: <https://www.imaginarycloud.com/blog/figma-vs-adobe-xd-main-differences/> (Accessed: 8 September 2022).

The importance of UX design in the SDLC | iborn.net (no date). Available at: <https://www.iborn.net/blog/making-software-lovable-importance-ux-design-sdlc> (Accessed: 4 September 2022).

What Is UX Design? [Fully Updated Guide For 2022] (no date). Available at: <https://careerfoundry.com/en/blog/ux-design/what-is-user-experience-ux-design-everything-you-need-to-know-to-get-started/#what-is-user-experience-design> (Accessed: 4 September 2022).

What Is UX Design? User Experience Definition | Adobe XD Ideas (no date). Available at: <https://xd.adobe.com/ideas/career-tips/what-is-ux-design/> (Accessed: 4 September 2022).