

PROJECT VIRTUAL REALITY IN THE MUNICIPAL LIBRARY OF PRAGUE



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PROJECT VIRTUAL REALITY IN THE MUNICIPAL LIBRARY OF PRAGUE

Why have virtual reality in libraries?

Virtual reality is a very user-friendly technology that creates a realistic three dimensional environment that the user interacts with using special headset and other equipment. It offers a wealth of educational, creative, relaxing, gaming and other applications and is great not only for exploring new places, but also for meeting and creating a common space for various activities.

This fits perfectly into the library service offer and helps to fulfil the educational, entertainment and social functions of the library.

As part of the project, we studied theses on virtual reality and its use in libraries and conducted a pilot survey among librarians from our partner library in Trondheim, who have several years of practical experience with VR.

The guided interviews (see appendix) clearly show that virtual reality has attracted hard-to-reach target groups to the library and improved the library's image as an institution that is not afraid of innovation. Among other things, it made visitors realise that the library is a place where it is possible to encounter new technologies and try them out in safe environment.

The library as a facilitator of access to new technologies

Libraries have a long tradition of introducing new technologies to the public – from the introduction of the first computers and the Internet, to e-books and e-readers, to 3D printers and other technologies that visitors have successfully tried out and become proficient users. Even in the case of virtual reality, the library can serve as a facilitator for first contact and subsequently stimulate users' interest and enable them to acquire deeper knowledge, thus encouraging further innovation and development.

Inclusive technology truly for all

Virtual reality goes a step further than traditional technology in that it creates a truly inclusive environment that allows the widest possible public to participate in activities, including seniors in residential care, disabled youth and other disabled, socially or otherwise disadvantaged groups whose access to library services and new technologies is otherwise severely limited.

An innovative way of learning

VR offers a unique way of learning, where the user can touch and try everything themselves, can learn through games, can organize their own virtual exhibition, build a library or try what it is like to be a librarian, and they get more out of it than from formal learning methods.

Attracting new young visitors

With its potential for fun and the opportunity to try something new, virtual reality will attract new visitors to the library, especially children and young people who have not yet shown interest in library services, and can show the library as a modern institution where anyone can enjoy quality and fun leisure time.

Long-term growing interest in digital services

The statistics on visitor numbers, demand and usage of library services clearly show a slow but steady move towards digital and online services. It is necessary not only to respond to this trend and adequately meet the demand for digital services, but also to anticipate its further development and keep up with the needs and interests of visitors. Only in this way will the library remain an attractive place.

Municipal Library of Prague

The Municipal Library of Prague (MKP) is the largest public library in Prague with 46 branches, two mobile libraries (bibliobuses) and several specialised departments such as the digitisation department, the rare prints department or the library of arts. In 2023 it had about 500 employees, 165,000 registered visitors and 2.25 million physical and 1.35 million virtual visits.

Its collection numbers over 1.7 million volumes and offers not only books, but also magazines, daily newspapers, maps, board games, CDs, paintings and other materials. MKP is also the largest e-publisher in the country and makes thousands of e-books available. Approximately 3.3 million documents are downloaded from the e-library annually.

An essential part of MKP's services are cultural and educational activities, as well as developing community life in Prague. We focus on promoting education in the field of media and information literacy, literacy and also on supporting creativity. This is done through a number of workshops and three creative centres – the Atelier sewing workshop, the DOK16 community craft workshop and the Suterén creative and technology zone.

Virtual reality project in MKP

Our first contacts with virtual reality were in the period just before the Covid 19 pandemic, when we purchased two VR sets. Back then it was a novelty, today these headsets are desperately outdated. However, we were taking the first familiarisation steps, looking for ways to better use the technology and bring it to the general public, for whom it was not otherwise readily available.

So that the new technology doesn't scare

The reason for this was not only to expand our services, but especially to raise awareness, because the public, which knows modern technologies and knows how to use them, does not perceive them as dangerous, senseless and threatening. With a bit of exaggeration – if we show people what virtual reality entails, what can be done in it, but also what its possibilities and limits are, they will not be afraid of it and will not be easily manipulated by false information.

Moreover, when they experience that virtual reality is not just a set of games, but has a wide range of meaningful uses, there is a great chance to engage the visitor and at the same time reduce their fear of other new technologies.

Virtual reality potential

The possibilities of using virtual reality were continuously expanding – more and more educational applications were created, a digital gallery of 3D objects suitable for education was created, there was a possibility to participate in retraining courses, architectural studies started to be created as part of planned building renovations and much more. And at that moment, when it was all fermenting and bubbling, the project came along.

Grant Innovative use of movable and immovable cultural heritage

The Ministry of Finance in collaboration with the Ministry of Culture, the Norwegian Directorate for Cultural Heritage and the Icelandic Centre for Research have launched an open call for grant applications in August 2021 to fund projects focused on innovative use of a revitalisation of Czech cultural heritage. (<https://www.eeagrants.cz/cs/programy/kultura/vyzvy/2021/aktualizace-inovativni-vyuziti-moviteho-3337>)

It was about finding new projects that will make cultural heritage accessible in an unconventional way and have a demonstrable impact on the development of the region and the lives of local people. At the same time, it focused on the self-development of the applicants and giving them the opportunity to try out new financial models and chance for networking and collaboration with key partners.

Applicants were also given the opportunity to benefit from expert assistance or inspiration from donor countries in the framework of partnership cooperation.

Educational activities not only in the field of cultural entrepreneurship, but also in the field of mediating cultural heritage in an attractive and innovative way were to be a very welcome part of the projects.

Protected listed library building, virtual reality and Covid 19

We were immediately intrigued by the open call, because in many ways it matched the vision we had for the library, and the pieces of the puzzle quickly began to come together in a way that made perfect sense.

The first piece of the puzzle was the listed building of the central building of the Municipal Library. It is a neo-classical building built between 1924 and 1928 according to the project of architect František Roith, located in the very centre of historical Prague.

The second piece was a so far only partially successful experiment with virtual reality at some library branches. We definitely wanted to continue the development of this potentially promising technology in the library, so that everyone interested would have the opportunity to try it out, feel it and make their own opinion about its potential use in practical life.

The third piece of the puzzle was the ongoing Covid 19 pandemic, which had a significant impact on the services the library wanted and could provide. The pandemic and its impact on the behaviour and preferences of our patrons fuelled our desire to try and create a digital library ‘product’, something that could work even if libraries again had to be physically closed to the public.

This new project would serve not only as a service to the public, but also as a form of marketing for new services and a reminder that the library and public librarians can be counted on in earnest.

Instead of mere preservation, making it accessible to the general public

Since we suspected that most institutions would apply for support for some kind of reconstruction (and it would not really be enough for us), we tried to approach the topic – preservation of cultural heritage – in a “library” way.

The library profession is all about preserving and making data accessible, which is why we didn't want to just preserve a building that has historical value but in the end it doesn't meet modern library requirements as well as it did a century ago.

On the contrary, we wanted to open it up even more, to make it a place for meeting, learning and fun. Moreover, we wanted it to serve everyone, regardless of distance, social situation or health condition – so we chose to make it accessible through virtual reality.

Library in virtual reality

We decided to try to create an app and convert part of the interior of the building into a realistic 3D environment so that we could show it in virtual reality. We will then add historical context and other comments in the accompanying materials so that visitors interested in the history and current state of the building will learn many interesting things.

We aimed to create several minigames, thanks to which everyone can try the basics of orientation in virtual space and learn how to navigate in virtual reality. We'll add something like a creative VR HUB where you can freely try out other interesting things. And we'll make all of this available to the public and other libraries under a free license.

Virtual model as a stepping stone

However, we certainly did not want to stop with a virtual model, on the contrary. We knew that we wanted to build other services and a varied follow-up program around it, that we wanted to be able to show different models with different functionalities.

Visiting a library virtually is an interesting thing, but...

It is much more interesting to be able to organize virtual exhibitions for emerging artists. It's much more interesting to build a new library together and educate. To organize excursions for those who are too far from Prague. To play a game of dodgeball. To prepare a game with riddles. Try out what it's like to be a librarian, and much more.

An inclusive environment for all

As part of a series of activities in and with VR, we wanted to address not only the traditional target groups, but with the help of new and existing infrastructure to reach out to interested people and informal partners where the library itself cannot reach with its usual services – for example, disadvantaged children or people with disabilities.

The possibilities of using VR, especially in the field of education, are numerous. The project and the library model are just the first step towards fully exploiting this technology in collaboration with users and partners.

Our partners

It was clear from the beginning that we could not do everything on our own, so we started looking for partners who would participate with us in the implementation of the project activities and be involved in the whole process from the very beginning of the application process.

Our main partners are Prague City Museum (MMP) and the library in Trondheim, Norway – Trondheim Folkebibliotek (TF). Both partners have been present in the project from the very beginning and the partnership is covered by a mutual cooperation agreement.

Prague City Museum

Prague City Museum is a cultural institution preserving a rich collection dedicated to Prague's history. It operates as a contributory organisation of the City of Prague and currently manages eight buildings, which house both permanent exhibitions and temporary exhibitions.

In addition to exhibition spaces and cultural monuments, the museum manages an extensive complex of specialist workplaces and conducts basic and applied research, the results of which it also popularises and disseminates.

Changes in historical stages, architectural highlights and atmospheric elements

Our partnership in the project is based on mutual cooperation. Prague City Museum provided the necessary specialist texts, research and documents mapping the various historical stages. In particular, it helped us with the selection of historical and atmospheric elements that were used in the virtual model of the MKP.

Throughout the project, we consulted with the museum's expert staff, who also participated in the selection of architectural highlights of the MKP building, the Prague City Gallery, the Říše loutek theatre and the Mayor's Residence. These parts of the building are used in the 360° tour that is part of the project.

Trondheim Folkebibliotek

Trondheim Folkebibliotek is one of Norway's largest libraries and the largest cultural institution in Trondheim in terms of visitors (3,500 per day). It has approximately 60 employees at nine branches in different parts of the city and serves as a community centre open to all, regardless of age, gender, race or social class. It offers a wide range of books, magazines and newspapers, as well as a film library, music and games collections and organises a large number of activities for its visitors.

In Norway, the government contributes heavily to the development of new technologies in libraries through grants from the National Library of Norway, which has enabled many libraries to work with virtual reality and continue to expand their services in this direction. TF has practical experience with 3D scanning and converting historic library buildings into virtual reality, and is therefore an ideal partner for methodological guidance and consultation.

Virtual reality at the Trondheim Library

They started preparing the 3D models as early as 2021. Their initial impulse was similar to ours – to showcase and make information accessible in an easy and efficient way. They concentrated their efforts mainly on the historically interesting parts of the building, whose appearance will be preserved in the future thanks to digitisation.

Subsequently, they began to gradually integrate the virtual space into their library services and daily activities. The virtual model began to be used, among other things, to navigate around the library and visitors can find out where a particular room is located, where different types of collections are stored, etc.

3D photography, games and VR movie

As a next step, the library planned to photograph the buildings in 3D, plan a series of workshops around this theme, and gamify the space into a virtual escape game or computer game. The main goal of these activities was to make the library more attractive to young people and to increase public awareness of the services offered. This part of the project was also a great success.

For the creation of the interactive VR movie (game) our partners used 3D scans of the buildings from the previous steps. They collaborated with a real film studio (<https://spaett.no>) and started working on a film featuring the real-life librarian of the Trondheim Library, Johanna Matheson. During the German occupation during World War II, she worked with the resistance as a deliverer of secret messages between resistance groups, for which she was eventually caught and executed.

The movie (game) will be a fictional story of a little girl who meets Johanna and needs her help. Following the film, a series of workshops and seminars have also been planned for high school students who will be transported to a library building during World War II using VR sets. There, they will explore many important topics, examine the library space, and face moral questions and difficult decisions.

Mutually functioning and meaningful cooperation

It was interesting to follow the development of the Norwegian library project, to compare the original assumptions with reality and to learn from the whole process, because our intentions largely coincide with what the Trondheim Folkebibliotek is already creating.

Both of our libraries supported each other throughout the project, meeting online to consult each other's progress.

In addition to the Prague City Museum and the Trondheim Folkebibliotek, during the implementation of the project we have established cooperation with a number of other institutions and partners, such as youth clubs, low-threshold centres and clubs, schools, senior clubs and many others, which we will mention in more detail in the appendix.

The beginnings of virtual reality in MKP

The Municipal Library of Prague had its first experience with virtual reality before the start of the project. In 2019, as part of the development of its services, the library purchased several pieces of virtual headsets Oculus Quest and HTC Vive Cosmos, which were available to library visitors at selected branches. However, their use has stagnated after initial enthusiasm, mainly due to a lack of support for the new content from the library and a lack of widespread awareness of the topic among the non- specialist public.

However, over the past few years, VR development has taken a big leap forward, bringing much more varied and interesting applications. When we compare the first VR headsets tested in 2019 with the new ones from late 2023, the difference from the user experience is unprecedented.

3 VR point in the Central Library

Currently, virtual reality devices can be found in **the Central Library and two branches**, with further expansion to new branches in the pipeline.

There are 3 VR points in the Central Library building – Music, Educational and Children’s.

With the exception of the children’s section, their contents are exclusively educational applications that are accessible to all visitors without distinction. The music department offers musical applications, the children’s department mainly games, and the educational literature department is focused on arts.

Each VR point is manned by trained librarians who ensure its optimal functionality and serve visitors.

2 VR points at branches

The Jezerka and Opatov branches were the first library branches to launch VR points (Artotheque also has an app focusing on visual arts). Bibliobus, a library bus, actively use virtual reality in programs for schools.

Our emphasis is primarily on introducing users to VR technology and its use, and in future we also foresee a more prominent role for VR in education.

Hardware

In 2019, we started running VR in the library with two types of headsets, namely **Oculus Quest and HTC Vive Cosmos**.

Oculus Quest

Oculus Quest was the first device in its category to offer a fully self-contained VR headset without the need to connect to a computer or external sensors. With advanced motion tracking technology, it allowed users to move through three-dimensional space with unprecedented freedom. With a resolution of 1440 x 1600 pixels per eye, a high quality OLED display and an integrated sound system, Quest provided an immersive experience and defined a new standard for standalone VR systems.

HTC Vive Cosmos

The HTC Vive Cosmos was HTC’s advanced VR headset that excelled in image quality and user experience. With a resolution of 2880 x 1700 pixels, it offered one of the best visual experiences on the market. With its modular design, it allowed users to easily upgrade or customize the device to suit their current needs. Enhanced inside- out tracking eliminated the need for external sensors, simplifying installation and use, and ergonomic controls gave users superior control.

Both models have their strengths and weaknesses and complement each other well. While the HTC Vive Cosmos requires a PC connection, lending it more computing power for more demanding applications, the Oculus Quest offers easy portability and is not dependent on external hardware.

Current VR equipment for activities with the public

Between 2022 and 2023, the library acquired and commissioned a number of VR equipment as part of the project, which is available not only within the library branch network, but during VR programmes, workshops and activities as well.

Each of our headsets is better suited for different activities, but they have one thing in common – they can deliver a very immersive experience.

From a practical point of view, **the best headsets for the library are the Oculus Quest 2 and the newer Oculus Quest 3**. The Visiolibrum app is optimized for these two devices. In addition to testing, we use other types of headsets for more specialized tasks and activities in selected departments.

Oculus Quest 2

With a more powerful Qualcomm Snapdragon XR2 chip and a significantly higher 1832 x 1920 pixel resolution, Oculus Quest 2 delivers a more immersive and fluid visual experience than its predecessor. It also has a higher refresh rate of 90Hz, providing smoother and more realistic movement in virtual environments.

With 6GB of RAM and up to 256GB of storage, it allows you to store more games and apps directly on the device and also offers more convenient and intuitive controls.

Oculus Quest 2 is ideal for those looking for a powerful and affordable VR system without the need for external devices.

HTC Vive Pro 2

HTC Vive Pro 2 is a premium VR headset designed for gaming enthusiasts and professional users. It offers high image quality with a resolution of 2448 x 2448 pixels per eye, an enhanced 120Hz display and delivers highly accurate motion tracking in space thanks to SteamVR Tracking 2.0 technology.

The headset is comfortable, ergonomic and compatible with the extensive Vive and SteamVR ecosystem, giving users access to a wide range of apps and games.

HTC Vive XR Elite

HTC Vive XR Elite combines VR and augmented reality (AR) features to deliver a unique experience. It has a high-quality display and a high-resolution, wide field of view for crisp, smooth images. It is lightweight and compact, making it easy to carry, and its modularity allows it to be customised to suit different user needs. This model is suitable for a wide range of applications from gaming to professional use in design and education.

HP Reverb G2

The HP Reverb G2 offers a high resolution of 2160 x 2160 pixels per eye, one of the highest on the market. With an integrated motion tracking system and enhanced audio headphones, it enables a quality immersive experience complemented by a comfortable fit. It uses Windows Mixed Reality technology and SteamVR for tracking, which means it is PC dependent for processing VR content.

The HP Reverb G2 is particularly suited to applications where a high level of visual detail is required, including professional or educational use.

TCL NXTWEAR S

The TCL NXTWEAR S is a wearable display eyewear that offers dual 1080p Micro OLED displays and a high-quality display. They do not include an independent computing system, so they are dependent on external devices to which they can be connected via a magnetic pogo-pin connection. They have adjustable volume and brightness controls, are lightweight, comfortable and ideal for watching movies.

Meta Quest Pro

Meta Quest Pro is a comfortable high-end VR headset focused on mixed reality. It features a pair of high-resolution Mini-LED displays, a Snapdragon XR2+ processor, 12GB of RAM and 256GB of storage. It features advanced motion and interaction tracking, including eye tracking and facial expressions, allowing for more realistic interactions with virtual environments. The controllers have custom tracking that does not require external sensors.

Meta Quest 3

Meta Quest 3 is a standalone headset for virtual and mixed reality. It features advanced graphics on the Snapdragon XR2 Gen 2 platform, louder audio and high image quality with 2064 x 2208 pixels per eye resolution and a wide field of view (110 degrees horizontally and 96 degrees vertically).

PlayStation VR2

PlayStation VR2 is a virtual reality headset designed for PlayStation 5. It features 2000 x 2040 pixels per eye resolution with OLED displays, advanced motion tracking, haptic feedback, adaptive triggers in the controllers and eye-tracking technology for more natural interaction and improved computing.

Accessories

In addition to the basic equipment, it is also advisable to purchase various practical accessories that increase user comfort and smoothness of organized events.

Strap with additional battery

The additional battery strap is mainly used to extend the playing time, as the standard headset battery life is only 2-3 hours, which can be limiting for some users. In addition to increasing battery life, these extensions help to balance the weight of the device, which contributes to better weight distribution and increases comfort while wearing. Most are designed to improve support and padding on the back of the head, and some models additionally offer solutions for more efficient cable management.

Portable bags for VR headsets

The portable bags for VR headsets and accessories are not only suitable for off-site events outside the library, but also for everyday storage. They provide robust protection against damage, dust and scratches, and thanks to special accessory compartments, they are easy to keep tidy and all the necessary components are conveniently accessible.

Hygienic masks

Washable and disposable hygiene masks are key accessories for keeping VR headsets clean and hygienic. Washable masks are made from soft, durable materials such as cotton or special synthetic fabrics that can be easily washed and reused, making them ideal for individual users looking for a durable solution. Disposable masks, usually made from thin non-woven fabric or paper, are suitable for situations where headsets are shared by multiple people and it is important to ensure maximum levels of hygiene.

Projection area

Projection screens, in our case TV screens, are indispensable equipment at public events with virtual reality. They display what the virtual reality user sees so that other event participants can watch and interact with what is happening in the virtual space. In free moments, the screens can play marketing materials, trailers or brand information related to the VR experience, in our case the library, to passers-by.

Visiolibrum and VR HUB app

Visiolibrum and VR HUB are our own applications that we developed together with our partners in the project. They include an interactive virtual model of the listed Central Library building in different periods of its existence, a virtual gallery, an educational hub and five minigames. Visitors can take a pseudo-historical tour of the building and use fun games, tasks and activities to learn about the library itself, have fun, explore and create.

Both Visiolibrum and VR HUB are free to download – and within the scope of their licenses, they can be used not only for personal use, but also for institutional use. This gives schools, libraries and other organisations a tool that can be safely used to introduce VR technology to the general public for the first time.

The Visiolibrum application consists of the following four basic parts:

- **Replica of a part of the Central Library building** at Mariánské nám. 1, Prague
- **Mayor's Residence**, or the room of the mayor's office
- **VR Gallery**
- **Tutorial HUB** – standalone application to download parallel with the Visiolibrum app

Replica of a part of the Central building of the Municipal Library of Prague

The main part of the application is divided into five chapters:

CHAPTER 1 – The Original Building – before the construction of the current new building

CHAPTER 2 – The New Building – 1928

CHAPTER 3 – The Protectorate 1939–1945

CHAPTER 4 – Totalitarian Czechoslovakia – the 1970s

CHAPTER 5 – The Current Building

The first chapter serves as an in-game tutorial, explaining the basic functionality of the VR environment.

Chapters 2–5 are stylized to the appropriate period and contain minigames with a library theme. The floor plans and proportions of the interiors correspond to the real library interiors and visitors can also take a look inside the office in the Mayor’s Residence.

All chapters share a common interior area including the main entrance staircase, the corridor above, the central library area and one of the library public spaces. These sections differ for each chapter only in period realism, furnishings, colour palette and lighting.

The application avoids classic text menus as much as possible and wants to make the most of the physical potential of VR. In selected cases Visiolibrium therefore works with gamification to demonstrate the possibilities and use of VR to the public in the most natural way possible.

The replica of the building and all the historical chapters, including the minigames, should take the average first-time VR visitor 30 minutes to complete.

Minigames

In the dark

In the second chapter there is a unique room, accessible from the main corridor, where visitors will find the minigame In the Dark.

They can try out what it is like to become a “blind visitor” in the library and navigate the space mainly by sound. It is possible to move around the virtual room using a standard teleporter, but it is necessary to use the finger snapping mechanics to orient oneself. The moment the user snaps, a sound wave shoots out from the user’s wrist, revealing the surrounding environment for a few seconds. The task is to find a key hidden in the room. The In the Dark minigame refers to the section of the library for visually impaired that was part of the library as soon as it was completed, and is not performance or result oriented but focuses more on immersion and unique experience.

Hiding books

In the third chapter, a unique storage room (again accessible from the main corridor) with a mini-game called Hiding Books awaits the participants.

This minigame is inspired by real events, when during the Protectorate a group of librarians hid banned books in the wall of the library building. The minigame is a logic puzzle in which the user has to fill the hole in the wall with books of different sizes without any left.

Search

In the fourth chapter, the theatre section of the library is accessible, where the Search minigame takes place. In it the player takes on the role of a librarian and trains especially memory and orientation in space. A virtual library visitor (NPC) shows them a sheet of paper with icons of the desired book topics, and the newly-turned librarian has to locate the books correctly. However, they do not get the list in their hand, and they have to remember all the icons with the topics and the number of books they need for a given topic.

Sorting

In chapter five, the minigame *Sorting* is available in the central area of the library and focuses on perception and speed. The user, in the role of a librarian, sorts returned books using an “RFID code” and a reader. Library patrons approach their desk in turn and place the books that need to be returned on it. If the player-librarian drops a book or puts it in the wrong basket, they have no way to correct it. Each round is time-limited and the time is visibly counted down.

Gallery

From the fifth chapter, you can also enter the exhibition space, where you can find the *Gallery* minigame. It is an alternative, gamified way of passing through the exhibition, where the visitor evaluates how the exhibited paintings affect them. In their right hand is a virtual spinning cylinder with a set of symbols that they assign to the paintings at their discretion. There is no right or wrong solution, it all depends on the player’s experience and perception. The symbols can be unique for each exhibition and it is up to the imagination of the artist what symbols they choose.

The Mayor’s Residence

The Mayor’s Residence is designed as a true representation of the Mayor’s art deco style office according to its real model. Location consists of two rooms where it is possible to interact with a variety of interesting objects. The user can enter the Mayor’s Residence from Chapters 2-5.

VR gallery

Exhibition area, in the physical building represented by the exhibition spaces of the Prague City Gallery (GHMP), is a separate space accessible from the last chapter of the main application. The gallery area is partially converted in a 1:1 scale in the basic and most common layout of exhibition spaces, with the possibility of viewing all ongoing virtual and older, already finished, exhibitions that have taken place in the VR gallery. The VR gallery is further complemented by a minigame focused on sharing art experiences. Exhibition features are limited to 2D objects such as paintings, photographs, prints, etc. for now. The user enters the exhibition hall by teleporting to the elevator in the main hallway. In the gallery space, as in the whole application, the user moves around using a teleporter. At the gallery’s reception desk, the user has a basic choice of which of the exhibitions they want to visit. As a standard, the current ongoing exhibition is uploaded in the exhibition area of the gallery.

Educational HUB

The Educational HUB is a free sandbox environment with a library setting where the user can freely create and try out what virtual reality can do. It has a range of 3D models and interesting functionality available to explore, which will be continually updated to keep it attractive for visitors. Another interesting feature of the HUB is the ability for multiple users to actively collaborate in a virtual environment through a local network.

Are you interested in Visiolibrium and HUB?

The Visiolibrium and HUB applications are available free of charge under the open license. You can download them on the website of the Municipal Library of Prague, in the section <https://www.mlp.cz/vr>, where you can also find more information about the project’s progress, as well as about all the activities we have organized.

Technical requirements

Our primary goal was to make the application work optimally using standard hardware, because only then will it be accessible to everyone, not just to technology enthusiasts equipped with high-end devices.

To use it, all you need is the Oculus Quest 2 headset at full resolution and 90Hz frame rate. For a PC, you need a Ryzen 5 processor, 16GB of RAM and an AMD RX 580 graphics card, or an equivalent setup with an Intel processor and nVidia graphics card. Windows 10 and above, Steam VR or Oculus VR is a prerequisite.

Availability and installation

The Visiolibrum and HUB applications can be easily downloaded from the library's website at <https://www.mlp.cz/vr>.

Once you have downloaded the RAR archive files, extract them to a folder of your choice. No installation is required.

The application is launched with the VisioLibrum and Library HUB files, which can be found in the VisioLibrum and Library HUB folders. After launching, the Windows has protected your computer window will pop up. In it, click More Information, and then click Still Run.

If you want to try the Visiolibrum app and HUB for yourself, come to the Municipal Library of Prague where we will be happy to advise you on how to get started, teach you how to use the VR headset and help you with the first steps.

People and training

We know from experience that in an institution the size of MKP, someone has to be actively involved in development all the time, otherwise new activities will gradually die out. Therefore, from the very beginning, the project planned a VR specialist who will coordinate the activities and further development.

In the future, we want to expand virtual reality to other locations and branches of the library, thus offering not only entertainment and knowledge, especially for children and young people, but also to the elderly and offer a new educational opportunity. The whole concept is planned to be ongoing, beyond the timeframe of the open call, so we needed to be sure that the VR specialist would remain in the library after the project ends.

Virtual reality events and activities in and outside the library

With VR, we planned and done a large number of diverse activities at the Municipal Library of Prague. For the most part we directed the events towards a group of users who do not normally come into contact with VR. Thus the activities functioned as a promotion and familiarization of the public with this particular technology and the possibilities of its use.

With seniors we focused on overcoming fears of new technologies, with children and young people on gathering interest, entertainment and broadening horizons, with children with physical disabilities also on the possibility of further professional guidance.

For people with mental health problems, we aimed at improving psychological well-being, relaxation, and getting away from everyday worries and anxieties. For seniors with Alzheimer's disease, for example, it was about improving mood, activation and experiencing something new.

In total, we have organised approximately 140 events (and are still continuing to do so) divided into the following thematic units:

Senior citizens' home

As the first step of the project, we consulted the use of VR for seniors with an expert in senior activation programs, psychologist DS Mgr. Bc. Jaroslava Jemelková, DiS., and an expert on VR and its use in psychotherapy and medicine, MUDr. Fajnerová, a doctor from the NUDZ.

Subsequently, we established cooperation with four senior citizens' homes (DS) that were interested in learning about virtual reality. For their clients, we were looking for applications focused on relaxation, easy discovery of something new and creating a pleasant atmosphere. Avoiding stressful situations, minimizing the risk of kinetosis and having a positive effect on the senior group as a whole were also important factors.

The most suitable apps were Ocean rift (exploring life under the sea), Safari (a virtual tour of an African safari) and First steps (an introduction to VR and its controls).

VR for self-sufficient seniors and seniors with limited mobility

One lecturer equipped with VR headset, a portable internet source and a laptop went to the senior citizen home. We wanted to cover as wide a range of users as possible so we were working with people who are self-sufficient, persons with limited mobility and also bedridden seniors.

Sedentary and self-sufficient people were introduced to VR in smaller groups. The homes' staff advertised the event in advance and then divided the interested seniors into groups of about 10 people who participated in the event at the same time. One of them wore VR headset and for the rest we transmitted the image from the headset to a larger TV screen or projection screen.

The event was a great success, these groups of seniors were able to make good use of the potential of our VR applications and enjoyed trying them out. During the First Steps app, which requires a bit more involvement, the seniors supported each other, gave advice, cheered each other on, and the event was a bonding program.

VR for bedridden seniors

DS staff also identified recumbent seniors who expressed their wish to try VR. We then visited them individually in their rooms and supervised the images and controls on a laptop.

However, there were more technical difficulties — it was not possible to ensure sufficient coordination of the clients, so VR could not produce such a positive effect as we had imagined.

After gaining experience, we concluded that recumbent users could benefit the most from VR movies and apps where there is no need to actively manage anything. Passive apps could help bedridden people to make their lives more interesting, disrupt the stereotype and allow them to “look somewhere else”. For people with Alzheimer's disease, VR is also a very suitable method of activating and evoking memories.

Events for senior clubs

We organized several events for Prague senior clubs to introduce them to virtual reality. The activities took place either directly in the seniors' clubs or we invited seniors to the library. We met at branches in the vicinity of specific clubs or at the Central Library.

Events with the National Institute of Mental Health (NUDZ)

Virtual City

The event with NUDZ was focused on memory training for seniors. A memorandum of cooperation was signed at the beginning, NUDZ lent specialized equipment for free and provided a psychologist lecturer for the courses, the library provided the premises and VR lecturer.

There were held 16 VR events, 16 memory training events and one lecture. The outcome was an interesting experience for all participants in addition to the data collected for further research purposes.

The training sessions took place twice a week at the library and each run lasted for 8 weeks.

Participants completed a variety of exercises once a week with a memory coach. The exercises focused on practicing memory strategies and other useful tactics and procedures that are useful in everyday life. They then practiced the strategies they learned the next day in training games in a virtual city environment.

The course had a very positive response and there was great interest in it, so NUDZ subsequently trained 2 lecturers from among librarians so that the courses could continue.

Programmes for schools and other groups

Introduction to the library in the form of a VR game

For schools and other groups, we are preparing and testing a multiplayer introduction to the library in the form of an experience or game. This means that children in a group and with a lecturer will join a virtual space and together they will perform tasks and solve problems.

The game format helps to make learning more visual, with better results and take full advantage of the possibilities of virtual reality. After completing the tasks, the lecturer summarizes the information again – repeat where to find what in the library, how to borrow something, etc., so that children will no longer be confused during a personal visit. In a similar vein, we already work with educational LARPs in the library.

Virtual experience as part of other events

The VR app will also be used as an accompanying program for a number of events currently offered by the library. Children will consolidate the information they have acquired through a virtual experience, viewing a variety of simulated environments, tasks and games.

Programmes for children and young people from socially unstimulating environment

We consider it very important to introduce the library to children and young people from socially problematic or unstimulating environments, such as Romani children, children from low-threshold clubs, and other children who would not otherwise be able to get to the library. Here, virtual reality serves as a suitable complement to other activities in the library and allows children to get acquainted with the library as a building with a history and the library as a modern institution that offers many possibilities, including entertainment, movie screening, games and much more.

Our goal is to present the library as an attractive environment for everyone, as a fun and interesting place to go.

This area offers a wide range of opportunities for cooperation with a diverse range of partners, non-profit, municipal and other organizations and associations to which the library provides space for joint activities.

Low-threshold clubs

We established cooperation with several low-threshold clubs, which we invited to our premises or to the library in their locality for a programme and introduction to the library. The virtual reality experience was followed by a tour of the library, during which the children learned all about the full range of our services and the activities and events the library offers.

Youth clubs (DDM)

We also offered an introduction to the library and virtual reality to children from youth clubs. The meetings took place both in the form of our visits to the individual clubs and in the form of visits to the libraries, which the children could get to know and explore more.

Jedlička Institute

In the Jedlička Institute we focused on groups of children aged 9-15 years, while those aged 6 years and above could also come and watch. The number of children in one four-hour session was around 10, with higher numbers in the specialised sessions.

During the activities, we encountered physical limits of disabilities – some children were wheelchair-bound, others were otherwise mobility impaired (e.g. with limited hand mobility), visually or hearing impaired or with combined disabilities.

However, the enthusiasm and the desire to explore overcame all limitations and we found a way for each child to manage VR with or without assistance.

Simple applications and art

At the first event at the Jedlička Institute we started by working in simple applications like Ocean rift and Safari. At the next two meetings we presented the first steps in VR app VR First steps. Then we moved on to the possibilities of art in the Open brush app, where we held two consecutive sessions for a closed group of children.

These sessions resulted in creating art pieces that we had framed then we held an exhibition at the MLP. The pieces were displayed both physically and projected on the big screen. An opening ceremony of the exhibition was attended by children, their assistants, parents and seniors from senior clubs who have attended our events or courses. The opening included a musical performance by the pupils of the Jedlička Institute's music school.

Non-profit organisations

We have established cooperation with Fokus Praha, which is the largest organization in Prague providing care for people with mental health problems. After consulting with therapists from Fokus and the National Institute of Mental Health, we selected suitable relaxation apps for their clients, which we introduced to them at MKP branches near Mental Health Centres (CDZ) or other public places.

We also took part in the Nonprofit Fair organized by the City of Prague at Žofín, where we presented the possibilities of virtual reality in MKP to about 50 non-profit organizations.

We have also organized several events for people with mental and physical illnesses at Fokus Praha and Motol Hospital.

Ukrainian group

To work with the Ukrainian minority in the Czech Republic, we first mapped the possibilities, established cooperation with Ukrainian lecturers and ensured the promotion of our programme in the Ukrainian community.

Subsequently, we created a series of virtual reality meetings taking which took place in autumn 2023, targeting mothers with older children from the Ukrainian minority.

In this course there were four Saturday afternoons with VR, which were attended by 80 participants.

In the spring of 2024, a comprehensive VR course for intermediate students called Immerse Yourself in the Future was held, which included 8 painting lessons. This course resulted in an exhibition in the virtual gallery and in physical form in the MKP.

The benefits of the course were not only meaningful leisure time and education through play, but also the formation of stronger community ties, new contacts and to create a welcoming environment for the Ukrainian minority.

Art events

We signed a memorandum of cooperation with the Prague City Gallery and subsequently four art events were held with virtual reality. We painted in the VR program One Brush and worked with the Open Brush and Kingspray Graffiti apps, which are user-friendly and easy to use even for beginners. We projected the individual creations and the process of creation on a large projection screen or a TV screen.

The events were part of the exhibitions Thinking with Image and Thinking with Film, in the premises of the Galerie u Kamenného zvonu, the Prague City Gallery and the Colorado Mansfeld Palace.

We also organized 2 exhibitions where we exhibited the works of children from the Jedlička Institute and the works created during the Immerse in the Future course of the Ukrainian group.

Events for the general public

We have incorporated virtual reality into many library events both in the Central Library building and at the branches, participating in a variety of community, children's, senior, arts, science and other events.

There was a great interest in VR in general and the events had excellent responses.

Comic-Con Prague (CCP)

The biggest public VR event was Comic-Con Prague (CCP), which is a large gathering of fans of pop culture – sci-fi, fantasy, movies, TV shows, comics, games, computer games and so on. The event took place at the O2 Universum, the most frequent visitors were young people and families from Prague and Central Bohemia, and the estimated attendance was around 27,000 visitors.

At CCP we had two large VR stations that included plenty of space to move around, TV screens, a library app Visiolibrum, and one small seating area with a chill out program where we played a short video from the app.

Within VR we presented our Visiolibrum application and the whole virtual reality project in the library.

History walk-through of the library and cosplay

We introduced visitors to the headsets, gave instructions, helped them get the grips with VR technology and patiently answered all their questions. In addition to the browsing through the library in different historical periods, we actively photographed the participants in cosplay and uploaded their photos to the virtual gallery, where we made a small exhibition out of them. This activity was very popular, we rewarded the best cosplayers with small promotional items and the mood was great. The VR booths ran throughout the event and were full until the last minutes.

Huge interest, promotion of services, new contacts and cooperation

The presentation at CCP was a great success, with about a thousand people stopping by our booth every day. Around 550 of them tried virtual reality for themselves and others peeked over our shoulder and took an active interest in our other services

The major benefit of the event is that the library, and with it the VR project, were visible. We presented new services, virtual reality and the Visiolibrum app.

We presented the library as a modern institution to the difficult target group and broke the clichés again. Visitors were sometimes surprised to find out what was going on in the library and what we were doing. VR, board games, Dok16, Artotheque and more, as well as the bibliobus itself.

Dozens of them promised to come to the library “because they didn't know until now that...” and some of them even signed up straight away on the spot.

The library has also strongly introduced itself as a reliable partner – we have gained contacts to several schools interested in our project, we have been approached by journalists who wanted to know more, we have attracted the attention of organizers of other events, we are currently negotiating new cooperation with the Humbook festival and many more.

What's next for us

In the future, the Municipal Library of Prague plans not only to continue its existing VR activities, but also to expand them significantly. This includes the renewal of VR content, the purchase of new applications (about once every six months) and the maintenance and renewal of the hardware used so that the library continues to provide top-quality service.

We also want to regularly promote everything to help gradually shift the public image of the institution from a traditional to a modern, community-based, one while preserving traditional services.

New VR points, programs and partners

In the near future we plan to introduce virtual reality to more library branches (in the first phase for 2024 we are preparing branches Petřiny and Prosek) and also to use it in the bibliobus during programs for schools.

We want to focus on the development of VR especially in the field of education and organize regular educational programs for schools, educational and relaxation projects for the elderly and much more.

We also plan to produce our own educational video content and continue to educate librarians at MKP and other libraries.

The library will continue to have a VR specialist who coordinates events and ensures that the VR concept in the library is relevant and functional. With help of tutors the VR specialist is responsible for ensuring that “the iron doesn't sit in storage and rust”. He/she is also looking for other opportunities, additional funding and continues to keep the Visiolibrum app updated.

Last but not least, we are also planning to develop further cooperation with suitable partners and to further develop the already established partnerships.

In addition, a comprehensive methodology containing various activities and programs that can be implemented with the VR Visiolibrum application should be developed within three years. This methodology will be freely available to all libraries and other interested parties.

How to get started with virtual reality in your library?

What you need to consider in advance

Before purchasing virtual headsets and organizing activities for the public, every public library should consider several key aspects:

Target group and community needs

What demographic groups does the library target and what are their specific needs and interests? Answering this question will help to identify the appropriate type of content and programs that the library should offer with virtual reality.

Technological infrastructure

Does the library have the necessary technological infrastructure, including sufficiently powerful computers, if it plans to use PC-dependent VR systems? Does it have appropriate space for the safe use of VR equipment? Is the available space large enough and appropriately structured for movement without risk of injury?

Budget

The project should be preceded by a careful analysis of the total cost of purchasing hardware, software and maintenance of the VR equipment. Possible funding sources such as grants, sponsorships, or budget allocations from the city or town should be considered. Sustainability should also be considered and a budget allocated for further development.

Human Resources

Are staff with the necessary technical skills available to manage VR technology and develop and lead programs? VR is not rocket science, but there is a need to know how to take care of the equipment and deal with sudden technical issues that may arise.

In addition, it is advisable to consider the necessary training to enable staff to effectively assist visitors with the use of VR.

Legal and health and safety issues

The library should study in advance the legal and safety aspects related to the use of VR, including the protection of personal data and the health risks associated with wearing headsets for long periods of time. Then develop rules for its use that minimize the risk of injury and ensure fair access for all users.

Educational and interactive value

What educational value or interactive experiences can virtual reality offer so that VR programmes can complement and support existing library services? How will VR be integrated into the library's broader educational program?

Feedback and evaluation

The library should develop mechanisms to collect feedback from users and regularly evaluate the effectiveness of VR programmes. This will provide sufficient data for future decisions about expanding or modifying these activities.

Necessary accessories and essentials

Virtual reality isn't just about VR headsets. Every library should also consider acquiring/providing these accessories, add-ons and essentials:

Protective cases and spare accessories

High-quality cases protect headsets from damage and make them easy to store and carry. Replacement accessories include the necessary cables, reducers, extension cords, and most importantly, spare batteries if you plan to do longer activities in virtual reality.

Hygienic covers

Interchangeable face covers or hygienic covers help keep the headset clean and ensure safe sharing of the device between users. Both washable and disposable options are available.

Storage space and maybe even a charging station

Sufficient space should be provided in the library to store all equipment. Charging stations for headsets and their controllers will ensure that the devices are always fully charged and ready for use.

Controllers and add-ons to share the experience

Additional controllers may be required for some interactive VR experiences.

The social aspect is also very important in VR activities, and screens or projection screens ensure that the active user doesn't get locked into their own world and the rest of the group will not just wait for their turn idling. That's why part of all our activities at the Municipal Library of Prague is to project current events in VR on a larger TV.

Sufficiently powerful computers

If you plan to use PC-dependent headsets, you'll need a sufficiently powerful desktop, laptop or handheld.

Budget for development and purchase of additional applications

Investing in appropriate software, games and applications, including any licenses for public use, is key to ensuring quality content for users. The attractiveness of a service is essentially based on continuous development, so an allocated budget, however small, is one of the key aspects of success.

VR headsets

Standalone vs PC VR

The use of VR headsets can be divided into two main categories: standalone VR and PC VR. Each of these categories offers a different experience and is suitable for different types of users and programs.

Standalone VR

Standalone VR headsets, such as Oculus Quest 2 or Meta Quest 3, are standalone devices that do not require external hardware to create or process VR content. They have built-in computing hardware that is typically less powerful than desktop computers, but can deliver smooth and immersive VR experiences thanks to software and hardware optimization.

The main advantage of standalone VR is its portability – users can easily bring the device anywhere and use it without cables or an external PC. This makes standalone VR ideal for casual use, presentations and educational purposes where mobility is an important element.

PC VR

PC VR headsets such as Valve's Index, HTC Vive, or PlayStation VR2 require a connection to a powerful desktop or gaming console to function.

They use the computing power of a PC or console to display more visually demanding and complex virtual worlds, allowing them to run smoothly even the most demanding VR applications. PC VR typically offers better graphical quality, more accurate motion tracking, and better sound effects. These motion tracking systems often use external sensors, which can make them less portable and more complex to set up than standalone systems.

Comparison and suitability

The choice between standalone and PC VR depends on individual user needs, intended use and budget. For those looking for the easiest way to jump into VR without a lot of preparation or investment in additional hardware, standalone headsets are ideal. Conversely, if users want the best possible image quality and deepest immersion in virtual reality with complex interactions, they should consider PC VR.

Headset combining standalone and PC VR capability

The Municipal Library of Prague chose the Oculus Quest 2 and Oculus Quest 3 VR headsets as its key VR devices because they can be used not only as standalone devices but also in PC VR mode. This combination brings a number of advantages:

Flexibility and diversity

The Quest 2 and Quest 3 can work independently, but also offer the option to connect to a computer via Oculus Link or Air Link. This allows users to enjoy a wide range of games and applications – from those designed for standalone use to those that require more computing power.

Access to a larger library of content

By connecting to a PC, users can immerse themselves in the vast library of VR content available on platforms such as SteamVR and Oculus PC VR. This includes more challenging and graphically advanced games and apps that standalone mode may not be able to handle.

Improved graphic quality

While Quest 2 and Quest 3 provide an excellent visual experience even in standalone mode, connecting them to a powerful PC allows you to take advantage of its capabilities for even better graphics and smoother viewing in demanding VR Applications.

Better tracking and response

Although standalone mode provides a good level of motion tracking, PC VR can offer even more accurate and faster response thanks to its greater computing power, which is essential for intensive VR applications that require fast responses.

Cost-benefits ratio

For users who already own a PC powerful enough for VR, using Quest 2 or Quest 3 as a PC VR headset offers a way to make the most of your current hardware without having to invest in a more expensive dedicated PC VR headset.

Versatility and portability

When not connected to a PC, users are free to carry their Quest device anywhere and use it as a standalone headset, giving them great freedom of versatility.

Benefits of PC VR and cable connection

Leaving aside the faster and simpler format of activities (especially for children and outside the library building), we use the standard option of connecting Oculus Quest 3 to a computer with a PC VR cable. This option is an optimal solution for several reasons:

Connection stability

The cable connection ensures a stable and reliable connection, which is essential for the smooth operation of VR applications, especially those that are more demanding in terms of graphics and performance. Wired connections eliminate potential latency and interruption issues that can occur with wireless solutions.

High image quality

With a cable connection, higher picture quality can be achieved because more data can be transmitted at higher speeds. This is important for VR experiences where high resolution and detailed graphics are required.

Low latency

Wired connections typically provide lower latency compared to wireless methods, which is crucial for response time in interactive VR applications where fast response improves the overall experience and reduces the risk of kinetosis.

Easy to install and use

Connecting with a cable is often easier to set up, as it doesn't require wireless configuration and eliminates worries about Wi-Fi compatibility and performance.

No need to worry about battery life

Using a VR headset connected by cable means you don't have to worry about running out of battery during longer sessions, a common problem with wireless use.

However, wireless PC connectivity solutions like Air Link for Oculus Quest also offer certain benefits, the biggest of which is the freedom to move without the constraints of a cable.

Both solutions have their strengths and weaknesses, so the choice between wired and wireless connectivity should depend mainly on the needs and preferences of each user and the environment in which the VR headset will be used.

Conclusion

The Virtual reality project at the Municipal Library of Prague has the ambition to open up the topic of virtual reality to the mainstream and make it accessible to those outside the usual tech-savvy audience, other libraries and public institutions. At the same time, it refreshes the view of the library as a cultural institution and shows that the library is a modern environment capable of captivating and which is far from being limited to traditional lending services.

We inspire, help and lead the way

The Municipal Library in Prague is already inspiring other institutions to experiment with virtual reality, and our journey is far from over. We are still eager to learn from our Norwegian partners and promote the whole topic of VR among the professional library audience.

We believe that we will blaze a trail for other institutions, that we will show a path that others can follow more easily. We will help develop new programs that don't exist at the moment because no one has had the time or will to start them, and offer an experience that no other library has or can.

Living platform, relevant methodology and rich experience for further development

At the end of the project, we have built a functional platform to reach an ever-growing group of online visitors, i.e. those who do not seek traditional library services. In addition, our library and its historic building have also gained an entertaining interactive online representation, accessible anytime and anywhere.

Furthermore, we have built an infrastructure, written a methodology and accumulated a wealth of practical experience in organizing various types of activities in a purely online environment as well as in physical outreach events.

We offer assistance and support to institutions and the general public, thus supporting not only the use but also the development of virtual reality in the Czech Republic.

For us a successfully completed VR project is not the final goal but only the beginning and a stepping stone for further growth and development.

Attachments

A) Pilot survey

Five respondents were interviewed – the VR manager at Trondheim Library and 4 VR lecturers from different branches.

Methodology: focus group interview with semi-structured interview, analysis through open coding

Summary output from interviews, VR lecturers/librarians' experiences:

positives and benefits:

- VR in the library is a good way to attract new library visitors. P
 - Attracting visitors who would otherwise not be able to get into the library at all.
 - Attracting children and adolescents in particular.
- Modernising the library.
 - The library is “not lagging behind”, “moving with the times”.
 - Expanding the range of library options.
 - Free from the label of “conservative” institution.
 - Space for the development of new technologies.

- The library as an inclusive environment.
 - Making new technologies accessible to marginalised or disadvantaged groups.
- The library as a mediator.
 - Making new technologies available to the public and employees.
 - The library can serve as a medium for first contact with new technologies, a medium for learning with new
 - technologies (which may subsequently lead to their innovation and development).
- The library as a community and entertainment space.
 - Space for new opportunities to create communities and bring people together.

Negatives and limitations:

- Conservatism and reluctance
 - Not all staff (or visitors) are willing to learn how to use the technology (fear of not being able to handle and understand it) → repeated training + positive motivation could help
- The inaccessible and anti-social aspect of VR
 - If someone is just wearing a VR headset they are relatively disconnected from their surroundings, which creates barriers to more community-based VR use.
 - If the pass through is not used one cannot see around, it is necessary to observe the marked areas and monitor the user + prevent others from entering the user's selected space.
 - Unless the image of what the VR user sees is transmitted to the screen, it is very difficult to explain the controls to the user.
- The limitations of technology
 - Problems with wifi
 - Problems with the equipment itself (Oculus casting)
- Space limitations

Neutral and indeterminate aspects:

- Users
 - Different people approach VR differently – they require different approaches
 - seniors – reserved, timid
 - děti – active, cheerful
- Intuitive controls (mostly for younger people)

Lessons learned, ideas, recommendations:

- Promotion is necessary.
- A specific space (ideally a separate room) should be marked out for VR.
- It is advisable to try to get regular visitors who would continuously learn how to use VR, become familiar with all its possibilities and become more comfortable in the virtual environment.
- Trained employees are essential for a smooth operation.
 - VR handling and events should not depend on one person, so that VR can be used throughout the opening hours
- It is necessary to provide adequate technology, hardware, wifi

B) Events of the Municipal Library in Prague with VR in numbers

As of 30.04.2024 MKP has organised a total of 133 events with and in VR:

- Events for professionals and librarians – 16 events
- Events for the general public – 26 events
- Events for seniors – 14 events
- Events for children and young people (open public events) – 9 events
- Events for the low-threshold clubs, for children and youth – 8 events
- Events for leisure clubs and DDM – 11 events
- Events in coop. with the non-profit sector (adults, soc. workers, people with disabilities) - 9 events
- Cooperation with the National Institute of Mental Health – 15 events
- Cooperation with the Prague City Gallery – 3 events
- Presentation of the Visiolibrum application at the Jedlička Institute, follow-up activities, VR exhibition – 9 events
- Events for the Ukrainian minority – 14 events
- Visiolibrum VR conference for the professional public at the Petřiny branch
- Comic-con Prague (3 days/about 10 hours/day, O2 Arena)

The Visiolibrum conference took place in the lecture hall of the newly opened branch of the MKP in Petřiny and the full-day programme with expert lectures was complemented by workshops. A recording of the conference is available on the YouTube channel of the Municipal Library of Prague.

In addition to our VR team, colleagues from a total of 14 branches and specialist departments of the MKP were involved in organising the events.

Cooperating organisations, branches and events VR 2023/24

- Non-profit organisations
 - Fokus Prague, basics of VR (Mosty club, Community team Prague 5, Benešov, soc. services, mental health weeks)
- Low-threshold clubs
 - Džagoda
 - Klub Kontajner
- DDM, leisure centres
 - Veselá věda
 - HC4
 - DDM P5
 - SVC Jednička
 - DDM Praha
- Senior centres
 - Klub Praha 14
 - DD Hortenzie
 - Senior domov P4 + Pyšely
 - Kulturně, aktivizační centrum pro seniory Prahy 9
 - Dvojka pro seniory
- Children and youth, schools
 - Jedlička Institute
- Suburban Camps
- Public + partners
 - NUDZ
 - GHMP
 - VR Ukrainian group ZVIT studio
- Events
 - Muzejní noc
 - Mediálka hrou
 - Seniorské pondělky
 - MK – přednáškový sál KVC (NUDZ), Petřiny
 - PRG AI
 - Noc divadel
 - Knihex
 - Inspiromat
 - Comic con
 - Noc s Andersenem
 - Týdny duševního zdraví

Participating MKP branches

- Central Library
 - Klubovna
 - Dílny
 - Hudební oddělení
 - Různé veřejné prostory při akcích

- Branches
 - Velký Mlýn
 - Prosek
 - Petřiny
 - Jezerka
 - Opatov
 - Vysočanská
 - Hloubětín
 - Rajská zahrada
 - Smíchov
 - Digitisation Department