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User Experience Design - Master

Project Report



BookAR

Augmented Reality book app

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1. Ideation

When starting with a project, the first phase is usually the ideation. In this first phase, the main focus is the iterative exploration of project ideas, to then define a first outline and a scope for the project. This phase is conducted collaboratively by all project members.

1.1 Brainstorming

Aiming to find a project idea, we started with research on existing AR and VR projects, each project member by herself. Already early in the research process, when we collaborated and compared our preferred project inspiration, we noticed that we were driving towards AR projects.

That is why we then decided to develop an AR project. In order to find a concrete idea for the AR project, we narrowed down our preferred ideas and existing projects in a mind map (Figure 1). From here we discussed specific expectations for the implementation of each idea and afterwards together came to the decision to develop an AR application to read book reviews in bookstores in real-time.

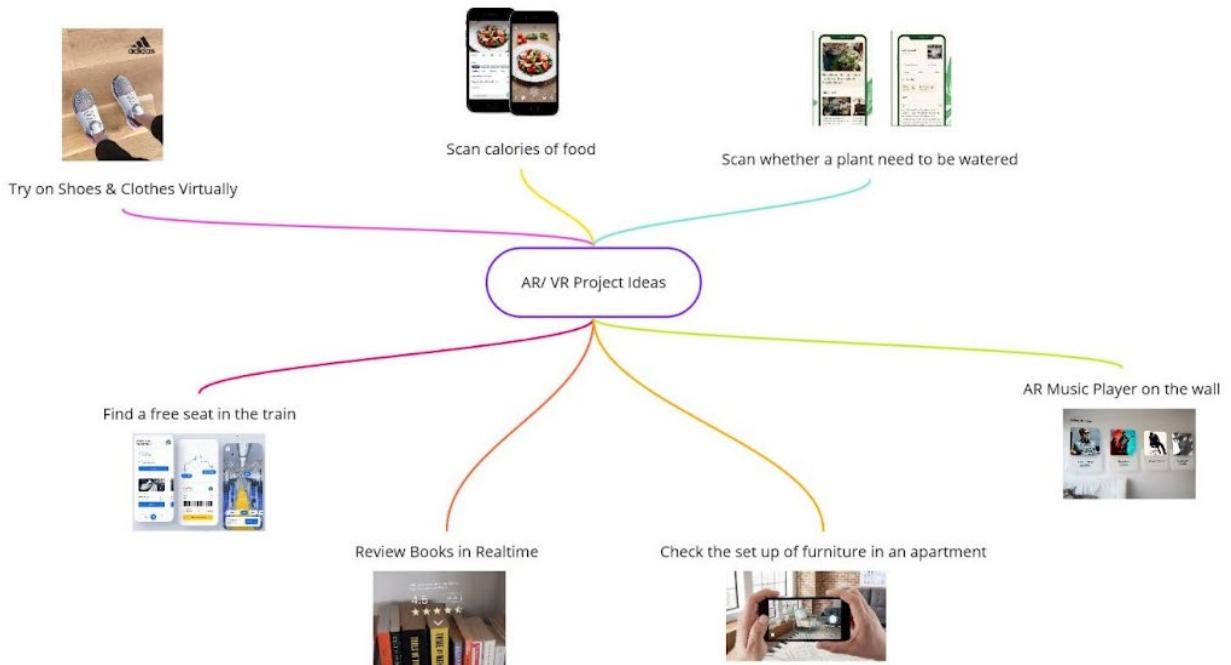


Figure 1 ideation mind map of preferred, existing AR projects

1.2 Motivation

Since we know the struggle of finding the right book, we came up with an idea on how to create a better customer experience when buying a book in a bookstore.

Our motivation for this idea is the simplification of the process of selecting a book in a physical bookstore by creating a better customer experience and increasing the chances of buying a book, that actually fits customers personal interests.

When buying a book in a physical bookstore, it is usually really hard to tell whether the book will be within the taste of the customer. Especially if don't have that much time to check ratings of the books before you visit the store.

With an app like this you will enable you to save time and effort, as well as making physical book shopping much more fun. Even though it is already possible to scan a books with apps via the cover or a QR-Code, but still you need multiple steps to get to the desired outcome. Just imagine being able to see e.g. the rating, comments of other readers, as well as other features instantly through the phone.

1.3 First Project Outline

Intending to get a better idea on the implementation of our project idea, we conducted some research on the implementation of AR applications. Afterwards, we started to brainstorm possible functionalities for the application and defined the project idea even further. Additionally, we came up with the name of the application: "BookAR"- An augmented reality app that shows reviews and ratings of books in an interactive way.

The app is supposed to be available for individual users on their own phones. It can also be used by bookstores by giving their customers access to the application on a tablet device, to enhance and improve the experience of their customers.

The interaction will take place directly on a book or on a bookshelf. When a user scans over a book or taps on a book while holding the phone in front of the bookshelf, different types of information e.g. reviews, comments and ratings will be displayed.

The user is then able to interact with the content that is displayed. One example of interacting would be scrolling through the reviews with a swiping motion (swiping gesture) up and down.

The concretization of the project idea and the interaction method, then led us to a brainstorming for concrete functionalities (Figure 2).



Figure 2 Brainstorming of possible functionalities of the app BookAR

After considering different approaches for the implementation, we decided to use Unity since it was the best suitable to create a mobile application with AR objects. Since we already decided early on to create an AR application for the phone or tablet, we did not consider the usage of additional hardware at any point.

1.4 Moodboard

After narrowing down idea for the concept and a possible way to implement it, in the next step we started thinking about the look and feel of BookAR.

For this purpose, we researched different design ideas. After discussing different design ideas, we decided that the best way to visualize our targeted look and feel was in the form of a mood board, which usually consists of arranged words (Figure 3) images, that represent colors and color distribution (Figure 4), as well as images that represent the type of design of the user interface (Figure 5). It overall describes

the targeted design and therefore visualizes an idea or feeling about of specified project or product idea.



Figure 3 moodboard part 1: words describing the look and feel

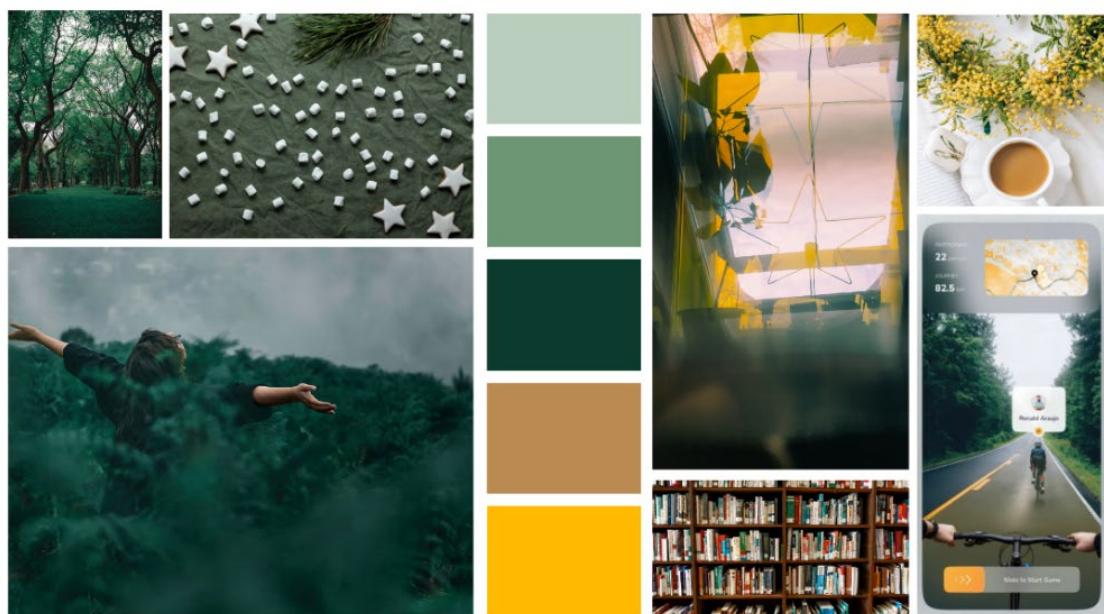


Figure 4 moodboard part 2: images describing colors and color distribution

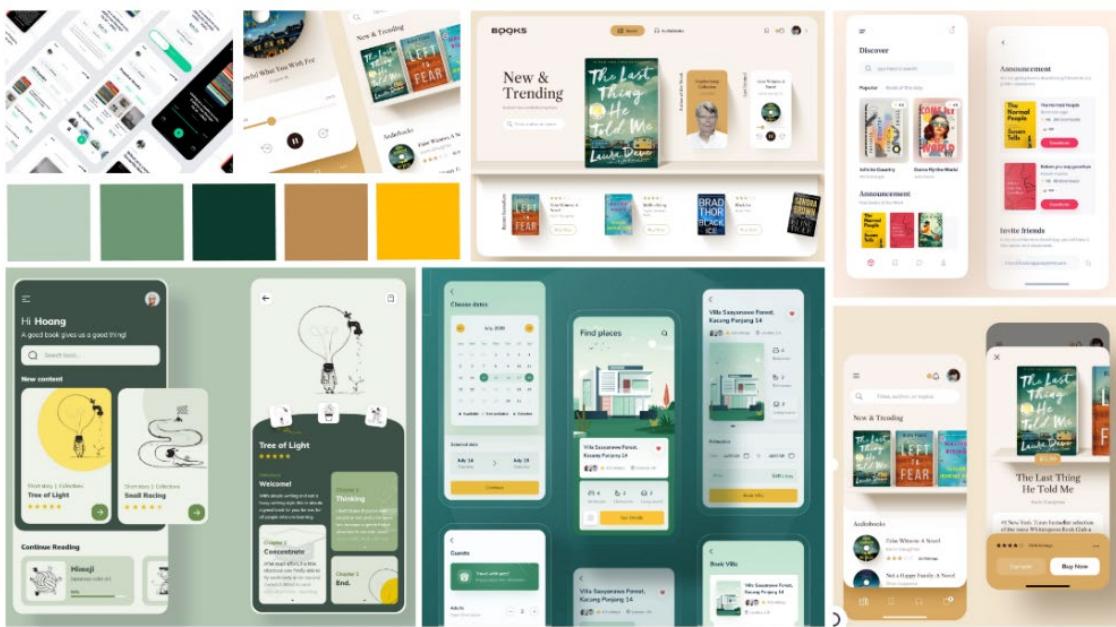


Figure 5 moodboard part 3: images visualizing the type of design of the user interface

2. User Research

After the initial ideation phase, in an effort to create an application, that is actually solving a real problem and used by targeted users, we continued with user research as the second phase of our project,. The main goal was to identify user needs, to be able to address them in our design. For this purpose we talked to people, that read a lot and can therefore be seen as potential users

2.1 Personas

The user research led to the creation of two personas, both are fictive representations of our target group. They are designed to get an understanding of the target group, as well as characteristics, behaviours, goals, day-to-day lifes and an overall impression of potential users of BookAR.

Before creating the specific personas, we conducted some demographic research and asked ourselves the following questions:

- Who would enjoy using our application?
- What would be current behaviours and typical character traits of our target group?
- What needs and goals do our users have?

After brainstorming and researching answers, based on these questions we worked out these two personas as an outcome:

Persona 1: Frieda Friendly

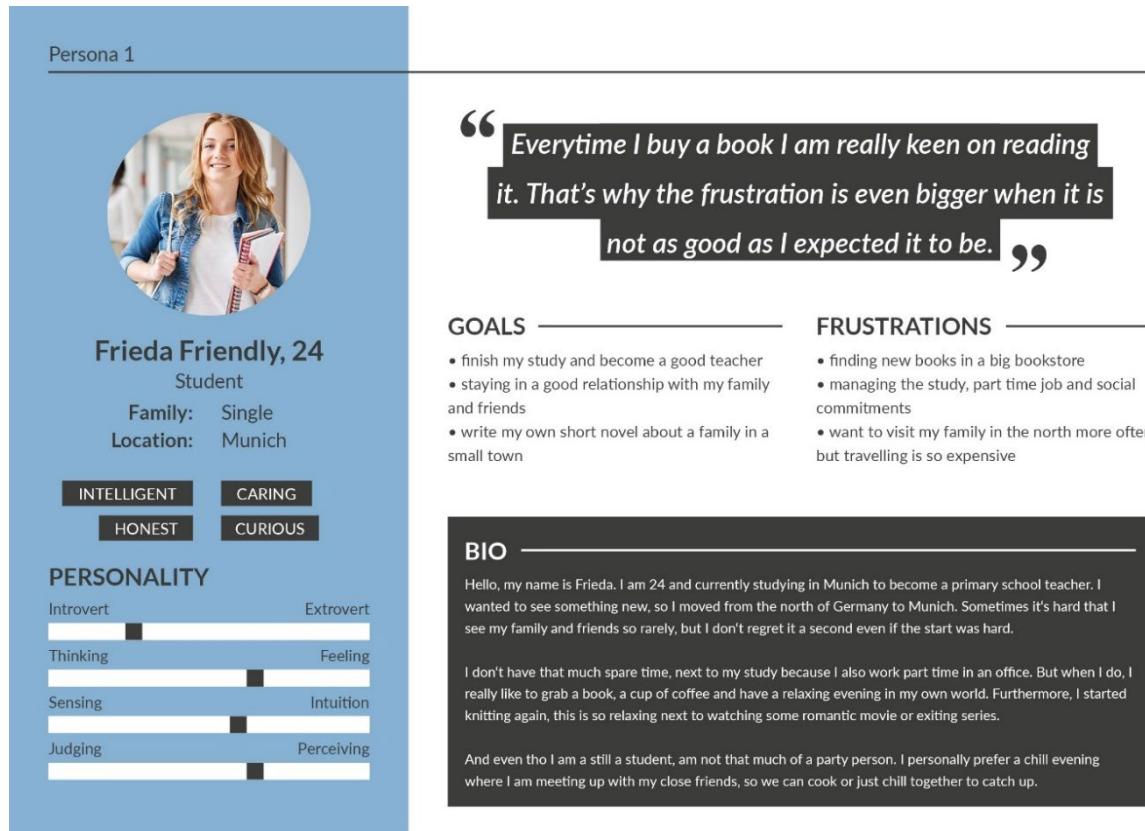


Figure 6 Persona 1

Persona 2: Robin Reader

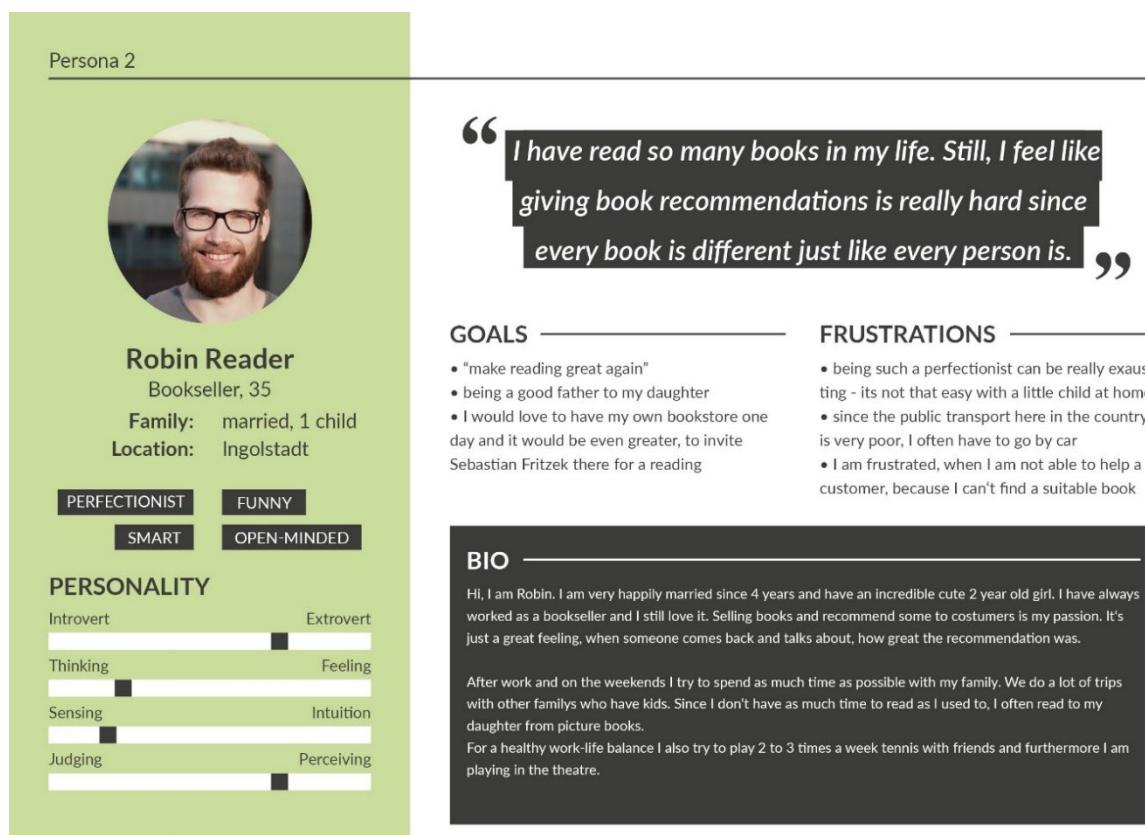


Figure 7 Persona 2

2.2 User Stories

A user story is a way of defining software requirements while taking the perspective of users. Based on our initial brainstorming of functions and taking the personas as portraits of potential users into account, we defined concrete user stories. Since we were working iteratively in this project, these left the opportunity for changes in functionalities during the actual implementation phase. Therefore, these user stories were considered as guidelines for the implementation, but not seen as fixed requirements.

1. Reviews

- As a User I want to write reviews of books, so that I can share my personal opinion and help others getting a first impression of a specific book.
- As a User I want to edit reviews of books, so that I can adjust my review if I change my opinion about the book.
- As a User I want to read reviews of books, so that I can decide which one to buy.

2. User Profile

- As a User I want to create a user profile, so that I can have a personalized experience and view all my personal information in one space.
- As a User I want to edit my user profile, so that I can change my personal information when it is necessary.
- As a User I want to delete my user profile, so that I all my personal data is removed from the app, if I don't want to use it anymore.
- As a User I want to view my user profile, so that I can check whether all entered information is still correct.
- As a User I want to set preferences of book genres in my profile, so that I can get personalized recommendations of books.
- As a User I want to change preferences of book genres in my profile, so that my personalized recommendations of books can be adapted to changes in my taste of books.

3. Recommendations

- As a User I want to read recommendations, so that I can get inspired on which books to buy.
- As a User I want to delete or edit recommendations, so that I can correct mistakes, adapt the text or delete it if my opinion changed.

4. Saving and Favourites

- As a User I want to save and favourite books, so that I have an overview of those book, that I want to read later.

- As a User I want to mark books, that I have already read, so that I can keep track of my readings and that I can rate them or write a recommendation.

5. Other

- As a User I want to see recommendations of books, that have been written by the same author as books I have already read so that I can also check them out.
- As a User I want to see the process of books, so that I know how much they will cost if I want to buy them.
- As a User I want to see the availability of books in local and online book stores, so that I can decide where to buy them.

2.3 Storyboard

A storyboard can be used to visualize the interaction with a product, as well as giving an idea of the overall user experience that a product creates. That is why we brought previous specifications of the project idea together in a sketched storyboard. This gives an understanding how our users can use the most important functions and what type of user experience is created.

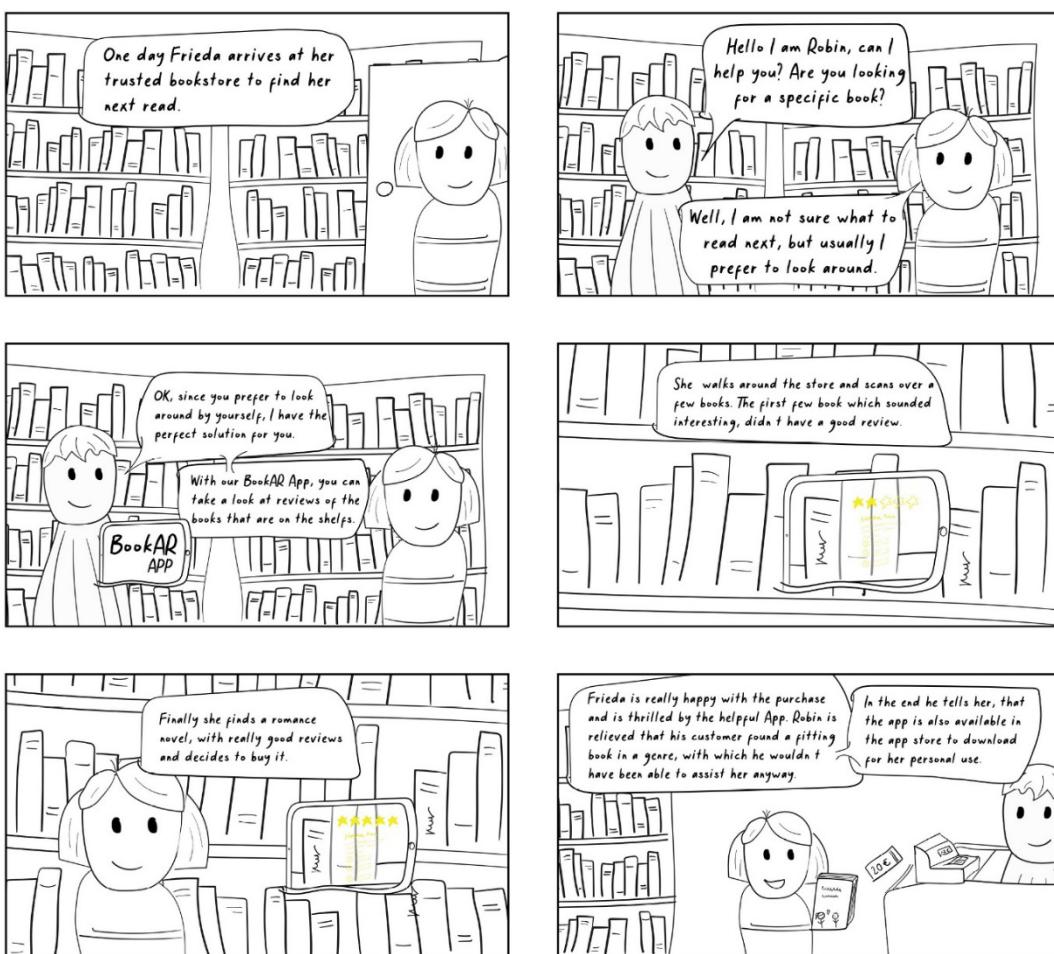


Figure 8 Storyboard

2.4 User Requirements

Before starting to implement a system, it is necessary to define concrete requirements which need to be fulfilled by the system. Therefore, we defined functional and non-functional requirements before starting to prototype and implement the system.

Since the user stories, that we formulated, were already quite detailed and written from a user perspective, we decided approach the user requirements here from a more traditional software development perspective. Due to this reason, we distinguished between functional and non-functional requirements.

1. Functional requirements

- tab menu bar to go through
- book with different parameters (e.g. author, title, ...)
- all necessary information about the book on the screen

2. Non-functional requirements

- appealing design for the user

3. Prototyping

The third iterative phase of our project was the prototyping phase. Before actually starting the implementation with Unity, we first created prototypes in order to be able to refine and test the concept. Prototyping is quite commonly used in projects like these. It provides the advantage, that feedback of users and related changes can be realized in a quick and efficient way.

3.1 Paper Prototypes

The first part of our prototyping involved paper prototypes. These types of prototypes were rough, hand sketched drawings of outlines of a possible user interface on paper. Just as intended, we were able to gain insights on the interaction flow, which we then used to implement some changes in the next part of the prototyping process.

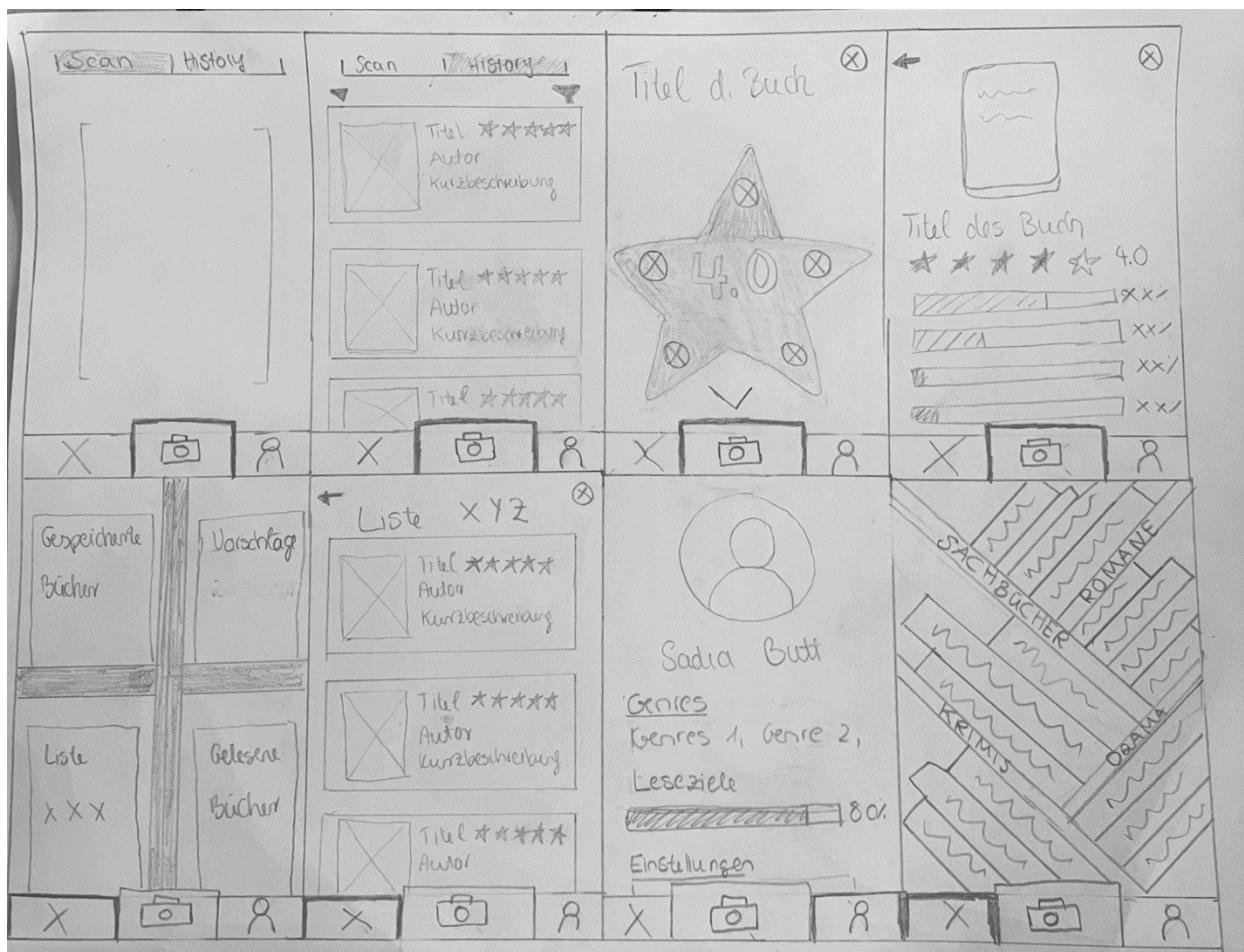


Figure 9 Paper Prototypes of BookAR

3.2 Clickdummy

After testing the interaction flow with some paper prototypes, we developed the first version of an interactive prototype with Figma, a clickdummy of the app BookAR. In this clickdummy we brought the concept of the project idea together: the design, exemplary functionalities, sequences of the interaction flow and the user experience, that we intended to create. The purpose of this clickdummy was to test the usability further with still being able to implement changes quickly, before starting with the actual implementation.



Figure 10 Mock up 1 of Book AR clickdummy

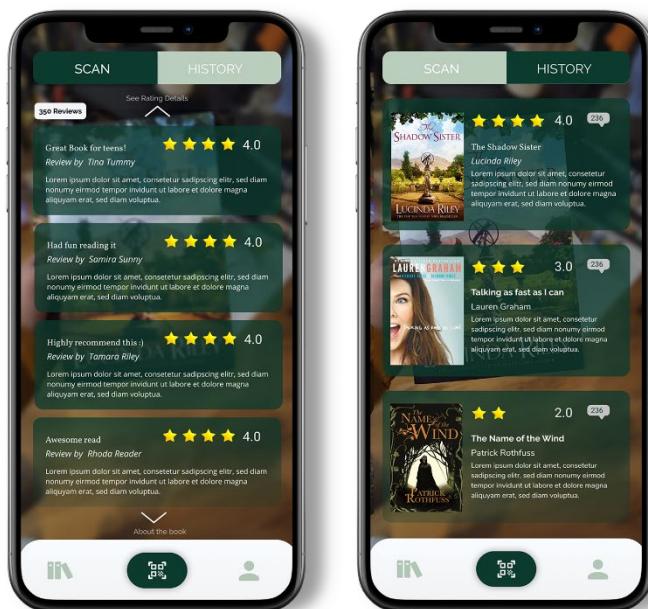


Figure 11 Mock up 2 of Book AR clickdummy

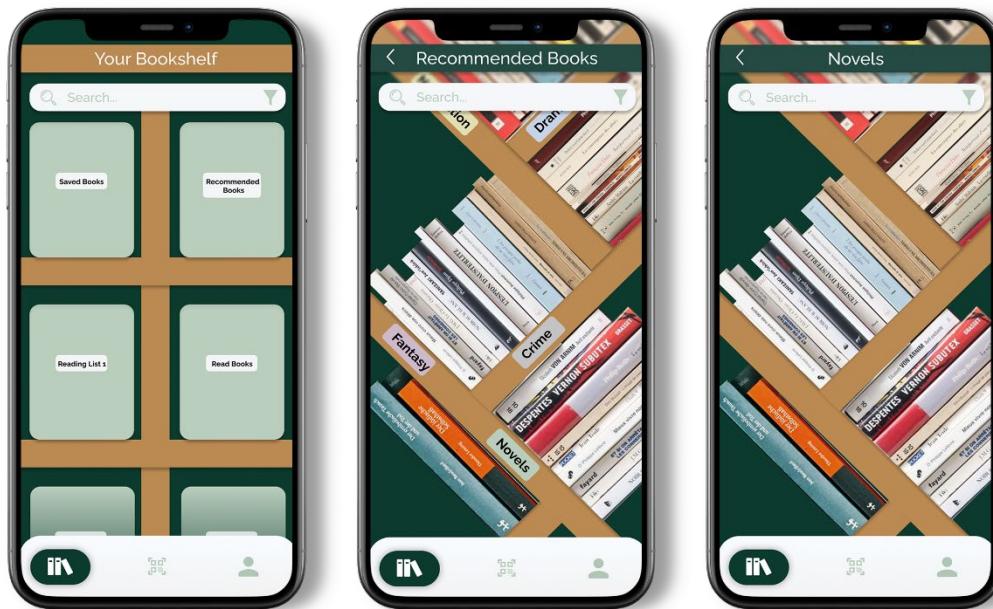


Figure 12 Mock up 3 of Book AR clickdummy

4. Usability Testing

In order to test and evaluate our concept with its interaction design, user experience, effectiveness and efficiency even further, we conducted a qualitative evaluation in the form of a usability test, as well as a quantitative part including the SUS questionnaire, using the clickdummy that was described in the previous chapter.

4.1 Preparation and Conduction

For our usability test we were able to recruit three participants from our AR VR class. Therefore, the tests were all conducted in presence.

We were able to mirror the clickdummy from Figma on the phone, so our participants were able to click through it, as if it was an implemented application.

Before conducting the actual usability test, we set up a guide for the usability test (see in appendix). We created the guide in “Google Forms”, aiming to be able to easily write down all the answers we got from the participant during the user testing. It included an introduction into the project, the three scenarios with tasks, a quantitative questionnaire and follow up questions.

After a short instruction about the app and its purpose and main functionalities, the participants got three scenarios which they had to walkthrough during the testing. We also told our user in the beginning, to always think aloud during the whole testing.

In the first scenario we wanted the user to imagine being in a bookstore, strolling through, and trying to find a book. After she found one, she should scan it and look at the rating.

Scenario 1:

Today you are visiting a book store for the purpose of buying a book. You have already started to look around the store and now found a book that sounds interesting. Still, you are not quite sure whether you should buy the book.

In the second scenario the user should imagine that she is at home again and wants to see which books she scanned in the book store the other day.

Scenario 2:

After you visited a book store yesterday you are now at home and still thinking about buying a book. Yesterday you used the BookAR app to read reviews on books that you perceived as interesting. Today you want to review those books again.

In the third and last scenario the user's task was to imagine sitting at home and finding new books and recommendations through the app at home.

Scenario 3:

You are sitting at home, and it has been some time, that you had the time to read a book, that is why you are now looking for a book recommendation. You don't feel like going to a book store so you will take the BookAR app to find some inspiration.

Afterwards we included the SUS (system usability score). The SUS is a quantitative tool for measuring the usability of a system with 10 items of questions. In the end the participants had to answer follow up questions, regarding their general thoughts about the app concept, whether they would use it on their own if it was available.

4.2 Results

As a result of the usability testing, we structured the answers of our participants and found some really interesting insights, which can be read below.

1. Insights

The user...

1. ...would like to be able to filter the reviews.
2. ...wants to see clearer what you can do in the app.
3. ...would prefer to be able to scroll through the interactions instead of having only touch/ click interactions.
4. **...would like the button “add to bookshelf” to be clearer.**
5. ...really likes the idea behind BookAR.
6. ...needs more clarification for the smaller buttons.
7. ...was in the beginning confused about the functionality of the bookshelf.
8. ...wants to see the reviews and comments you did yourself.
9. ...wants the possibility to add the book to a bookshelf already through the history (instead of comments for example).
- 10....thinks that the functions are mostly clear.
- 11....is confused between the difference of the history and bookshelf.
- 12....doesn't know how to feel about the fact, that recommended books are on the bookshelf.
- 13....doesn't know who is recommending the books to you.
- 14....likes the design because it reminds her of a real bookshelf.**
- 15....would like a general browsing icon, where you can search recommended books and to look up how people like it.
- 16....likes the overall design.
- 17....would like to have more call to actions to the different categories.

18....wants to see more books than one, and would maybe prefer a grid, but it shouldn't get overwhelming.

19....would like a section with similar books.

20....would like it, if covers were animated, possibly with easter eggs, that you can find something special to differentiate it from normal book searching.

21....would use the app, because he thinks it's helpful, and would rely on the reviews for purchases of books.

22....would prefer more AR features to differentiate it from other established apps like Goodreads or even reading Amazon reviews of a book.

2. SUS

The result of the SUS was a score of 82.5 which is a straight “A”. This score is above the average score (the average score is 68) and it has in general an “Excellent” Rating. This result showed us, that the app really could bring an actual value to a costumer.

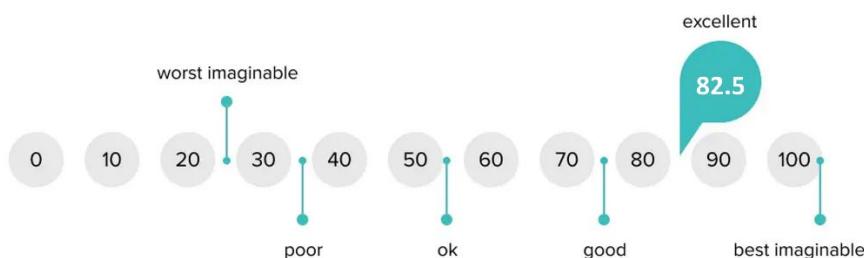


Figure 13 SUS scoring of BookAR

4.3 Improvements

After analysing our results, we decided to change a bit of our design and concept, regarding our skills.

Insight Nr. 4 - The user would like the button “add to bookshelf” to be clearer.

We decided not to put a small round 2D Button on the book, but instead a 3D Icon which should symbolize a bookshelf with a big plus on it. If you click on it, the app automatically adds the chosen book to a list in your bookshelf. You also get a small text as feedback, that you know that the book now successfully was added to it.

Insight Nr. 14 - The user likes the design because it reminds her of a real bookshelf.

Even though the user already liked our design, we tried to improved it even further aiming to make it even more relatable. For this purpose we changed the look of the shelves on the book shelf and gave them a wood look.

Insight 18 – The user wants to see more books than one, and would maybe prefer a grid, but it shouldn't get overwhelming

This insight was regarding the “Recommended” novel section. In this section you are now able to see three books, but the one in the middle is selected. In this way you immediately see the rating and a short description of the selected books. This enables users to easily scroll through the recommended books.

Insight 21 - The user would prefer more AR features to differentiate it from other established apps like Goodreads or even reading Amazon reviews of a book.

Users are now able to scan the book on the front and on the back. When it is scanned in the front, you'll get the rating stars, and can also add it to the bookshelf. Furthermore, you'll get a short description and to which genre the book belongs. If you scan the back of the book, you immediately get reviews from other users who already have read the book.

5. Implementation

In the beginning of the implementation phase, we searched for possible AR engines and decided to use the standard XR engine from Unity for mixed reality content.

5.1 BookCollection

In the first class “**BookCollection**” the books get created and you can assign the information which we defined in the other class to the books, like author, title, etc. It also assigns a star rating to the book.

In the second class “**Book**” we defined which parameters you can give your book. We already gave it more parameters than we used in the final game, for future improvements. Furthermore, there is the constructor which gets automatically called when you create an object, in this case a book. At last, you have a method which calculates the average rating of a book in case you have more different ones.

5.2 ImageRecognizer

In this class the actual AR part is happening - which means in this one the images get tracked with the help of the XR engine from Unity like mentioned before. In there all GameObjects are created which are either in the scene or in the UI and are partially appearing or disappearing.

The class thus contains all the methods that contribute to certain objects appearing or disappearing, depending on how you interact with the book. Furthermore, we implemented a method which is called every frame, and looks for touch input, so you can for example click on the stars so that the more detailed rating can appear.

In there we also implemented the step, that the information gets updated if the image you are trying to track is changing and that the information goes away if the tracking gets lost.

5.3 RotatingBooks

In this class, we implemented the rotation of the stars, which you see if you scan the book. We decided on a smaller speed, so that the user doesn't get too distracted by the movement, but that still something is happening.

6. Review

6.1 Summary

The first phase of our project was the ideation phase where we brainstormed ideas, got familiar with AR and VR applications, and decided that we want to go for an AR application. After deciding on a concrete project, that we wanted to work on, we further specified the idea and its interaction methods and soon created a first draft of the project outline. In this process we also came up with the name of the final App “BookAR”. It can be used for private purposes, but also in a bookstore to improve the experience of their customers.

Next, we continued with the design phase where we, firstly created a moodboard to define the direction of the look and feel of the design and user experience. After a short user research, we started to create two different personas which represented our potential users. Moreover, we also created a storyboard where we described how a user could use the application, how the interaction flow could look like and how a valuable experience is created.

Before we started with the actual design of the application, we also defined some functional and non-functional requirements. Afterwards, we were able to start with designing first rough prototypes. After we decided on the final colors which we wanted to use in the design we finally were able to start designing the actual screens and a clickable and interactive prototype (clickdummy) in Figma.

At this stage of the project, we conducted a short usability test with three participants to evaluate the usability of our prototype and concept and to detect whether there were some fundamental issues, that we did not consider yet. As soon as we evaluated the results of the testings, we transformed them to valuable insights. With these insights we prioritized which ones we wanted to implement. During this whole process we already started building up the basic framework in Unity which we extended further with more functions, after the usability testing results were evaluated.

As a result, our application is not as functional as our initial concept comprised due to optimizations, changes and bug fixes, that we had to make during the implementation process in Unity. Still, we think that the app can now be considered as a minimum viable product (MVP) and therefore would be used by targeted users. This was already confirmed with the amount of good feedback, that we received on the application when conducting the usability test.

6.2 Lessons Learned

Throughout the semester we've learned a lot of different things, but in our lessons learned we wanted to stick on the most important ones.

Firstly, it was interesting to get such a deep insight on creating and implementing an AR application. This helps to understand the whole process of an AR project better, from coming up with the idea, to the actual implementation. It gave us great insights which will help us to design and implement them even better in the future.

Furthermore, we learned that sometimes it is not that easy to estimate, what and how functionalities can be implemented. During the concept and Figma prototyping phase we had a wide scope of functionalities thought through, but in the implementation phase we had to deal with different hick ups like bug fixing. This brought us to the learning, that it is better to have less functionalities that are implemented well, rather than having a lot of functionalities, that are not fully functioning.

6.3 Future perspective

For the future, the app could be expanded even further, since we didn't manage to implement all planned user stories and functionalities as intended. There is still room for other valuable functionalities in the app. Due to Corona regulations, we have neither been able to meet in the class that often, nor in presence. Especially towards the end, for future perspectives it would be nice to make more usability testing with the Unity Prototype and with more users.

Another important point for us is the expansion of research and interviews with bookstores, since we also thought that our app can be helpful for bookstores. We would like to probe whether they would be interested in an app like BookAR, how they like it and if they would need additional functionalities.

Furthermore, other opportunities lay in the insights from the usability test, which we were not able to implement into the final prototype.

Appendix

- I BookCollection Script
- II ImageRecognizer Script
- III RotatingBooks Script
- IV Usability Testing Guide
- V Last draft of Figma Prototype

I BookCollection Script

```

using System;
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

// this class makes the books and give it its rating
public class BookCollection : MonoBehaviour
{
    public List<Book> Books { get; set; } = new List<Book>();

    //
    void Start()
    {
        GenerateBook("Lauren Graham", "Talking as fast as I can", "From Gilmore Girls to Gilmore Girls", 9.90f);
        GenerateBook("Lucinda Riley", "The Shadow Sister", "The seven sister series", 12.90f);
        GenerateBook("Patrick Rothfuss", "The Name of the Wind", "Some black guy with robe", 10.90f);
        GenerateBook("Don Norman", "The Design of Everyday Things", "UX Expert about Teapots", 8.90f);
    }

    //makes the book and give it its rating
    private void GenerateBook(string v1, string v2, string v3, float v4)
    {
        Book b1 = new Book(v1, v2, v3, v4);
        b1.Ratings.Add(5);
        Books.Add(b1);
    }
}

public class Book
{
    // holds the data for a book
    public string Author { get; set; }
    public string Title { get; set; }
    public string Description { get; set; }
    public float Price { get; set; }
    public List<int> Ratings { get; set; } = new List<int>();

    // constructor, you can make a new book with it
    public Book(string author, string title, string description, float price)
    {
        this.Author = author;
        this.Title = title;
        this.Description = description;
        this.Price = price;
    }

    // average rating
    public int GetStars()
    {
        if (Ratings == null) return 0;
        if (Ratings.Count == 0) return 0;

        float sum = 0;
        foreach(int number in Ratings)
        {
    
```

```
        sum += number;
    }
    return Mathf.RoundToInt(sum * 1.0f / Ratings.Count);
}
}
```

II ImageRecognizer

```
using System.Linq;
using UnityEngine;
using UnityEngine.XR.ARFoundation;
using UnityEngine.XR.ARSubsystems;

// image tracking, XR Engine from Unity,
public class ImageRecognizer : MonoBehaviour
{
    // this is tracking the images
    private ARTrackedImageManager arTrackedImageManager;

    //all game objects, which are in the scene or the UI and can also be shown and
    hidden again
    public GameObject StarsGO;
    public GameObject BookGO;
    public GameObject DescriptionGO;
    public GameObject RatingsGO;
    public GameObject ReviewsGO;
    public GameObject SavedGO;

    public BookCollection BookCollection;

    private Book currentlyTrackedBook;
    private bool back;

    void Awake()
    {
        arTrackedImageManager = FindObjectOfType<ARTrackedImageManager>();
    }

    private void OnEnable()
    {
        arTrackedImageManager.trackedImagesChanged += OnImageChanged;
    }

    private void OnDisable()
    {
        arTrackedImageManager.trackedImagesChanged -= OnImageChanged;
    }

    // if image change the information get updated
    public void OnImageChanged(ARTrackedImagesChangedEventArgs args)
    {
        foreach (var addedImage in args.added)
        {
            UpdateImage(addedImage);
        }

        foreach (var updatedImage in args.updated)
        {
            UpdateImage(updatedImage);
        }

        foreach (var removedImage in args.removed)
        {
            UpdateImage(removedImage);
        }
    }

    private void UpdateImage(ARTrackedImage trackedImage)
```

```

{
    //Tracking Book
    if (currentlyTrackedBook == null && trackedImage.trackingState == TrackingState.Tracking)
    {
        //Make Stars Visible, Book Visible and correct UI visible
        string name = trackedImage.referenceImage.name;

        //handle back of same book
        back = false;
        if (name.Contains("_BACK"))
        {
            back = true;
            name = name.Substring(0, name.Length - 5);
        }
        Vector3 position = trackedImage.transform.position;
        Book trackedBook = BookCollection.Books.Where(b => b.Title.Replace(" ", "") == name).FirstOrDefault();
        currentlyTrackedBook = trackedBook;

        //Set Stars accordingly to ratings
        SetStars(trackedBook.GetStars());

        //Set UI Visible / Not Visible
        BookGO.SetActive(true);
        if (!back)
        {
            DescriptionGo.SetActive(true);
            RatingsGo.SetActive(false);
            ReviewsGo.SetActive(false);
        }
        else
        {
            DescriptionGo.SetActive(false);
            RatingsGo.SetActive(false);
            ReviewsGo.SetActive(true);
        }

        //set positions
        BookGO.transform.position = position;
    }

    //Tracking Lost
    if (trackedImage.trackingState == TrackingState.Limited)
    {
        //Remove UIs, Stars and 3D Book when tracking is lost
        currentlyTrackedBook = null;
        back = false;
        DescriptionGo.SetActive(false);
        ReviewsGo.SetActive(false);
        RatingsGo.SetActive(false);
        BookGO.SetActive(false);
        foreach (Transform child in StarsGO.transform)
        {
            child.gameObject.SetActive(false);
        }
    }

    //set Stars visible according to ratings
    private void SetStars(int stars)
    {
        foreach(Transform child in StarsGO.transform)
    }
}

```

```
{      child.gameObject.SetActive(false);
}

for (int i = 0; i < stars; i++)
{
    StarsGO.transform.GetChild(i).gameObject.SetActive(true);
}

//gets called every frame, looks for touch input
void Update()
{
    for (var i = 0; i < Input.touchCount; ++i)
    {
        if (Input.GetTouch(i).phase == TouchPhase.Began && !back)
        {
            // Construct a ray from the current touch coordinates
            Ray ray = Camera.main.ScreenPointToRay(Input.GetTouch(i).position);
            // change ui if star is hit

            RaycastHit hit;
            if (Physics.Raycast(ray, out hit, 100))
            {
                var name = hit.collider.gameObject.name;
                if (name.Contains("BOOK") || name.Contains("plus"))
                {
                    SavedGo.SetActive(true);
                }
                else
                {
                    DescriptionGo.SetActive(false);
                    RatingsGo.SetActive(true);
                }
            }
        }
    }
}
```

III RotatingBooks

```
using System.Collections;
using System.Collections.Generic;
using UnityEngine;

public class RotatingBook : MonoBehaviour
{
    private float speed = 0.5f;
    // Start is called before the first frame update
    void Start()
    {

    }

    // Update is called once per frame
    void Update()
    {
        transform.Rotate(new Vector3(0, 1, 0) * speed);
    }
}
```

IV Usability Testing Guide

BookAR Usability Testing

This usability testing is about

1. Participant Name
-

Introduction into BookAR

"Book AR"- An augmented reality app that shows reviews and ratings of books in an interactive way. The app is supposed to be available for individual users on their own phones, but could also be used by book stores who want to enhance and improve the experience of their customers.
Our motivation is to simplify the process of selecting a book in a physical book store by creating a better customer experience and increasing the chances of buying a book, that actually fits one's personal interests.

About the Usability Testing

In this Usability Testing we want to test our first prototype for the application BookAR. The goal of the testing is to get as much feedback on the first prototype as possible including what works well and what doesn't.
For the purpose of this testing we will walk through three scenarios and ask questions on each step of the way.
In the end we will also do an evaluation with a quantitative questionnaire to measure the overall usability performance of our first prototype.

Scenario
1

Today you are visiting a book store for the purpose of buying a book. You have already started to look around the store and now found a book that sounds interesting. Still you are not quite sure whether you should buy the book.

2. Task 1: That is why you now take out your smartphone with the BookAR app and scan over it to see the reviews of that book. You want to know how it was rated, how many people rated the book (in procent) with how many stars and also read a few reviews.
-

3. How did you perceive the overall process? (of solving this task) Did it work as expected?
-

4. Is there anything you would like to change? If yes, what and why?

5. How do you like the design of these functionalities?

Scenario
2

After you visited a book store yesterday you are now at home and still thinking about buying a book. Yesterday you used the BookAR app to read reviews on books that you perceived as interesting. Today you want to review those books again.

6. To review the books you scanned books from yesterday you will now take a look at the scanning history in the BookAR app and choose the book that is shown at the top. Please add it to your bookshelf.

7. How did you perceive the overall process? (of solving this task) Did it work as expected?

8. Is there anything you would like to change? If yes, what and why?

9. How do you like the design of these functionalities?

Scenario
3

You are sitting at home and it has been some time, that you had the time to read a book, that is why you are now looking for a book recommendation. You don't feel like going to a book store so you will take the BookAR app to find some inspiration.

10. Please open the BookAR app and look for recommendations of books to read in the category "novels".

11. How did you perceive the overall process? (of solving this task) Did it work as expected?

12. Is there anything you would like to change? If yes, what and why?

13. How do you like the design of these functionalities?

SUS

Quantitative Methode um die Usability von einem System zu messen.

14. I think that I would like to use this system frequently.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

15. I found the system unnecessarily complex.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

16. I thought the system was easy to use.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

17. I think that I would need the support of a technical person to be able to use this system.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

18. I found the various functions in this system were well integrated.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

19. I thought there was too much inconsistency in this system.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

20. I would imagine that most people would learn to use this system very quickly.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

21. I found the system very cumbersome to use.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

22. I felt very confident using the system.

Markieren Sie nur ein Oval.

1 2 3 4 5

Strongly disagree Strongly agree

23. I needed to learn a lot of things before I could get going with this system.

Markieren Sie nur ein Oval.

1	2	3	4	5	
Strongly disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly agree

Follow up

24. Would you use the app if it was available? If yes, why? If no, why not?

25. Can you think of any additional features, that you would like to see in the BookAR application?

26. Do you have any final remarks or questions?

Thank you for taking part in this Usability Testing, it helps us a lot!

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Google Formulare

V Last draft of Figma Prototype

