

# Victoria Process Deck

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# **Project Definition**

To help library users (whether onsite or offsite) explore digital collections, discover and use digital items — create a voice assistive companion which has access to all of the library's digital content and is inclusive of those with sensory impairments.

Problem 02 Solution 02 Process 03 Goals 04

#### Problem

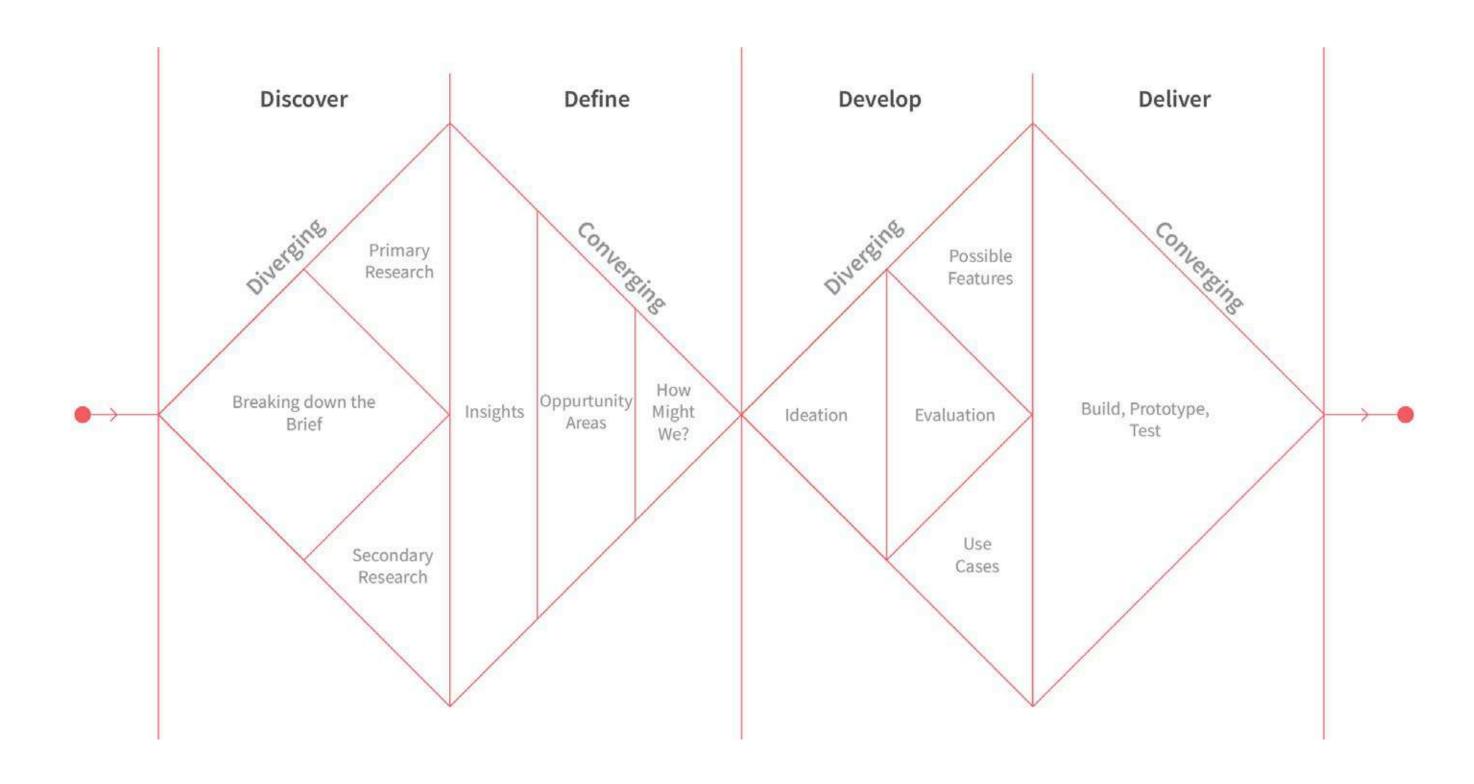
State Library Victoria, Australia wants to help their users explore, discover and use digital items. At any point, the library's shelves have only 5% of the library's entire collection and the users do not have a convenient method to access the digital content.

#### Solution

Victoria is a voice assistive artificial intelligence companion that the user interacts with to access the digital resources of the library. Further, Victoria can help the user by giving suggestions, connecting with people and facilitating user contributions to the library.

#### Process

We followed the double diamond process. Involving 4 stages as we diverge and converge over 2 diamonds. The first diamond is to make sure we're **designing the right thing** and the second diamond is to make sure we're **designing the thing right.** 



#### Goals



Design inclusively for people across all ages, genders and disabilities



Increase the metric of total number of physical visits to the library



Make discoverability easier while maintaining serendipity



Accomodate for knowledge in different types of media (videos, 3D imagery, software, digitised books/newspaper/art etc)

# Research

Research for this project spanned across multiple categories, including literature review and state of the art study.

#### Literature Review

Continuous research into evolving library spaces proved how contemporary libraries are no longer just large rooms with shelves and a quiet place to read books.

Pouring over published research papers and articles on this topic, three major points stood out, which were key going into the project.

- It was found that the role of a library has grown to become much larger than just a place to access resources. Public libraries prove to be sanctuaries of knowledge, allowing people to store information and disseminate knowledge to the community as a whole.
- Information stored is no longer limited to physical artifacts or digital resources.
   The scope of learning has grown to include topics that require practical expertise, best learnt through human interaction.
- Even with the continuous growth of libraries all around the world, people cherish the environment and experience that a library offers, used for studying and working. The aspect of serendipity, where people stumble upon books, the notion of silence maintained and a comfortable work place are all elements of a library that cannot be removed.

#### Existing Solutions

A key component of research included looking at the state of the art methods in place to access digital content and explore physical resources of libraries and museums.

- At the Cleveland Museum of Art, a revolutionary new setup called StudioPlay allows families to explore the museum's collections and create art together through hands-on activities and interactive technology stations. StudioPlay is a dedicated space in GalleryOne, where users can access, modify, create or view artworks on multi-touch interactive displays of enormous scale. https://mw17.mwconf.org/glami/artlens-studio/
- Nimble is a conceptual interaction method that allows users to find physical and digital resources using smart ID cards, used as tokens, in the library https://youtu.be/xlmDfU9SXYQ
- The North Carolina State University is using state of the art virtual reality units to provide an immersive experience for the users of the library to visualize and interact with the digital content, including videos, audio and art.
   https://americanlibrariesmagazine.org/2017/09/01/making-virtual-reality-a-reality/

Looking into existing solutions provided a direction to work in, along with an idea of what avenues have been explored in this domain.

### Identifying Target Audience

Libraries are places for everyone from all demographics coming forward with an intention to learn something.

With this in mind, it wasn't possible to design a solution for users of every kind. One particular demographic was chosen, which aimed to cover as much of the target audience possible. We focused on ensuring our solution can be used by users of any age group, ranging from kids to senior citizens. Additionally, we tried to make it as accessible as possible, designing for inclusivity.

# User Scenarios

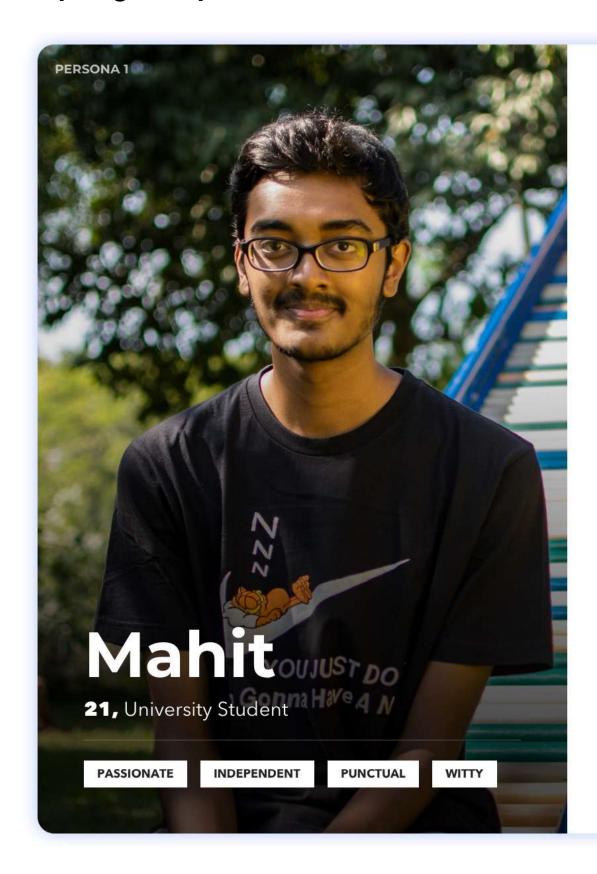
Based on the identified target audience, we made user personas to make sure we examine the emotions of the user, their psychology, unique backgrounds and make them relevant in the solution we will design.

Personas 10 Sc

Scenarios

12

### Mahit - The Aspiring Entrepreneur



Making sure I stay healthy and keep growing as a person everyday is what I value the most

#### **ABOUT**

Mahit is a student currently pursuing design at RMIT University. He loves to read and his favorite genre is thriller. He also loves to play tennis and catch up on the latest movies and netflix specials in his free time.

Currently in his junior year at university, Mahit has recently started exploring the field of entrepreneurship and wants to own his own company one day. Not being a local of Melbourne, he also finds all different cultural and indegenous australian traditions and crafts very intriguing.

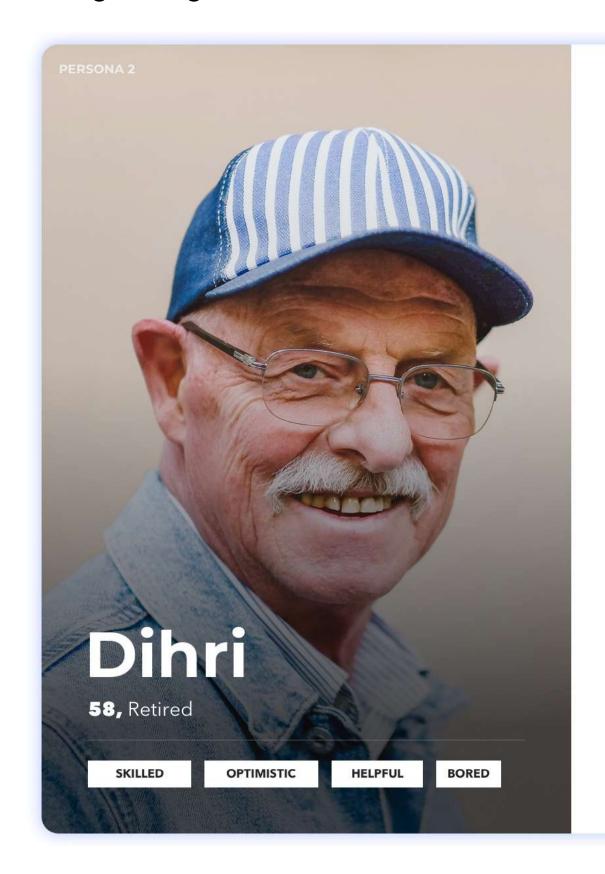
#### **GOALS**

- Always stay up-to-date with the latest trends in Design and keep practicing
- Reading a book every week and learning some new topic or skill every month
- Build his ideas into a startup and explore the thriving entrepreneur scene of Melbourne further

#### **FRUSTRATIONS**

- Confused and spends too much deciding which book to read
- Lacks a platform for hands on mentorship learning
- Doesn't know where to start learning a new topic/skill

### O Dihri - Boomerang Making Enthusiast



Making boomerangs makes me feel happy, it gives me something to do all day

#### **ABOUT**

Dihri is an native from Australia and currently resides in Melbourne. Ever since he retired as a mailman, he has a lot of free time and often ends up getting bored. He has no motivation to learn anything new and spends his time extremely unproductively, which leads to a feeling of uselessness.

He loves to help out his grandchildren with their homework whenever they visit. He enjoys talking with them about their school life and teaches them the same thing his grandfather had taught him as a child and Dihri grew to love a lot boomerang making

#### **GOALS**

- Utilising his time more efficiently and productively without having to do anything he dislikes
- Teaching others about the traditional craft of boomerangmaking
- Making sure his grandchildren know and respect the rich cultural heritage Australia has

#### **FRUSTRATIONS**

- Feels useless when he doesn't have anything to do
- Lacks a platform for teaching what he is skilled at
- Wants to meet new people but doesn't know how to

#### Scenarios

Based on the target demographic, along with personas we also chalked out possible scenarios which our solution should address

- Scenario 1 A university student looking to launch a startup
- Scenario 2- Someone who has been out of the workflow for a while, eg. middle aged house wife, looking to learn/get back to working
- Scenario 3- An elderly man/woman with some expertise about local heritage willing to share the knowledge

# Analyzing

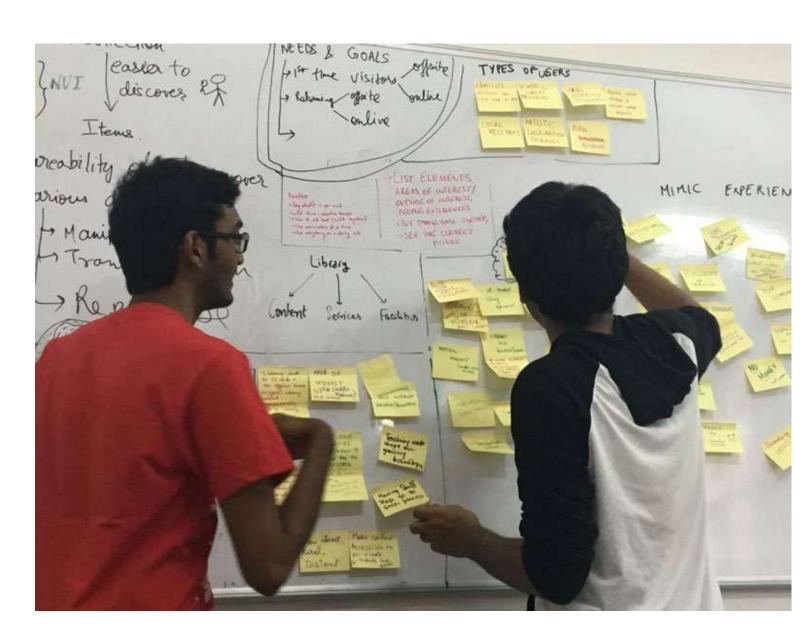
Having gone through research papers and existing solutions, we collated the insights and conducted brainstorming and card sorting sessions to arrive on our opportunity area.

Brainstormi	<b>ng</b> 14	Card Sorting	16	Impact vs Feasibility Mapping	23
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## Brainstorming

By defining themes and insights, we identified problem areas that pose challenges to the people we were designing for.

Then, we reframed our insights and opportunity areas as an 'How Might We' question to turn those challenges into opportunities for design.



A properly framed 'How Might We' doesn't suggest a particular solution, but gives us the perfect frame for innovative thinking.

How might we design for the curious who want to learn something new?

## Card Sorting

After an intensive brainstorming session to cover all bases.

The various insights we had gathered were grouped according to recurring themes based on Card Sorting.

#### Human-Human Interactions

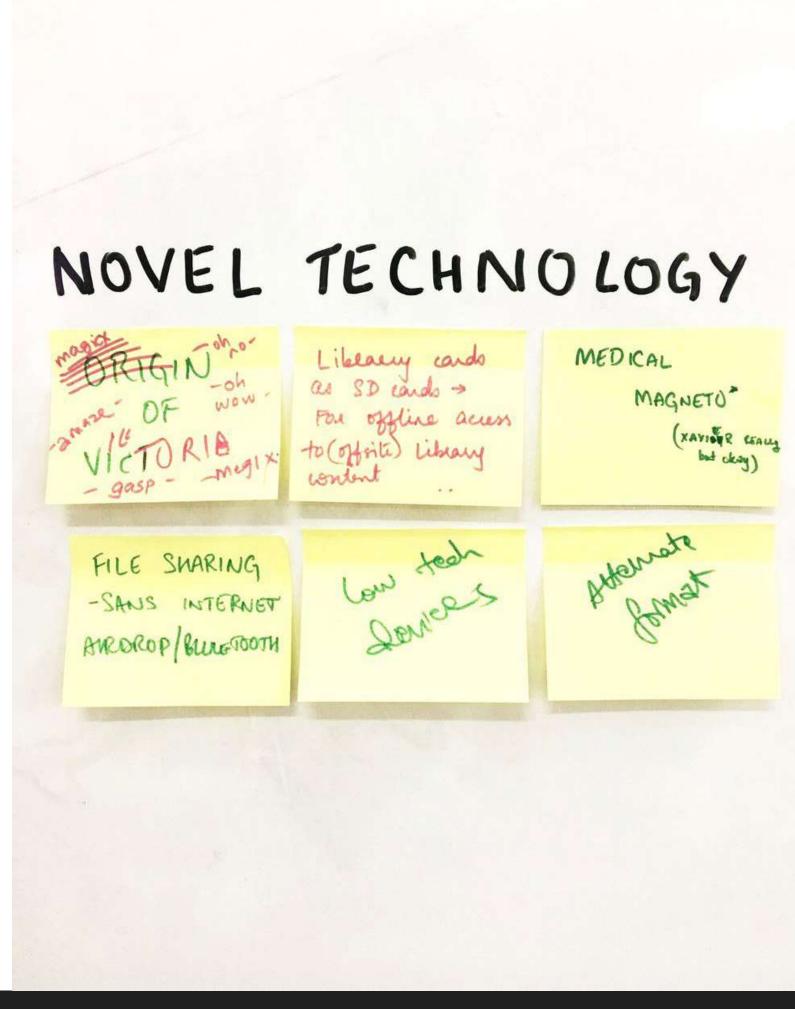
This set of ideas involved looking at avenues where fellow users of the library can come together and help each other in domains, fields and areas of relative expertise. The main takeaway from this is to focus on bringing the community together.

# HUMAN-HUMAN INTERACTION



### Novel Technologies

This set looks to break past current uses of technology in the library and knowledge sharing domains. How can we introduce newer and novel uses of technology into a domain that is predominantly physical in nature?



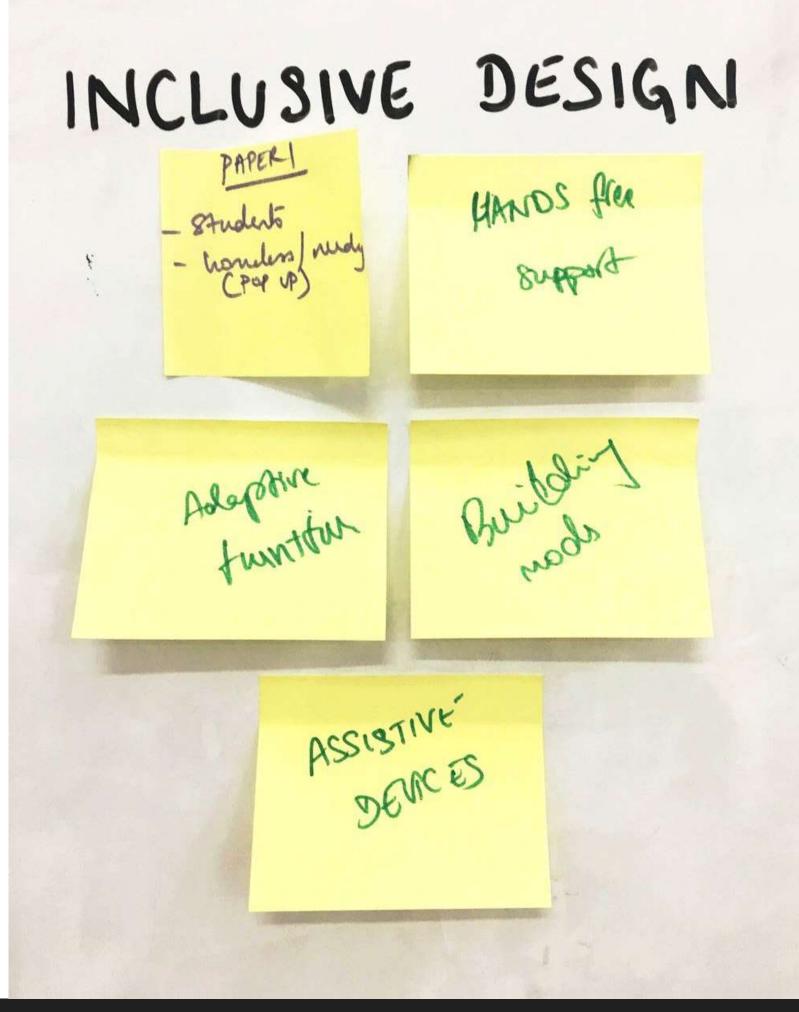
#### Incentives

People resist change. In bringing a revolutionary change to the domain, it was important to look at the possible incentives we can provide our audiences with, that will make them use out solution as opposed to the existing solution.

# INCENTIVES DON'T MAVE NECESSITIES. MIGHT WANT TO CHANGE THE FIX THINGS WORLD EXCLUSIVITY SERVICE OPPURTUNITE

### Inclusive Design

How inclusive can our design be? A library is a place that limits practically no one from its vast stores of knowledge. We began to look at ways we can design a system where we can be as inclusive as possible. When it comes to inclusivity and accessibility, there's never really a limit.



#### Interaction Design

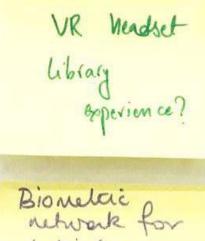
The focus here was primarily on utilizing current interaction methods in a way to aid the user in accessing the digital content of the library. This included stumbling upon newer digital content along with finding the required resource.

# INTERACTION DESIGN

LIBRARY
IN A

KINDLE NOOK

BINTER KINDLE
SHARING
Sexchisive
to inseasy
Toster where
A Basically PORTAGE
LIBRARY





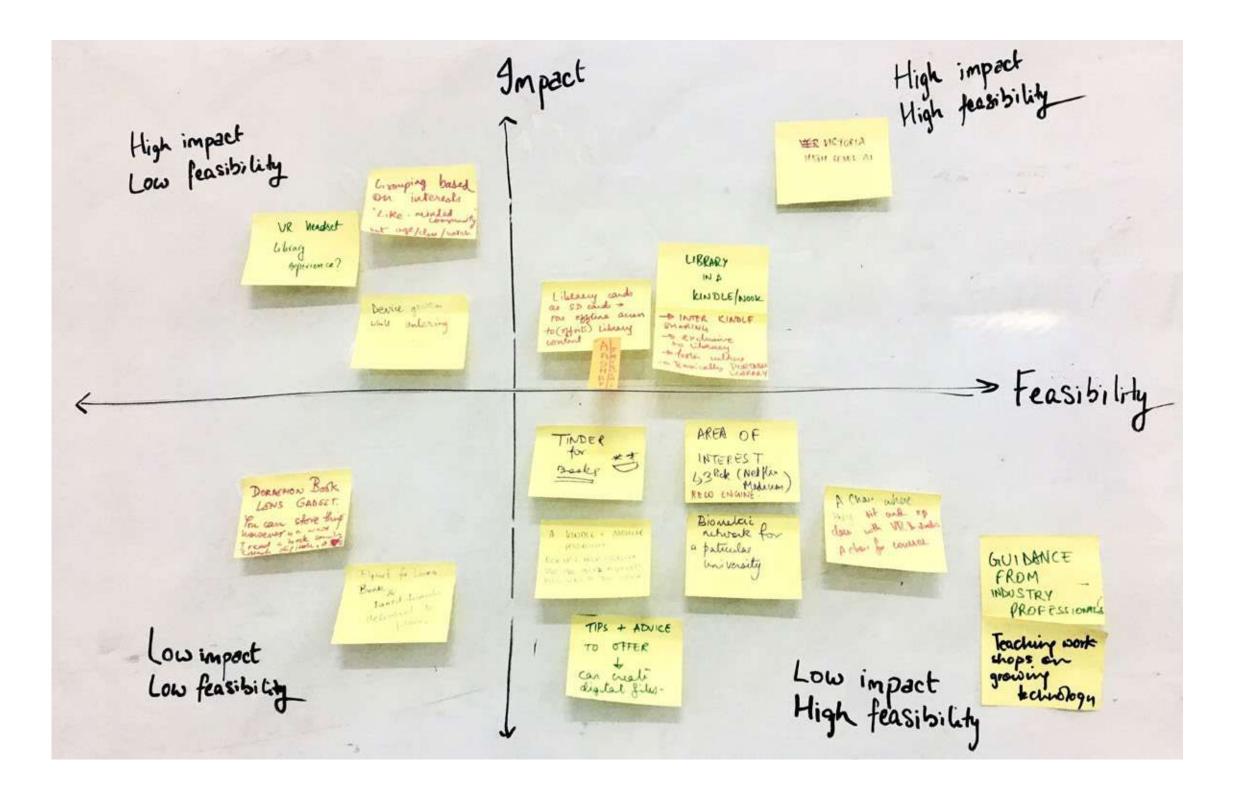
### Experiences

Libraries are knowledge havens. They are places for people to come, sit and engage. We had to ensure we didn't disturb the calm atmosphere libraries offer, the experiences that users are used to being in, inside a library.



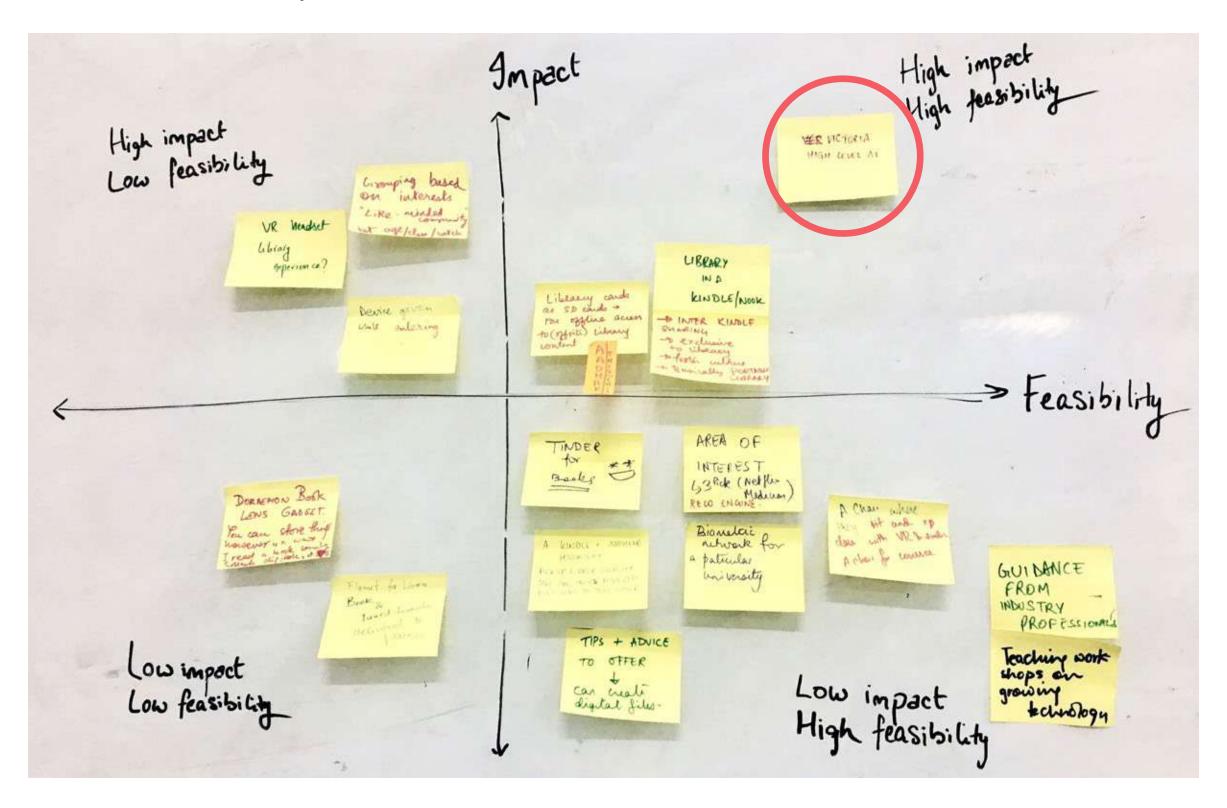
### Impact vs Feasibility Mapping

We came up multiple innovative solutions for particular problems. To decide which one to implement, we mapped them based on their Impact vs Feasibility.



### Impact vs Feasibility Mapping

We chose Victoria because it perfectly achieved the goal we set. Having shown a potential for high impact among the target audience while also being feasible with the resources currently available, Victoria checked all the boxes as a viable solution.



#### Problems we wanted to Address

- Properly capture and disseminate community knowledge.
- People aren't able to access a library's digital content.
- Preserve the experience of visiting a library from the perspective of a returning visitor.
- People don't know where to begin with an entirely new topic.

Properly capture and disseminate community knowledge.

Victoria provides a platform for users to share knowledge with the library or with fellow users. Victoria is capable of arranging workshops and community sessions where willing participants can learn, teach or discuss ideas, lessons or topics.

- O People aren't able to access a library's digital content.
- Preserve the experience of visiting a library from the perspective of a returning visitor.
- People don't know where to begin with an entirely new topic.

- O Properly capture and disseminate community knowledge.
- People aren't able to access a library's digital content.

Victoria allows the user to remotely access digital content using the user's mobile phone as the medium. Victoria can suggest, guide and enable to the user to access content based on the their preferences, history and previous experiences.

- Preserve the experience of visiting a library from the perspective of a returning visitor.
- People don't know where to begin with an entirely new topic.

- O Properly capture and disseminate community knowledge.
- O People aren't able to access a library's digital content.
- Preserve the experience of visiting a library from the perspective of a returning visitor.

Victoria is a personalized assistant who can guide the user without disturbing the atmosphere of the library. By doing this, Victoria can maintain the silence a library is known for. Victoria's algorithms can also suggest content that adds to the serendipitous nature of libraries.

People don't know where to begin with an entirely new topic.

- O Properly capture and disseminate community knowledge.
- O People aren't able to access a library's digital content.
- Preserve the experience of visiting a library from the perspective of a returning visitor.
- People don't know where to begin with an entirely new topic.

With access to the user's previous reading history and preferences, Victoria can guide the user when it comes to an entirely new topic. It could either be reading material to begin with or getting in touch with a subject matter expert.

# Victoria/Alter Ego

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A groundbreaking innovation in the field of communication and a perfect fit for Victoria's skill set.

Mode of Communication

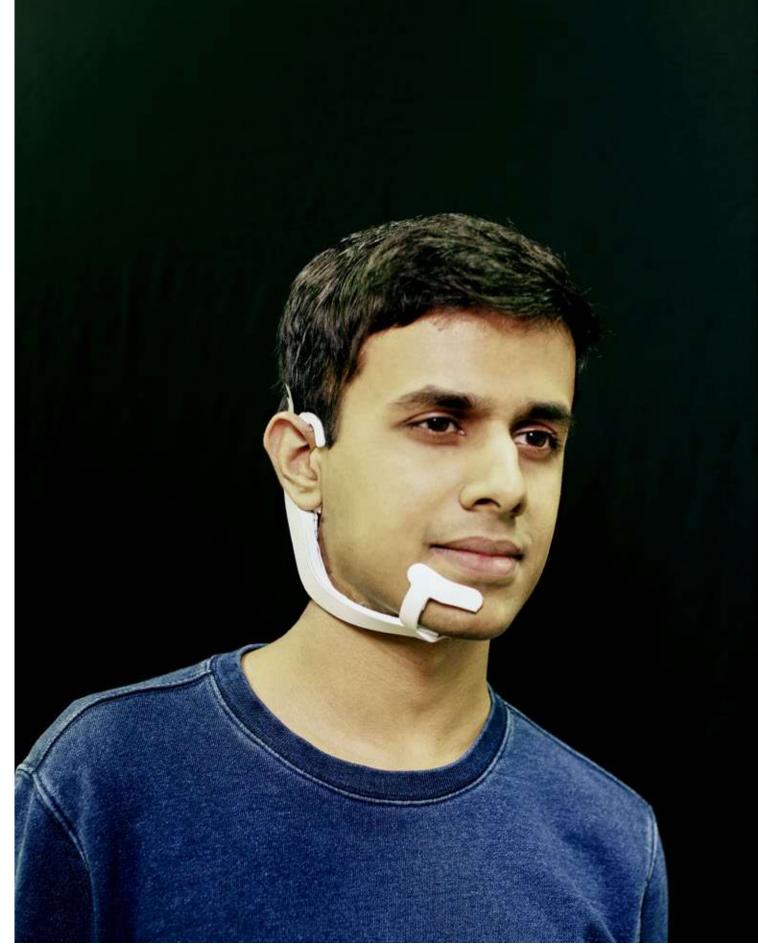
Features 33

Storyboarding

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### Mode of Communication

AlterEgo is a wearable system that allows **conversation in natural language with artificial intelligence assistants**, services, and other people **without any voice**—without opening their mouth, and without externally observable movements—simply by vocalising internally.



Arnav Kapur, a researcher in the Fluid Interfaces Group at the MIT Media Lab

### How the System Works

- The user communicates through AlterEgo to Victoria.
- If the user wants to explore the collection in a visual way, they can use the GUI on the phone which works seamlessly with Victoria.
- If any book/media has to be sent to the user, it is sent to the phone which works as a portable device for storing and sharing of the material/knowledge that the user recieves.

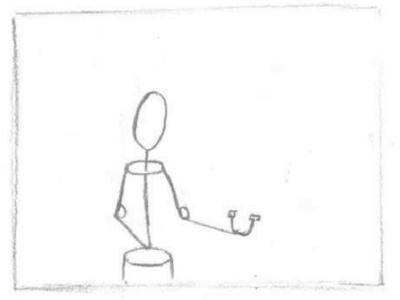
#### Features

- She connects to the mainframe of the library server and through cleverly coded recommendation engines, Victoria helps you make choices when you are in a fix and guides you around the SLV database. Victoria will monitor your literature behaviour and create a memory of your likes and dislikes, making recommendations and setting reminders accordingly.
- She will be provided as an in house service to all those who visit the library and wish to seek her aid. She connects with several people simultaneously; and hence connects people to one another if they wish it.
- Through Victoria, one can access an array of data of any type, even if they don't know what they want yet, and still maintain the 'silence' of the library. She also comes with her own distinct personality and can be considered at par with Apple Inc.'s Siri or Amazon's Alexa.

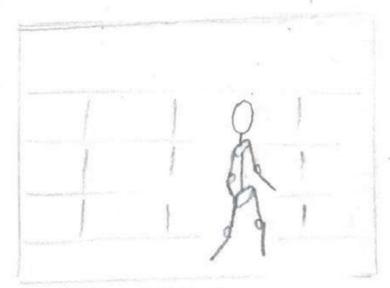
### Storyboarding

The goal was to take the ideas we've generated in the brainstorming sessions and sketch an actual use case and user scenario on how a user would move through this part of the story.

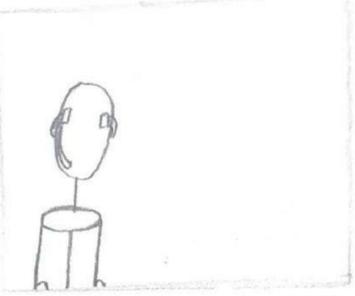
# MAHIT IS A BUDDING ENTREPRENEUR WHO NEEDS GUIDANCE ON SETTING UP A START UP.



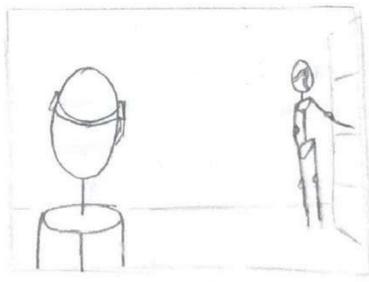
MAHIT WALKS IN AND ISSUES A HEADSET VICTORIA RESPONDS, ASKING HOW SHE CAN HELP.



VICTORIA CHECKS AND SAYS TWO PEOPLE ARE IN THE LIBRARY, WHO ARE AVAILABLE. SHE ASKS SHE SHOULD LETTHEM KNOW.



MAHIT WANTS TO LEARN ABOUT STARTUPS, VICTORIA SENDS HIM CONTENT. MAHIT WISHES TO TALK TO SOMEONE IN PERSON.

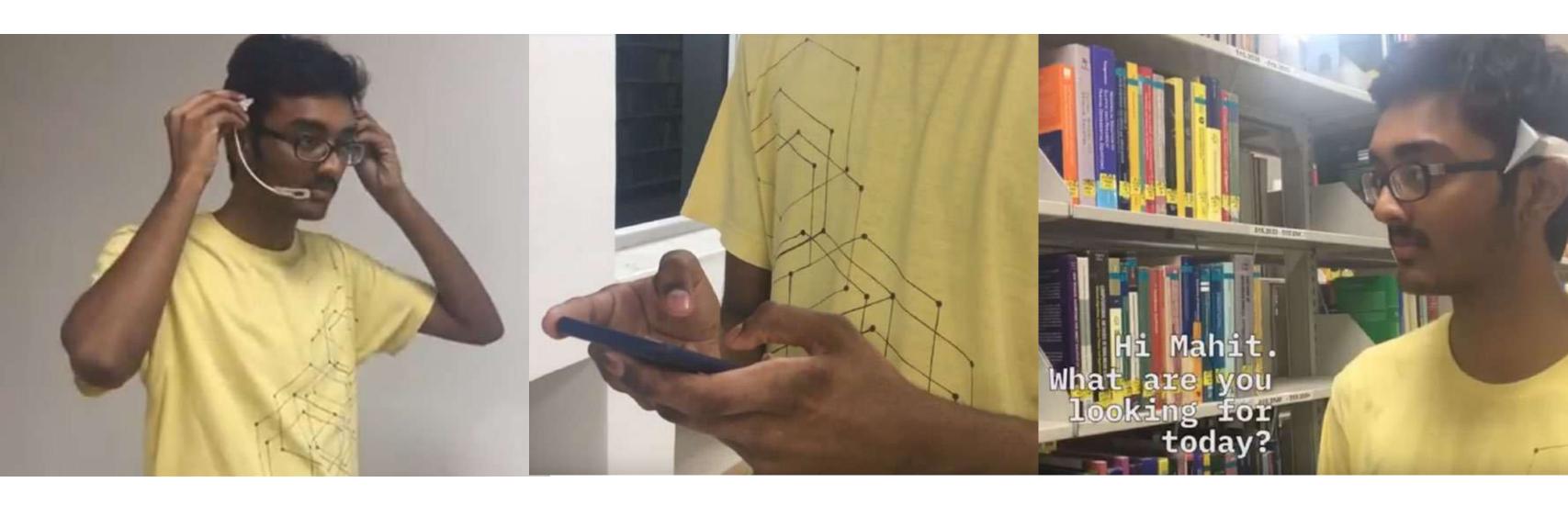


VICTORIA GUIDES MANIT TO THE SECOND FLOOR, WHERE THEY ARE WAITING FOR HIM.

### Onboarding

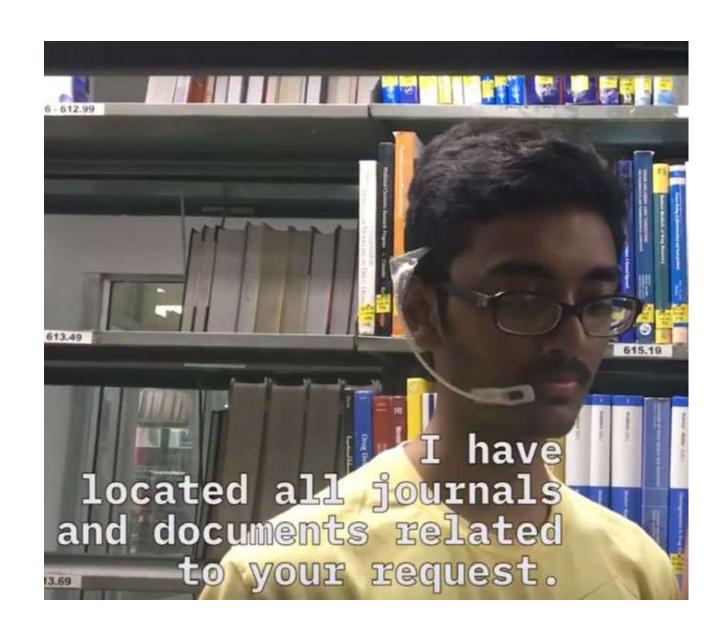
The user is given the headset, which connects to their phone.

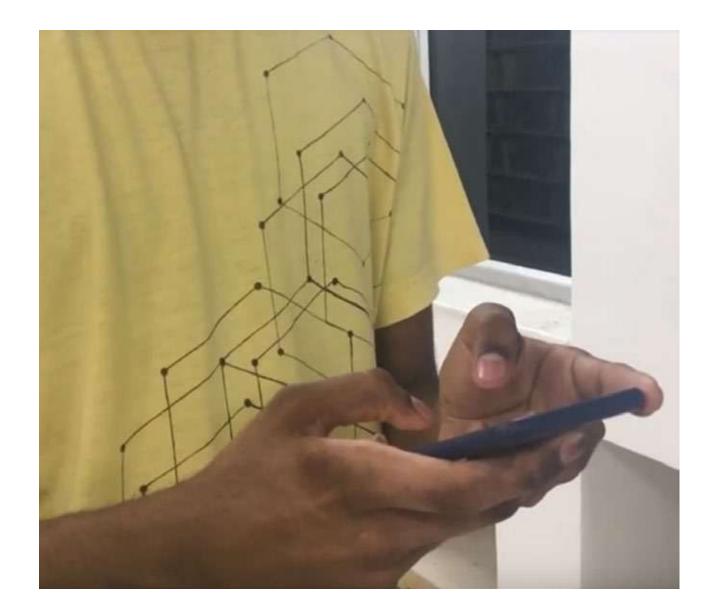
The user activates Victoria through the phone.



# Sending material

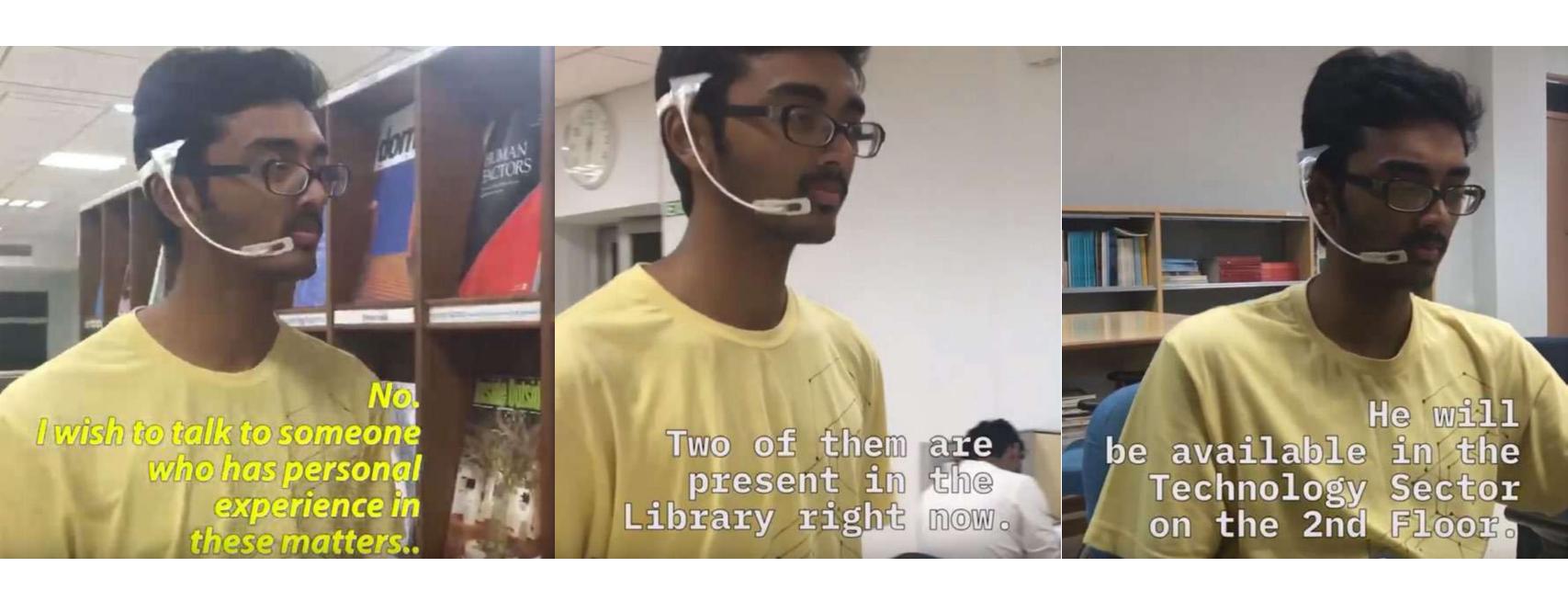
Victoria sends the user any digital resource they ask for.





# **Meeting people**

Victoria connects the user with an expert in the desired field, who is currently in the library.



# Wireframing

With Victoria in mind, the low-fidelity wireframe screens of the mobile application for the library users were made.

Navigation

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**Flows** 

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# Navigation

The tabbed navigation uses color and the sense of distance (mimicked through changing opacity) to make the user immediately aware of the screen they're on.

### 01

Archives shows the user their downloaded material from SLV.

## 02

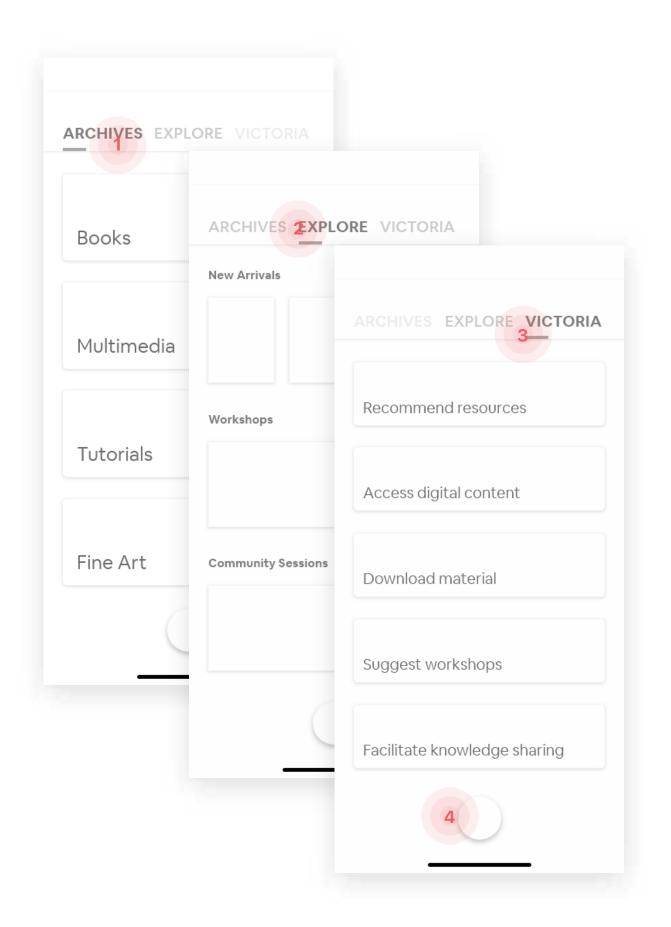
Explore lets the user visit the library's resources and other events manually, without the help of Victoria.

### 03

Victoria's vast abilities are divided into 5 fundamental categories. Based on these five categories, the user can look for instances of what Victoria can be asked.

### 04

The Floating Action Button activates Victoria. This can be done from any screen on the application.



### Archives Flow

Materials and resources are split into 4 categories: Books for text related materials; Multimedia for audio and video resources; Tutorials for masterclass classes and lectures; Fine Art for photographs and paintings.

### 01

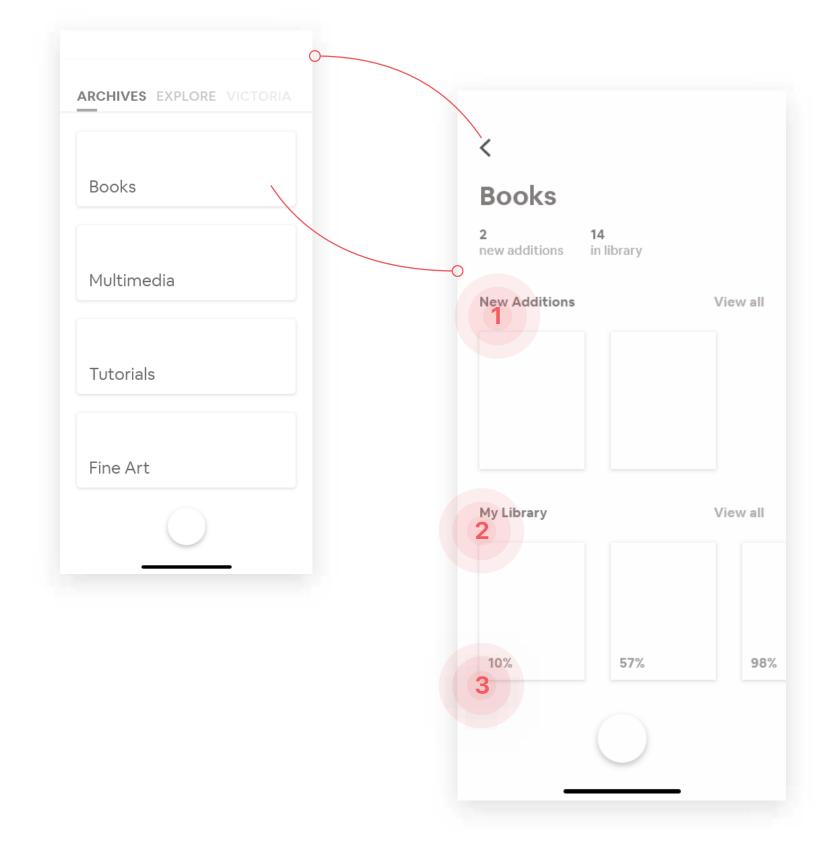
New additions are given priority, where the user can scroll through newly downloaded material.

## 02

The library contains all the books downloaded from SLV.

## 03

Each book displays how much it has been read. The books are ordered in a chronologically descending order, with the most recently opened book at the top.



# Archives Flow

Upon pressing on any tile, further details of the resource/material are displayed.

### 01

For books, the Name and Author are displayed first.

### 02

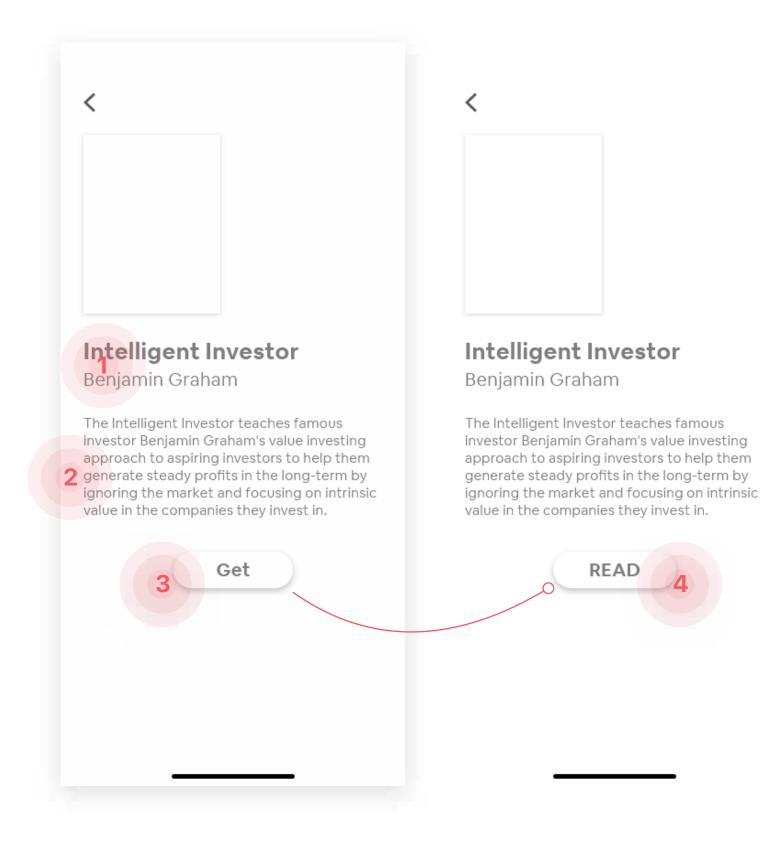
A brief synopsis of the resource is mentioned for reference to the user.

### 03

The Get CTA is used to download the resource into the phone's native storage.

### 04

Once the resource is downloaded, the CTA changes to Read, to open the resource.



# Explore Flow

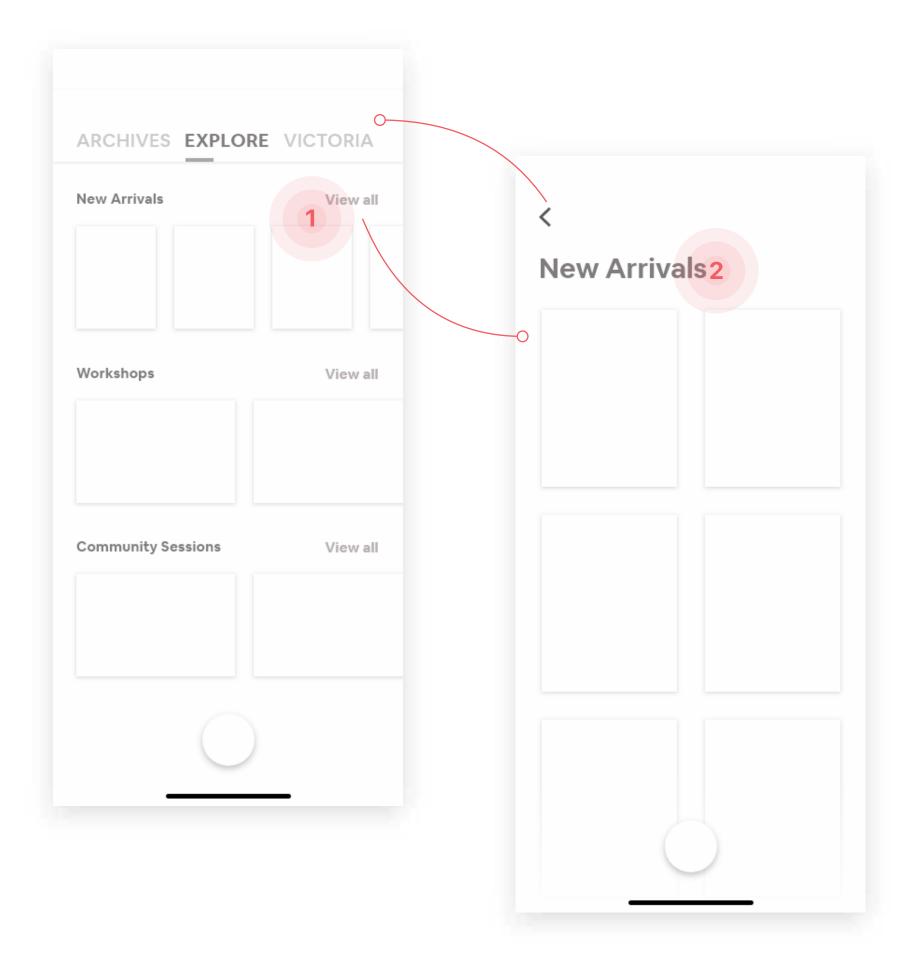
SLV's main updates include new arrivals in the digital material, upcoming workshops and community discussion sessions.

## 01

The user can horizontally scroll through the list, sorted according to the user's past interests and can additionally view the entire list upon pressing the View All CTA.

### 02

At the click of the View All button, the application opens a list of all the resources in chronological order.



# Explore Screens

For the upcoming workshops and community discussion sessions.

### 01

For community discussion sessions, the subheading details the number of Library members who have joined the session.

### 02

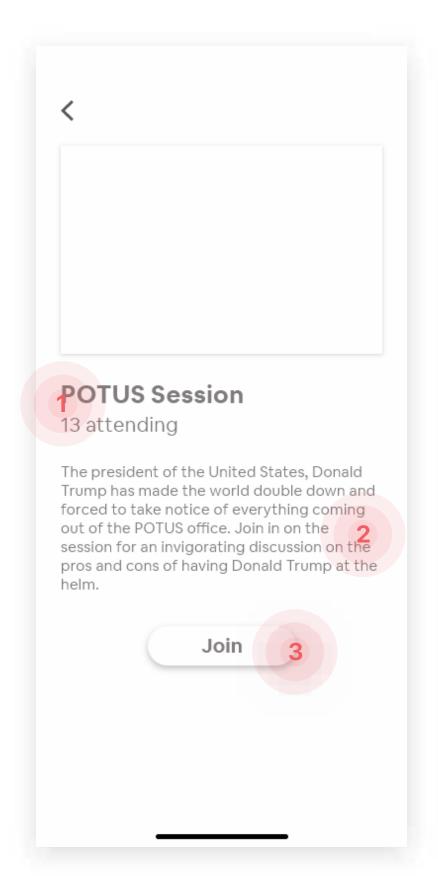
A brief summary on the focus of the discussion is detailed for the user's reference.

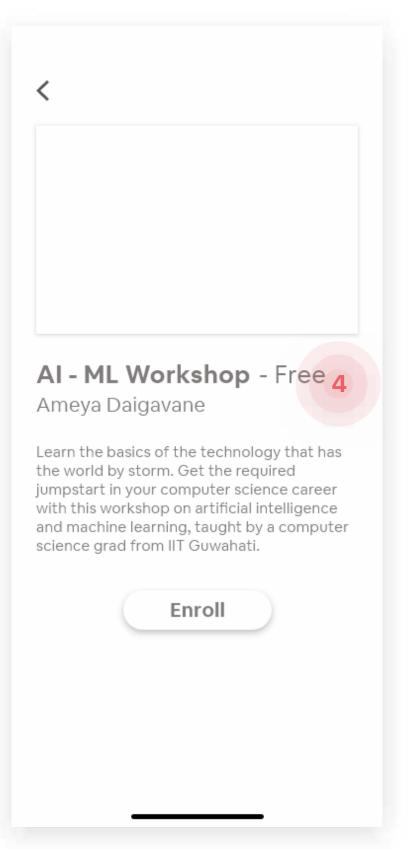
### 03

The Join CTA adds the user to the session attendee list and offers to add the event to the user's calendar.

### 04

For workshops, the organizer of the workshop is mentioned along with the prerequisites, the description and the fee, if any.





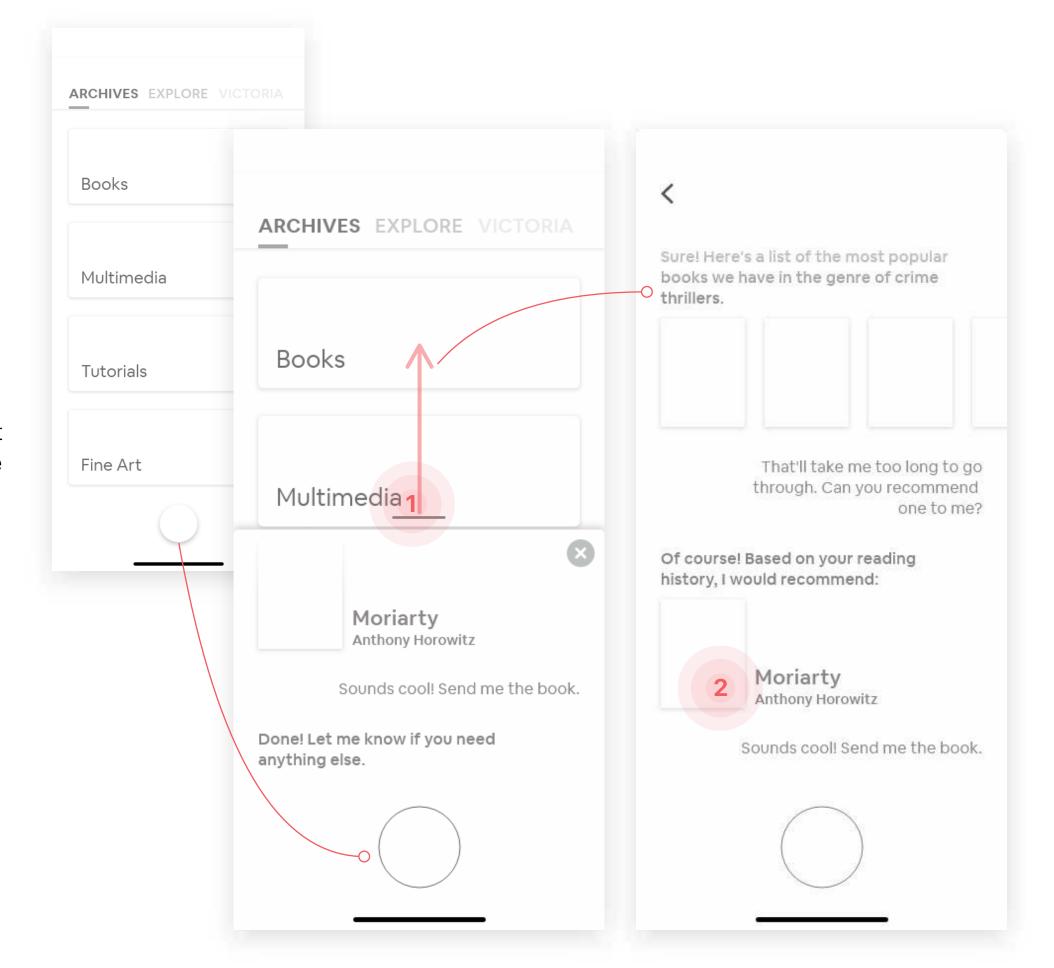
### Victoria Active

### 01

The FAB opens up a modal with a handlebar. Pulling it up reveals the full window with the conversation history.

### 02

Victoria can suggest material directly from the chat window itself. Clicking on the tile directly opens the book's summary and details.



# Base

The visual language and conversational styling of Victoria's various states were designed.

Personality and Tone 46 Visuals 47 Interactions 49

**Conversational** 51 **Modelling** 

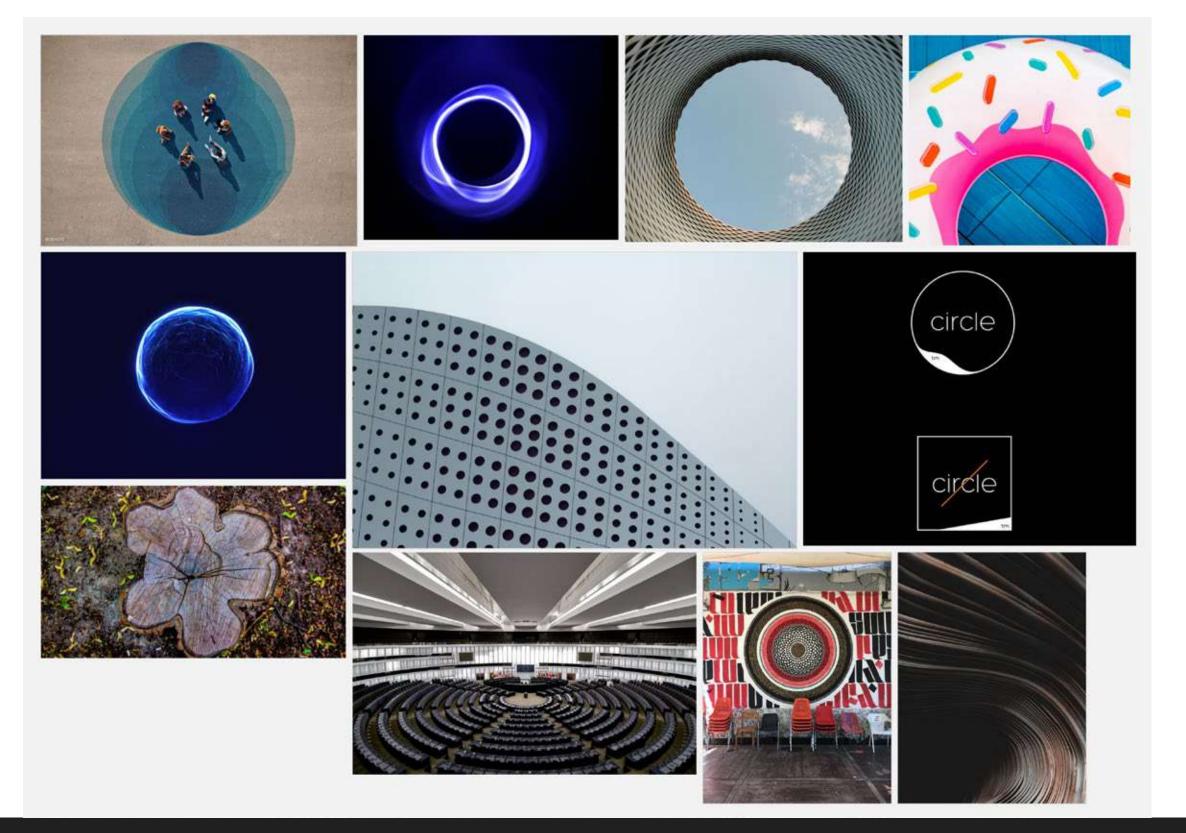
# Personality and Tone

- We decided upon the personality that Victoria would have as an Al including color, form and microcopy. The traits were chosen keeping in mind that she is a personal assistant who focuses on discoverability of resources in the library and connecting people.
- The personality traits for Victoria which we decided were-

Authoritative
Reassuring
Calm
Informative/Knowledgeable

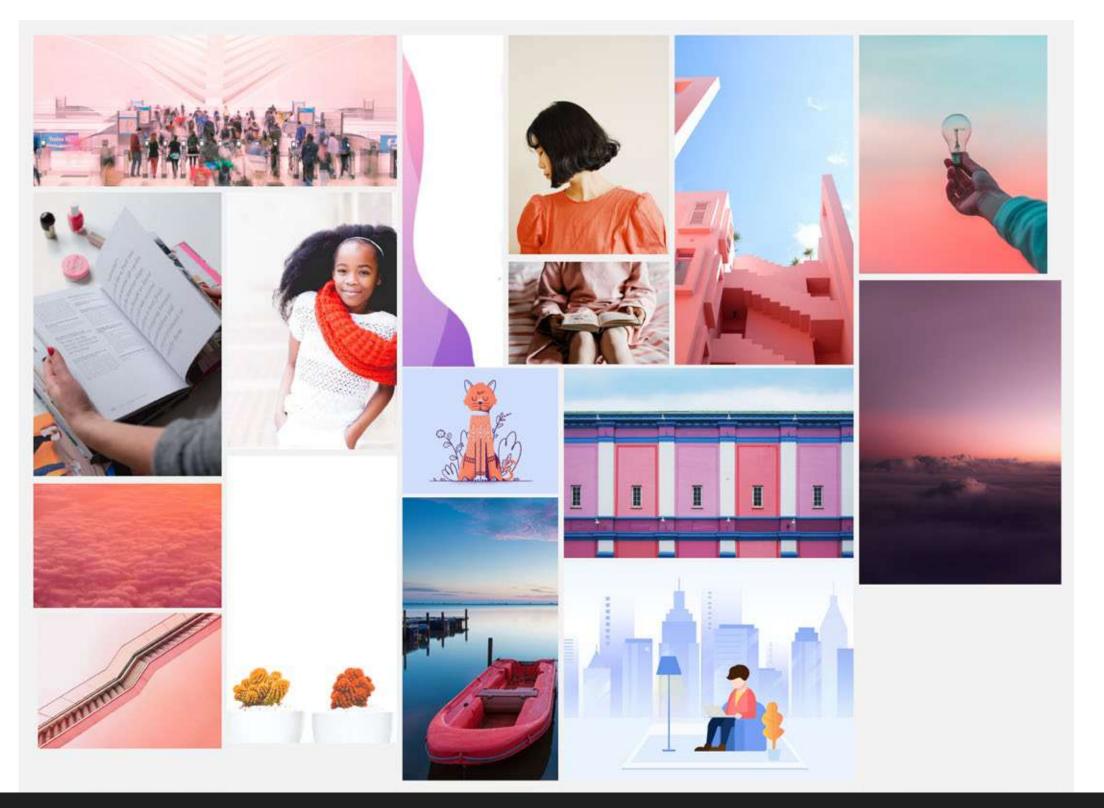
# Visuals

• Form Moodboard - To decide upon the visualization of victoria on the GUI, we explored different forms and to get inspired, made a moodboard of what we imagined Victoria to emulate



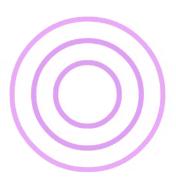
• **Visual Moodboard** - To decide upon the color pallete of the GUI and any other graphic elements, we created a moodboard based on Victoria's personality traits.

Because State Library of Victoria didn't have a color pallete of its own, we chose to base them on 3 important traits of Victoria's Personality - Knowledge, Calmness and Authoritativeness



## Interaction states

These are the six fundamentals interactions which we kept in mind while designing Victoria.



Pre-Attentive

How does the user know when Victoria is listening?



**Recognise Utterance** 

Is Victoria being able to process what the user is saying?



**Recognise Errors** 

Can Victoria recognise any error while communicating?



Provide Response

Can Victoria respond appropriately?



Recover from Error

Can Victoria make sure the recovery is transparent and prompt?



**Predict Intention** 

Can Victoria fulfil the users intention?

### Interaction States of Victoria



## **Speaking**

The red circle moves and the amplitude of User's voice can be seen as a waveform with modulations.

The violet circle is idle here.



## Listening

The red circle moves and the amplitude remains constant. Signifying silence until the user starts to speak.

The violet circle is idle here.



### Processing

Whenever Victoria is processing information the violet circle moves with constant amplitude.

The red circle is idle here.



# **Listening - With Processing**

The red circle moves and the amplitude remains constant. Signifying silence until the user starts to speak.

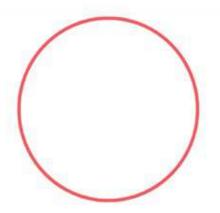
The red and violet circle - Constant Amplitude



# **Processing-With Speech**

If the User has to speak while processing information in the background - both the circles move in a combination of Speaking + Processing.

The red circle - Modulation of Amplitude
The violet circle - Constant Amplitude



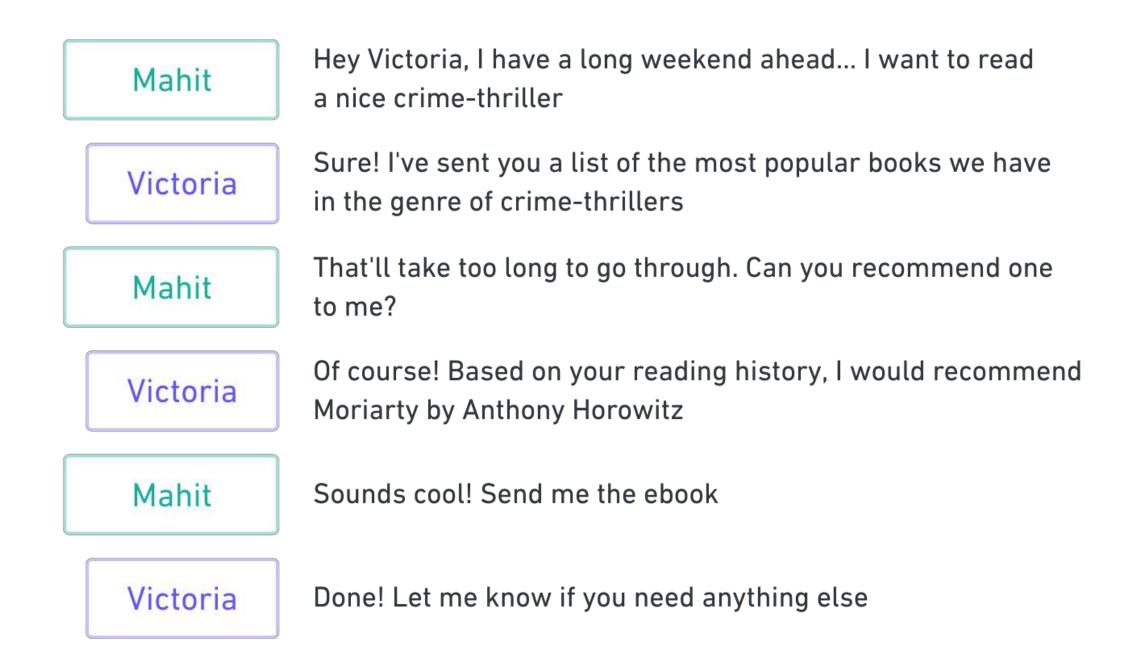
### ldle

Both the circles are idle.
This is the default state of Victoria before she enters Pre-Attentive or Attentive state

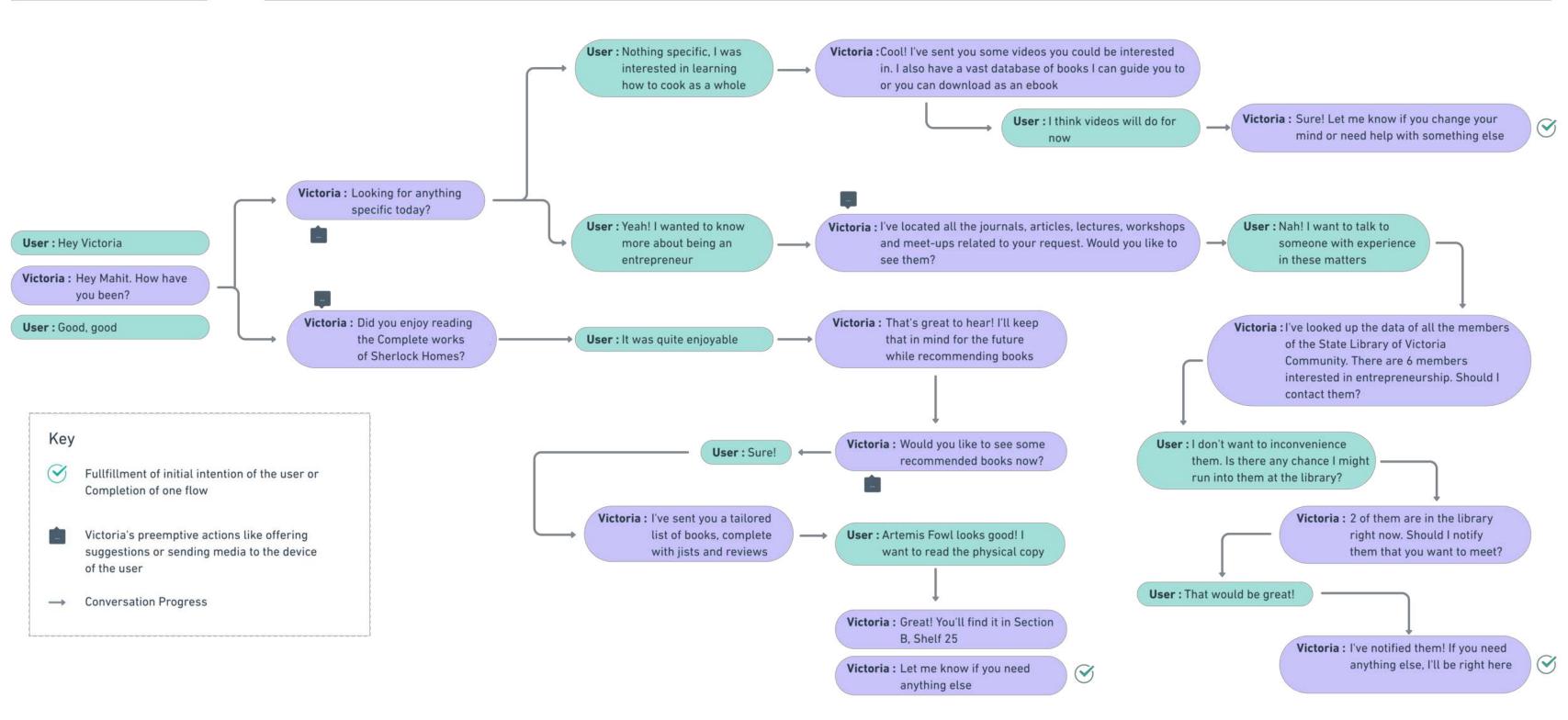
# Conversational Modelling

Our conversational models **identified the user's intentions and mapped a range of possible utterances to responses from the system**. We also came up with a happy path for each intention.

A happy path is a direct conversation that leads from utterance to fulfilment of an intention.



# Pre- Attentive Attentive



A model of a complex conversation showing the pre-attentive and attentive states of the CUI.

# Design

The mobile app along with the headset that users would use to access digital resources of the library was designed with simple and straightforward interactions between the user and Victoria.

Style 54 Features 60 Task Flows 63

# Style



# Large Title/Bold/34pt

Title 1/Regular/28pt

Title 2/Regular/22pt

Title 3/Bold/20pt

Headline/Semi-Bold/18pt

Body/Regular/18pt

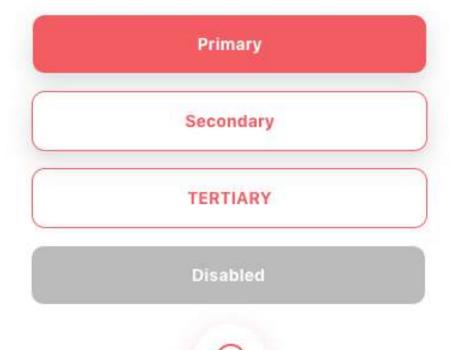
Callout/Regular/16pt

Button/Bold/14pt

# Colors



# **Buttons**



Primary Call to Action (Floating Action Button)

# **Other Graphic Elements**











# App Icon





#### Finding simplicity in complexity

Showcases the extremely sophisticated technology behind Victoria while making it appear simple and easy to use

#### Facilitating easier discoverability of archives

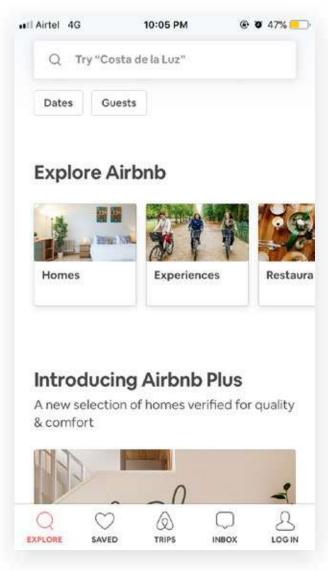
Allowing the user to explore digital collections, discover and use digital items. Through a well connected network which spans the entire State Library of Victoria

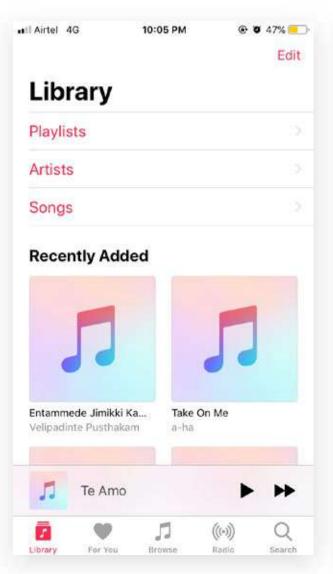
#### Keeping community at it's center

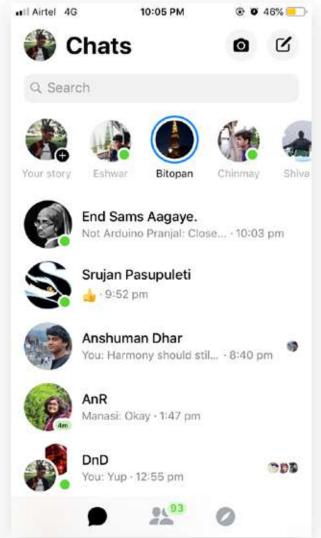
While the multiple digital connections show the strong network one can get, it's equally important not to get consumed in the same digital network and keep the experience front and center

### **Fewer colors**

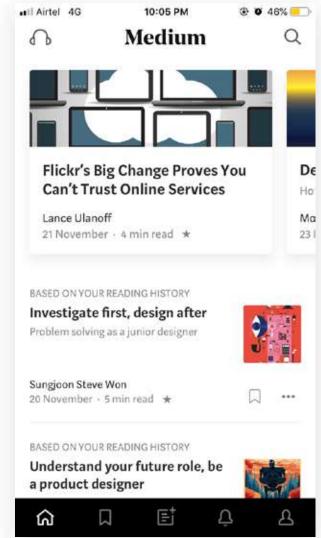
Reduce the number of color on the screen and bring attention to the content.











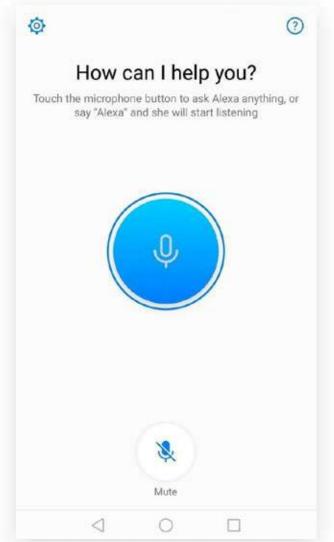
AirBnB Apple Music Facebook Messenger Instagram Medium

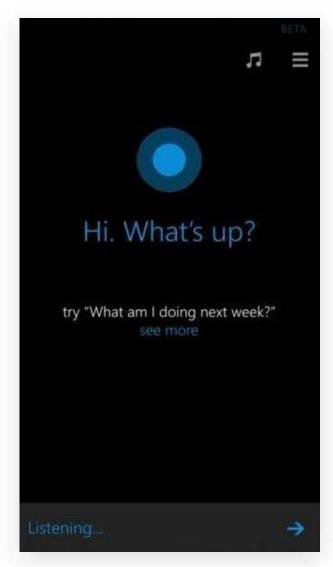
### Victoria Activation

Activate the voice assistant from the bottom of the screen.







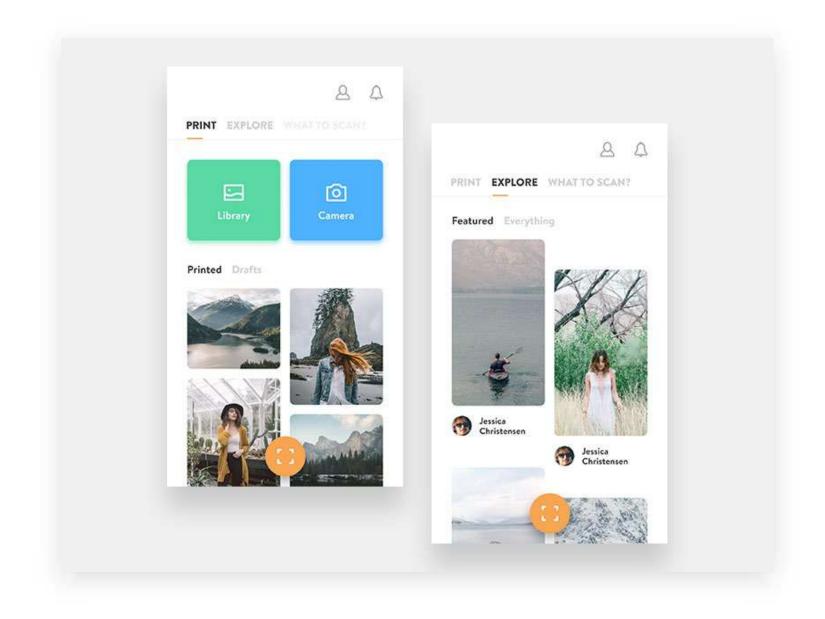


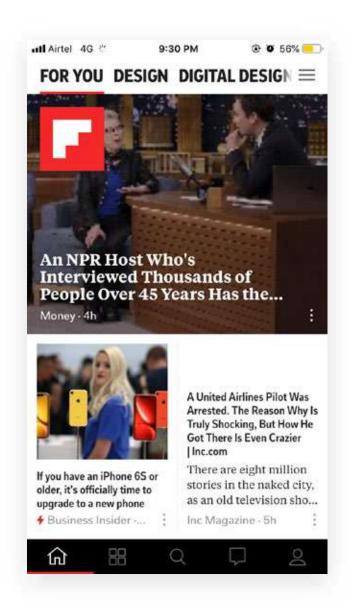


Apple's Siri Google's Assistant Amazon's Alexa Microsoft's Cortana Samsung's Bixby

### Tabs

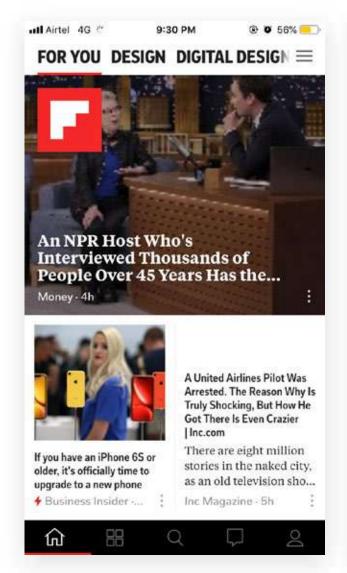
Allow the user to switch between multiple tabs in as few clicks as possible.



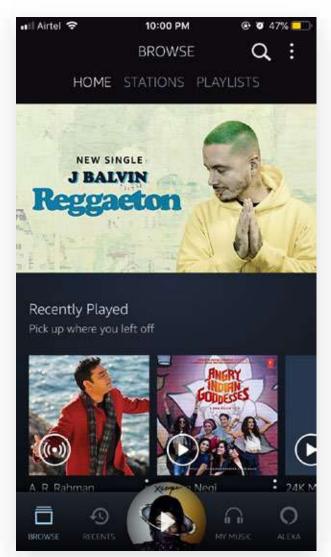


## **Immersive Images**

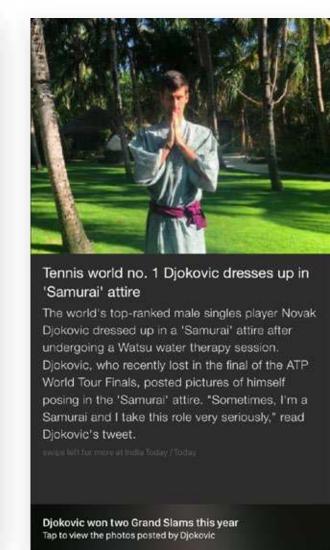
Media/Images stretched across the screen







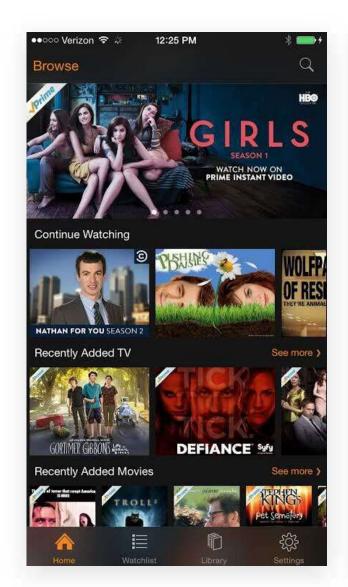


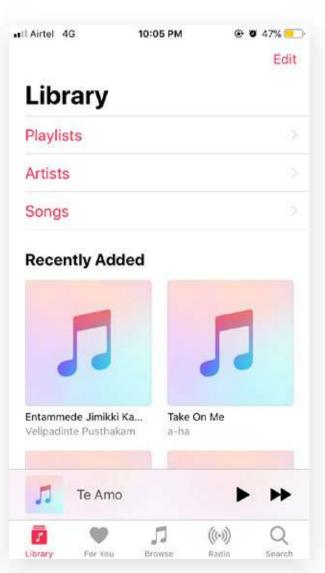


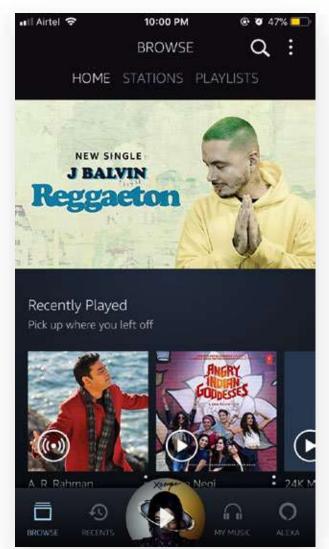
Flipboard Airbnb Amazon Music Medium InShorts - News

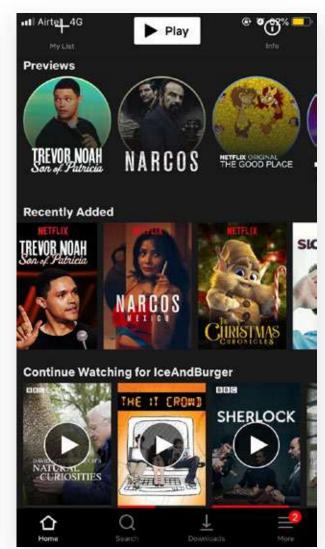
## **Extensible Content**

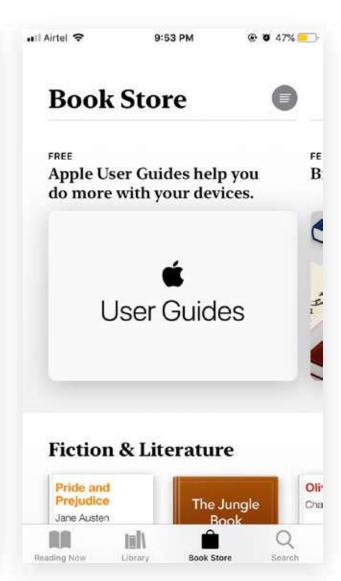
Horizontal + Vertical Scrolling







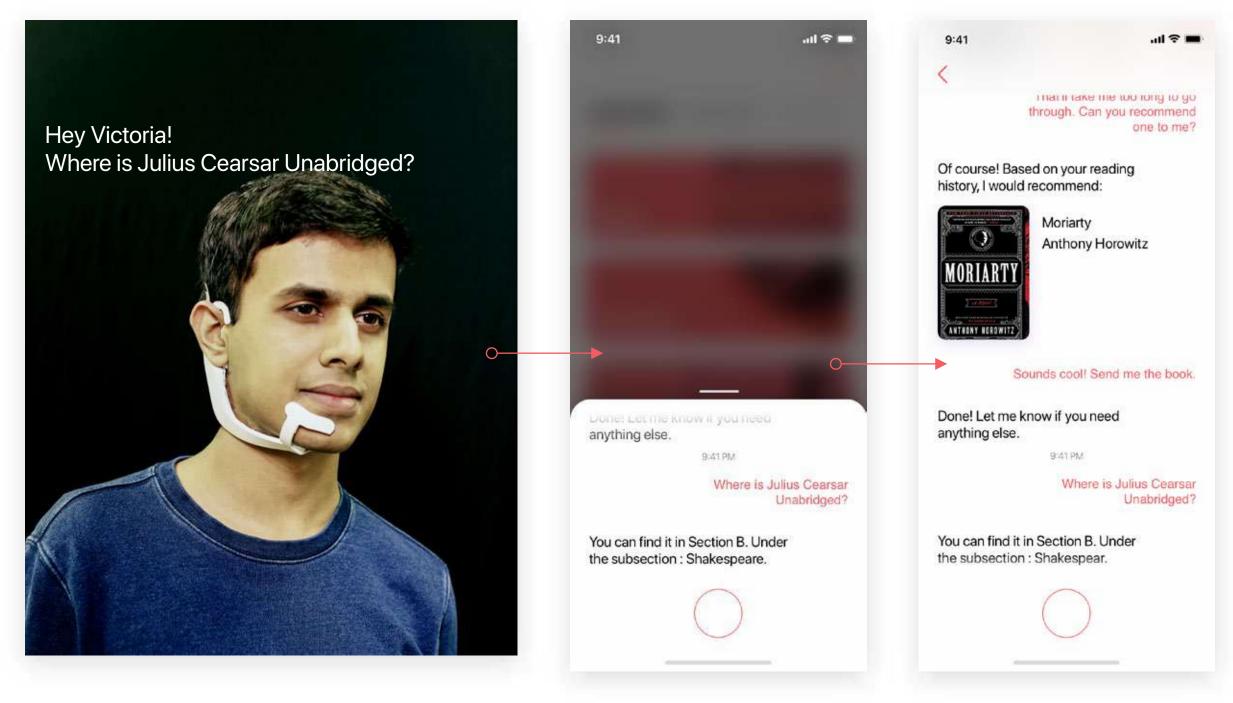




Amazon Prime Video Apple Music Amazon Music Netflix Apple iBooks

### Features

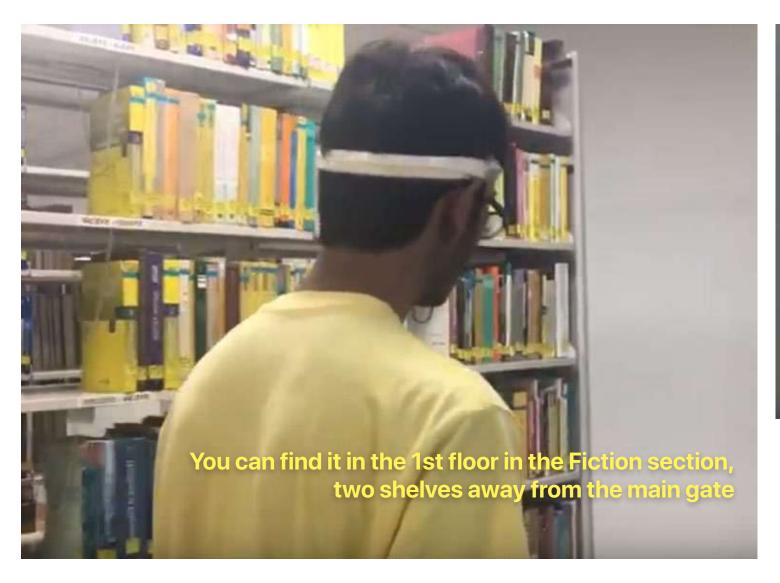
Victoria, through the AlterEgo headset, can speak and listen to the user, receiving commands and responding to their requests in real time.

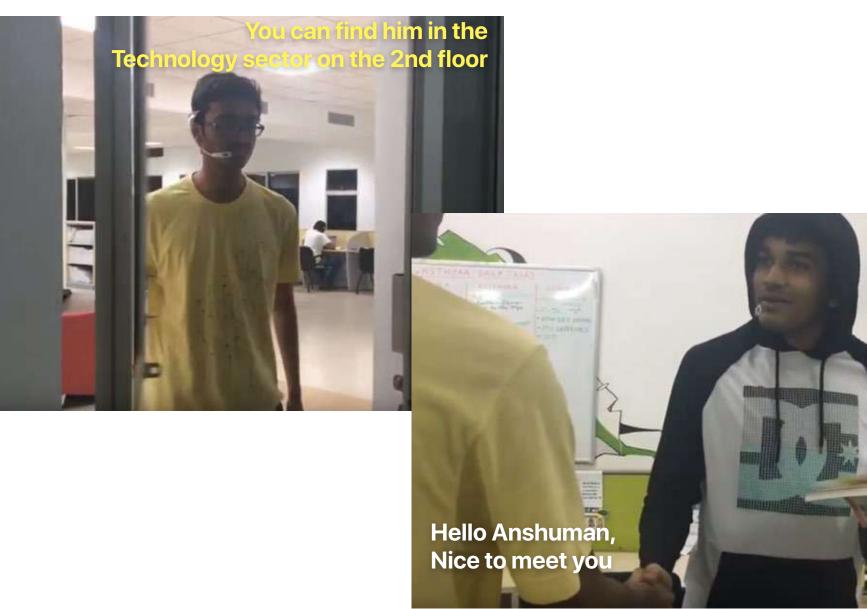


She can respond to commands and digitally transfer any digital resource the user requires directly to the mobile phone connected to Victoria.

## Features

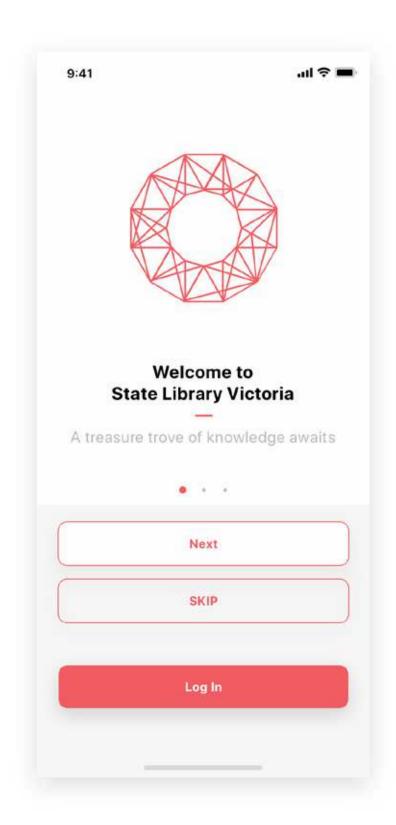
She can guide the user through the library, to find a certain book on the shelves or meet someone in the library itself.





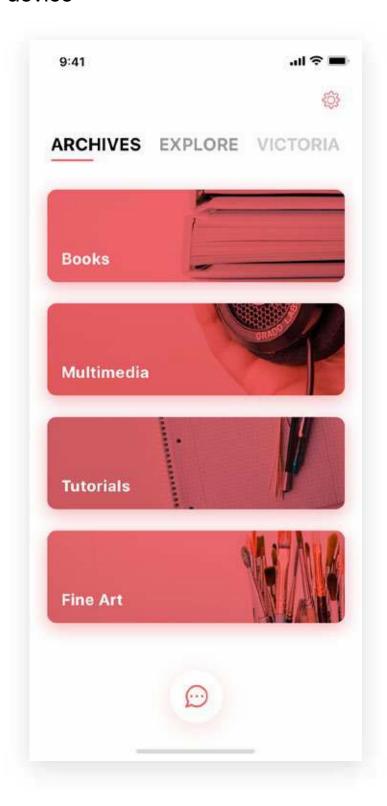
The AlterEgo headsets, given out as the user enters the library, enables Victoria to be connected to every user simultaneously. This allows her to arrange meetings between any number of users in the library.

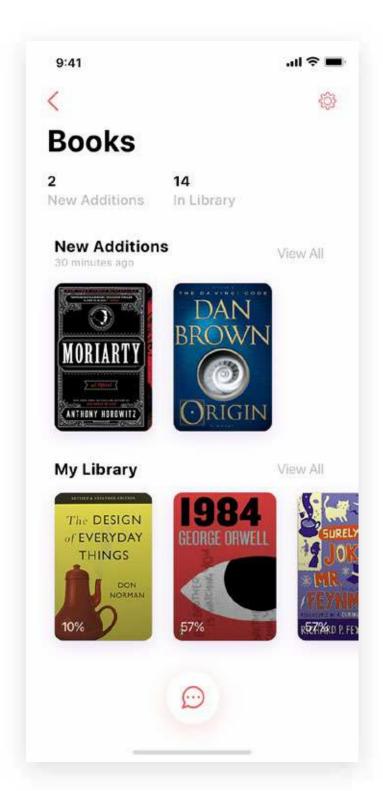
# Connecting Victoria/Onboarding

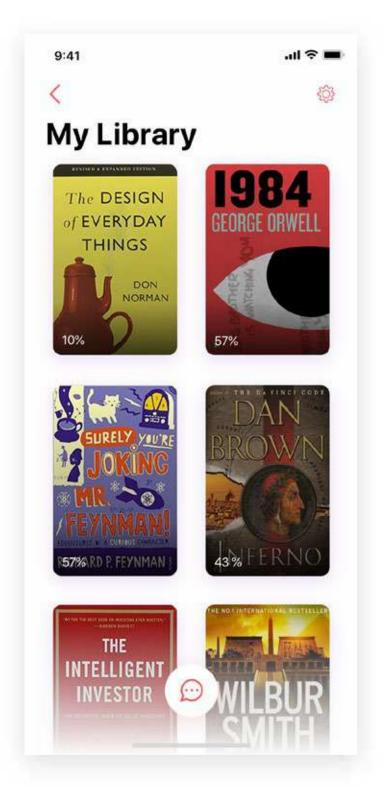




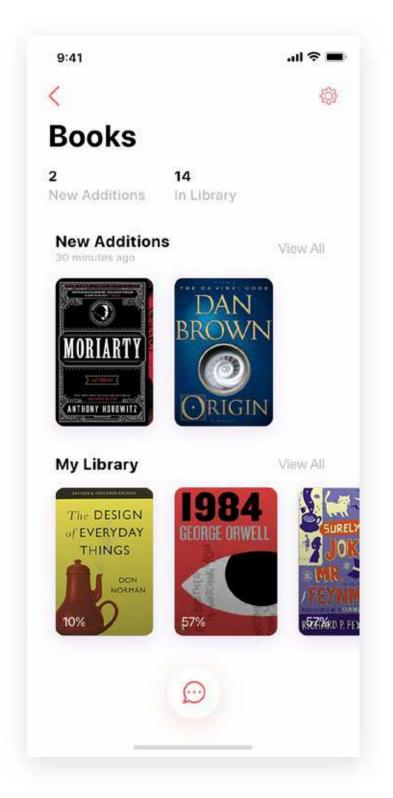
Accessing your 'My Library' containing all the books stored locally on the device

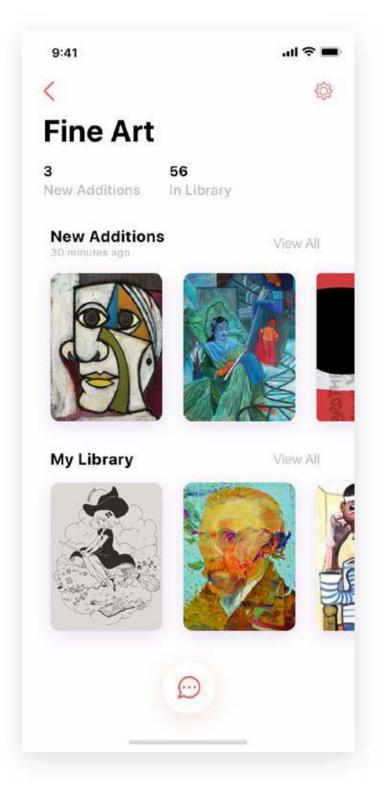


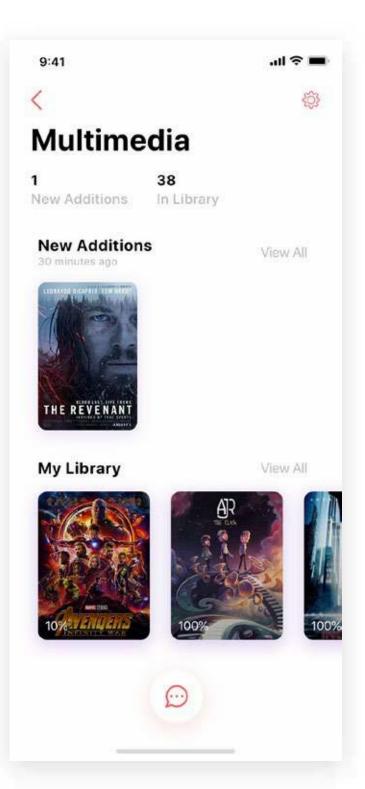


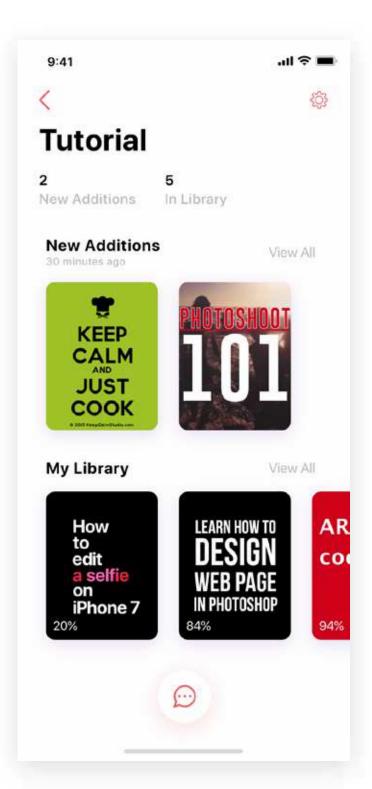


Similarly for all the other categories in the collection of State Library of Victoria







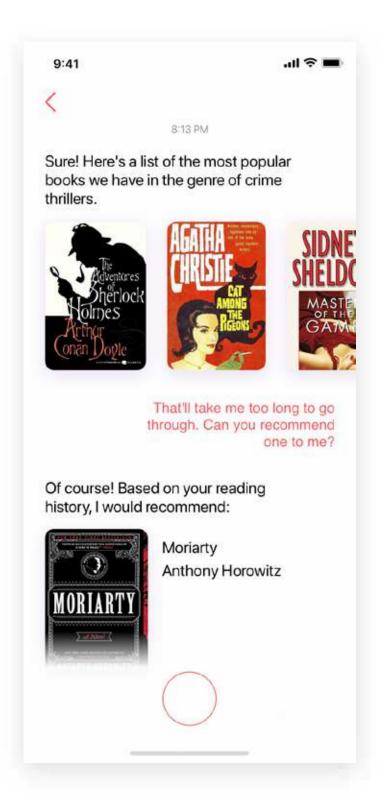


One click from anywhere in the app to access Victoria. Have a conversation, or pull up the conversation history

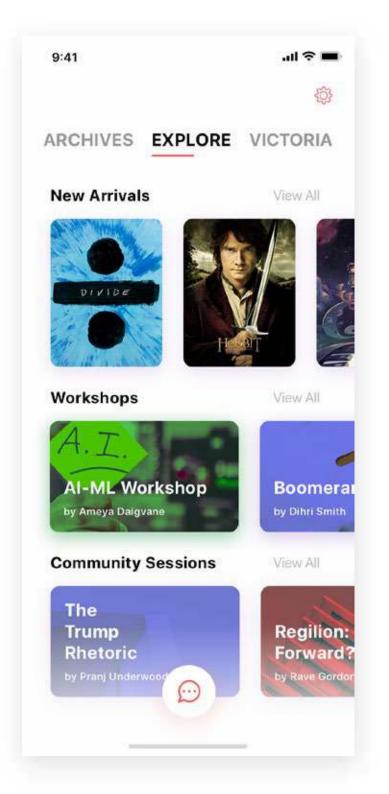




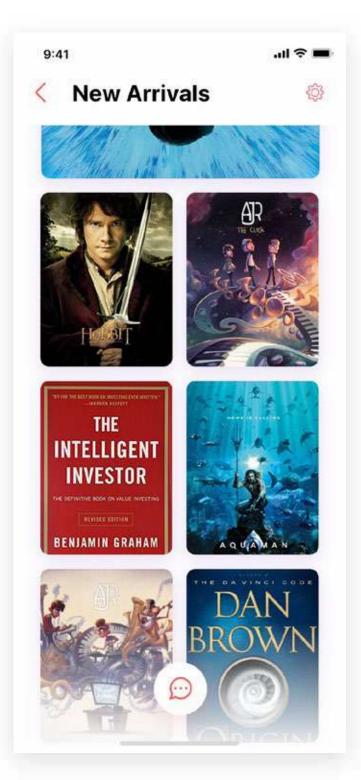


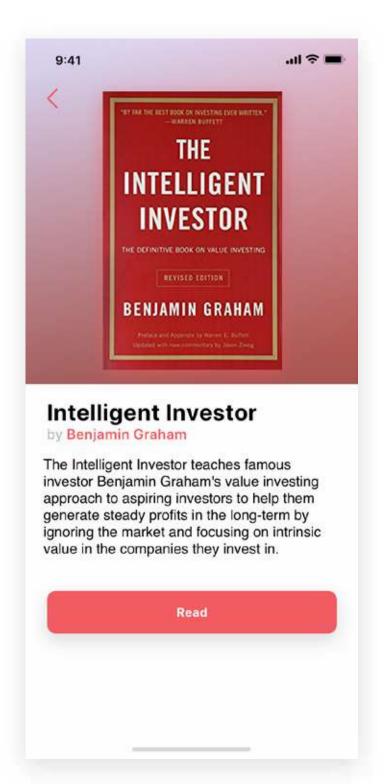


Explore the various new arrivals in the State Library of Victoria. These include all kinds of media - books, tutorials etc

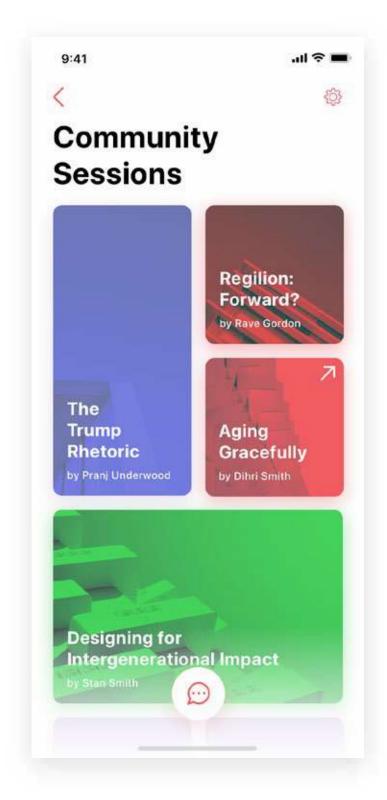






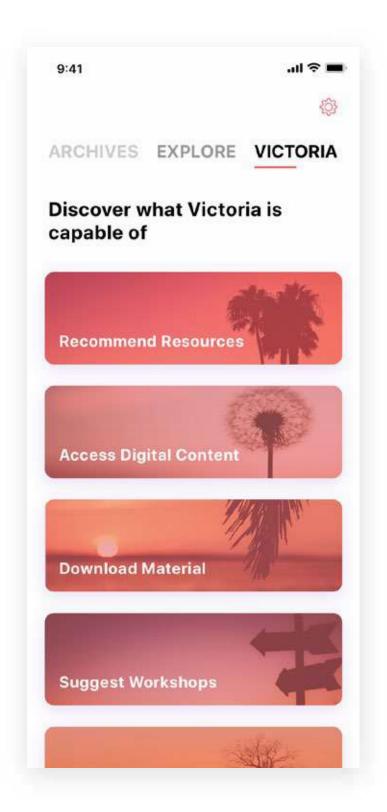


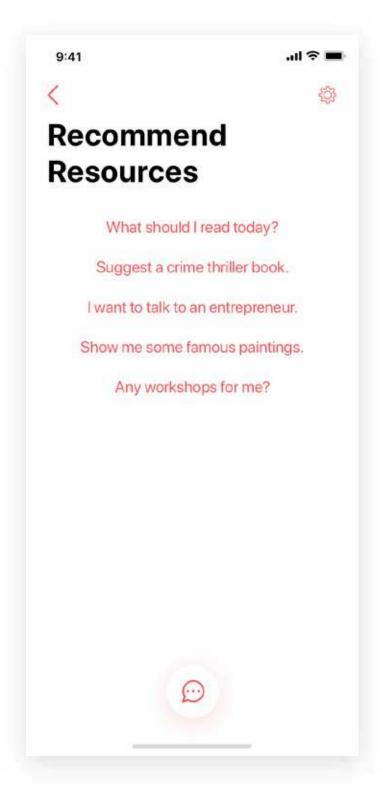
Similarly, explore workshops and community sessions taking place in the library.

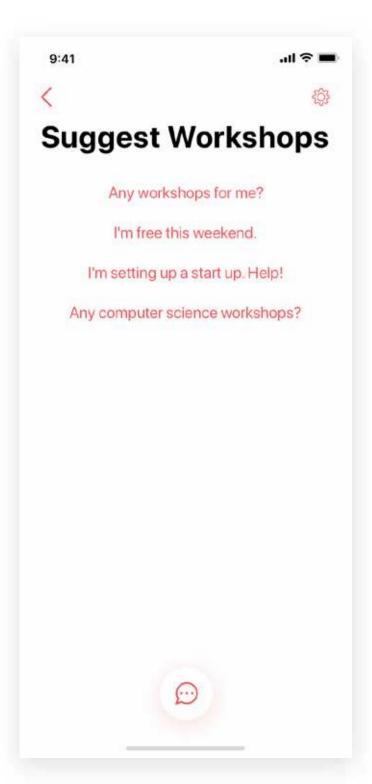


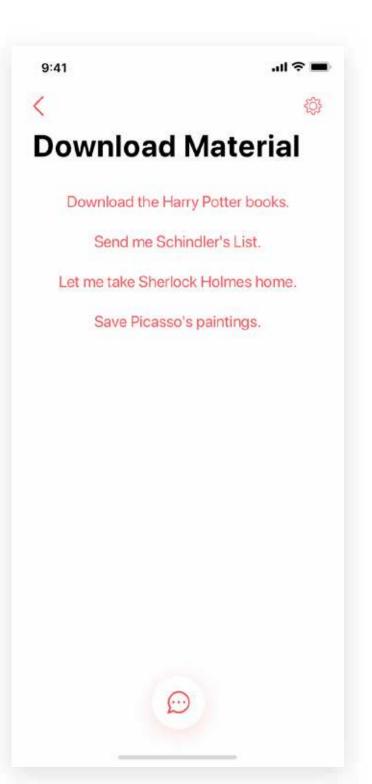


Find out the capabilities of Victoria and how she can help you.









# Conclusion

Victoria is our solution to allow users of the State Library of Victoria to easily access the vast stores of digital resources available without disturbing the essence of the library.

Summary

**Feature Glossary** 

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Scope

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# Summary

We wanted to make the resources of State Library of Victoria accessible and discoverable in a way which doesn't take away from the existing experience which people enjoy in a library.

We created a **personalized** way for each user to **discover more** about what they're interested in and tap into the **community knowledge** as well as the traditional archive of books.

All while striving to be as **inclusive** as possible and account for most specially abled users.

# Feature Glossary

- For first time users, Victoria onboards them completely over voice and an account is set up based on the Library ID, for a more personalized experience.
- Victoria can access and retrieve the digital resources of the library for the user, depending on what the keywords the user is looking for, utilising natural language processing.
- O Victoria can suggest and recommend resources, digital and physical, based on the user's preferences and past reading experiences, which will be sent to the user's mobile phone.
- O Victoria can connect the user to anyone from the library if they wish to speak to each other in person, stimulating discussion and debate.

# Scope

If we had more time, we would have conducted interviews with people who fall into our target audience to make an even more personalised experience for them.

We would also build out multiple conversations on DialogFlow, from beginning to end, and try them out with real users.

# Thank You

I loved working on a really unique problem which allowed me to explore exciting directions.

Prototype: vimeo.com/305658105