ACCESSIBLE EUROPE 2021

NOMINATED SOLUTIONS FOR REGIONAL COMPETITION

International Telecommunication Union
February 2021

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INTRODUCTION

The Regional Competition for Accessible Europe is aimed to support the Europe region in strengthening the ICT-centric innovation ecosystem focusing on ICT accessibility. All participants of this competition, providing innovative digital solutions for Accessible Europe, will benefit from the Curation Programme which has been launched at the second edition of the Accessible Europe forum in December 2019.

Following the success of the 2019 edition, the International Telecommunication Union and the European Commission have joined efforts to organise the third edition of **"Accessible Europe: ICT 4 ALL"**. This Forum for Europe is being jointly organised by the Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU), European Commission (EC) and will take place virtually from 23 to 25 March 2021. The organisation of this event is supported by the Government of Portugal and is conducted as part of the Portuguese Presidency of the Council of the European Union. As an integral part of this Forum, a **Regional Competition for Innovative Digital Solutions for an Accessible Europe** took place from **15 November 2020 to 24 February 2021**.

The Competition sought solutions from individuals and teams across the private, public, non-profit and academic sectors that addressed the needs of persons with vision, hearing, speech, cognitive and physical disabilities. In particular, the Competition expected new concepts of digital applications or interfaces designed to remove barriers, helping People with Disabilities (PwDs) live a more independent life, participate in cultural events or

political processes, benefit from education or entertainment, or obtain a job. As a result of the Call for Competition, ITU received 97 submissions from 29 different countries in the Region. The projects were reviewed by an independent Evaluation Committee composed of experts from European disability associations and ICTs Accessibility experts who responded to our open Call for Evaluators.

Evaluators gathered on 24 February 2021 through a virtual meeting where they spent time working to identify **3 nominated candidates for each category, which are reported in this document**. This meeting was coordinated by **ITU Office for Europe** and supported by **ANACOM Portugal** as a strategic partner of this year's Regional Competition for Accessible Europe. Additional input was provided by the **Telecommunication Development Bureau, Telecommunication Standardization Bureau, and Radiocommunication Bureau of ITU**.

The 5 categories include the following:

- Persons who are deaf or hard of hearing;
- Persons with visual impairments;
- Persons with speech impairments;
- Persons with cognitive and intellectual disabilities;
- Persons with physical disabilities.

Nominated candidates are invited to participate in Accessible Europe, from 23 to 25 March 2021 where pitching opportunities will be granted at the conference

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(https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2020/AE21/default.aspx). On the evening of 23 March, an Awards Ceremony will take place where winners and runner ups for each category will be announced and awards will be handed before an audience comprising a wide range of experts and interested stakeholders.

ITU thanks **ANACOM** Portugal for the support they have given to this Regional Competition as they are providing accessibility features during the process and supporting the Awards Ceremony to be held on 23 March 2021.

Regional Competition: Road to Accessible Europe 2021

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CATEGORY 1: PERSONS WHO ARE DEAF OR HARD OF HEARING

1. SIGNLAB

Information

SIGNLAB

Country: Norway

Solution: SignLab

Website: https://www.signlab.co

Product readily available for use

Images

Parents unable to learn sign language

75% — High Income

90% — Emerging Markets

60Million+ directly family members

Pick a lesson

Learn Through Play

Correct! Well Done!
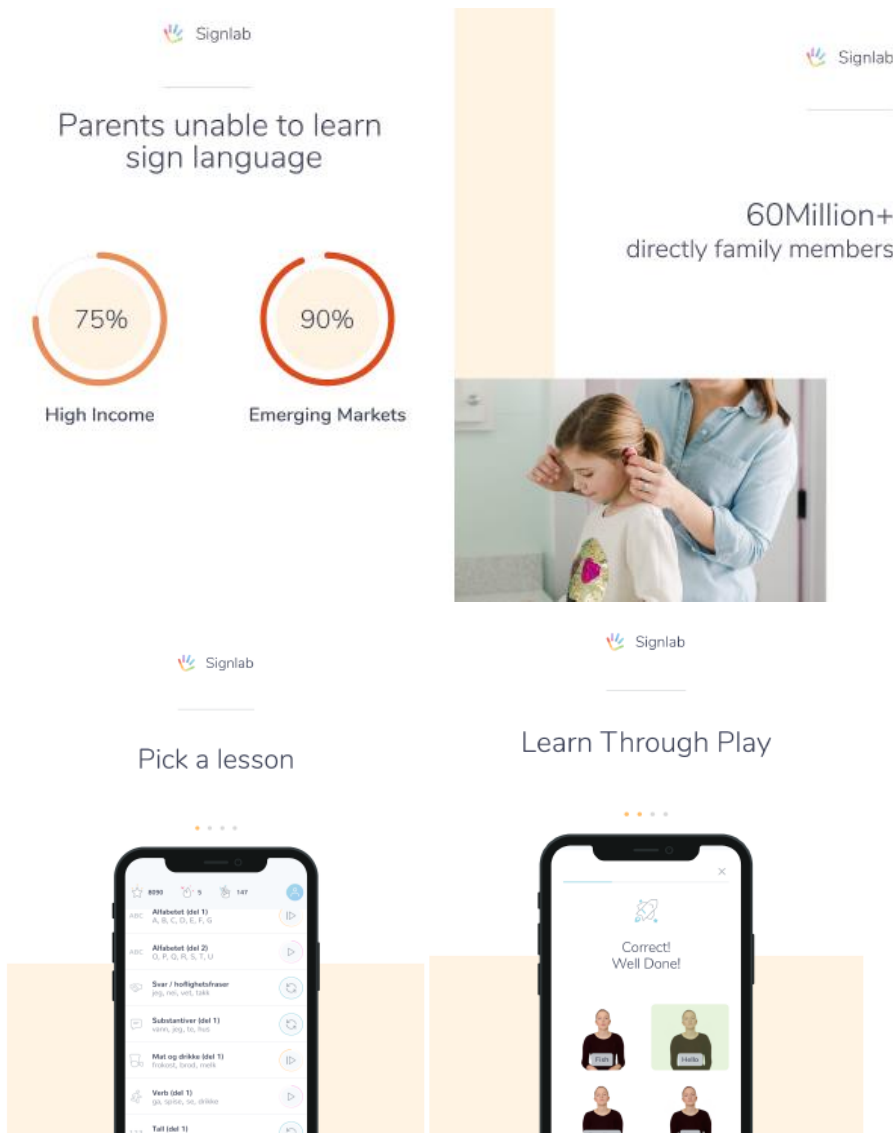
Components Description

SignLab is developing an international learning platform for sign languages. The learning platform is fully digital and can incorporate new sign languages within weeks. SignLab's sign language lessons can be accessed anywhere, online or offline, by anyone with a mobile phone or computer. For each different language, we partner with local sign language organizations and teachers to develop a curriculum that meets the country's specific needs. The platform's integrated videos are made for conveying the gestural, three-dimensional nature of each sign, while gamification and timed encouragement make learning signs fun and easy. Once signs have been learnt, the AI in our review functionality keeps track of which signs are about to be forgotten, and designs a learning session tailored to the individual user's weak spots. This ensures that signs are not only learnt, but retained over time.

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Use Cases Description

The product is designed to support greater equality and Inclusion of the Deaf and hard of hearing. This is done by making sign language more accessible and affordable, while improving learning outcomes. The product is especially aimed towards helping parents to young deaf children use sign language early with their child such that it does not experience language deprivation or falling behind his/her peers when starting school. Since our launch in Norway in 2019 we have become the leading resource for learning Norwegian Sign Language. Our platform is now used by deaf adults and children, their friends and family, sign language teachers, student interpreters, and language enthusiasts alike. We are now well on our way to launch our second product that will connect our sign language dictionary to the browser. This will enable the use of sign language for any webpage in the country's language.

Additional Information

Promotional material:
https://www.wise-qatar.org/project/signlab/; https://www.abudhabi2019.org/recent-news/winners-of-special-olympics-innovation-challenge-dedicated-to-people-of-determination-announced

Link to the testable solution:
https://apps.apple.com/us/app/toleio-norsk-tegnspr%C3%A5k/id1464656259?ign-mpt=uo%3D2 ; https://toleio.no/ ; https://china.toleio.no/

Future plan for business development:
Since most countries have their own sign language our platform has been built from the ground to quickly incorporate new languages.

In 2021 our platform will expand to China, India and Indonesia, thus providing over 60% of the world's deaf population, along with their families, schools and communities with access to a sign language by 2022.

Based on the growth in user numbers we saw in Norway during the 18 months following the app's launch, more than 400 000 families with deaf children will be able to learn a sign language and so communicate properly with their children.

With the help of NORAD, the Norwegian Agency for Development Cooperation, this project should reach over 4.1 million people, enabling them to learn a sign language for the first time.

We will also expand to France, Germany, Italy, Spain and the UK.

2. VISUALFY

Information

Country: Spain

Solution: Visualfy Places: Hearing Accessibility through Artificial Intelligence

Website: https://www.visualfy.com/visualfy-places/

Social Media: https://www.facebook.com/visualfy

Product readily available for use

Images

Components Description

Visualfy Places is an artificial intelligence system that mimics the human sense of hearing, recognizing relevant sounds such as a fire alarm, a doorbell or a baby crying, among others, and translating them into visual and sensory alerts in any chosen connected device, like smart bulbs, a smartphone or smartband, allowing deaf people to react to them, and offering an inclusive user experience in public buildings.

System operation scheme Visualfy's accessibility solutions are based on Artificial Intelligence and IoT, allowing continuous improvement, flexibility and scalability. They are easily integrable with other IoT technologies, facilitating customization to a wide variety of sectors and use cases. We combine different accessibility elements, depending on the space being adapted.

ELEMENTS OF THE SYSTEM
1. Artificial intelligence system Sound recognition and alert generation Artificial Intelligence System.
    a. RJ45 for net connection
    b. 1m cable with male schuko socket for 220v electrical connection
    c. Internal UPS with autonomy for 30 minutes
    d. 2 year warranty

2. Emergency lamps
    a. A series of lamps located through the space to show the alerts in different colors, without the need of any device.
    b. They have a battery to guarantee operation in the event of a power or internet loss. Color code and meaning is conveniently communicated through the space.
    c. They function as signage system, as they are easily identifiable by the user and always use the same color code.

d. Next to them we will find an information card with the color code corresponding to each alarm.
e. The lamp works connected to the mains but has a battery that is activated in the event of a power loss.
f. It has Zigbee technology that allows the interconnection of one element with.

3. Connected devices Users can also receive notifications in any personal device, such as smartphones, smartwatches or smart bands. In the event of fire, for example, the signal lamps would turn red and would be visible anywhere in the building, even without internet or electricity, guaranteeing user's safety at all times. And users will receive a direct alert in their mobiles or wearables, as long as internet is active.

Use Cases Description

USERS AND NEEDS

There are 466 million people with hearing loss in the world, according to the World Health Organization (WHO), and it is estimated that the number will rise to 900 million due to the aging population and the misuse of electronic devices. It is an invisible and stigmatized disability, which causes isolation and has serious consequences on parameters as relevant as health and life expectancy, education, access to job opportunities and social and political participation.

Visualfy's mission is to facilitate the inclusion of deaf and hard of hearing people, allowing them to build their life as they wish, and to offer innovative, scalable and accessible solutions to public institutions and private companies to comply with current legislation on accessibility and to guarantee equality. Our technological and communication solutions allow deaf people to make use of public buildings and their services under equal conditions to a hearing person.

Deaf people are diverse collective, made up of sign language users, with or without technical aids, cochlear implant and hearing aids wearers who do not use sign language and people with hearing loss that considered themselves hearing people. Our solutions have been created from a deep knowledge of this diversity and incorporate different technologies such as artificial intelligence, geo-positioning, magnetic loops and communication in sign language and text, to offer a 360º approach to accessibility that do not leave anyone out.

USE CASES AND HOW NEEDS ARE ADDRESSED

Although our solutions are applicable in all sectors, we have focused so far on those with greatest impact on quality of life and personal development of deaf people:

Health, Culture and Education, Work environment and Transport. After the commercialization of Visualfy Home, which allows users to adapt home sounds with a single system, we are currently working with public institutions such as libraries, healthcare and citizen information centers and private companies in health and services, to incorporate hearing accessibility into smart buildings in Spain. Example of use cases:

- Healthcare: Ribera Salud Hospitals (https://www.consalud.es/ecsalud/nacional/ribera-salud-implanta-inteligencia-artificial-hospital-universitario-vinalopo_86232_102.html)
- Education: Public libraries at Comunidad de Madrid (https://www.comunidad.madrid/noticias/2020/07/03/avanzamos-mejoraraccesibilidad-personas-discapacidad-auditiva)
- Tourism: Valencia tourist information offices (https://www.lavanguardia.com/local/valencia/20200923/483636178629/valencia-las-oficinas-de-turismo-incorporan-solucionestecnologicas-para-la-accesibilidad-de-personas-sordas.html)

Visualfy, through its sound recognition algorithm, listens for the user relevant sounds such as a fire alarm, and shows them in smart lights strategically located throughout the building, following a color code. Users can also receive the alerts in their mobile phones or personal connected wearables, completely free of charge. In addition, messages can be sent directly to the user through the platform, to ensure that they receive the same information as a hearing person, immediately and directly.

We are a Bcorp Company, recognized as Best for the World in 2018 and 2019, and our dedicated team is formed by deaf and hearing people united by a passion: showing the world that accessibility is a force of economic and human growth.

Additional Information

Promotional material:
https://www.youtube.com/watch?v=WsGBGxx97UQ&feature=youtu.be   ;
https://www.youtube.com/watch?v=_koiq4uqqXs   ;
https://www.youtube.com/watch?v=fvG4_dwKH8g&t=12s

Future plan for business development:
        At present we are focused on the commercialization of Visualfy Places in the Spanish market. In order to scale both the commercialization and installation of projects we count with 2 very relevant partnerships: 1- Commercialization Agreement with Telefonica Spain. Visualfy technology and services are part of Telefonica's portfolio of B2B's solutions and are being presented by the multinational's sales team in large

Spanish accounts with great success. 2- Other marketing agreements. We are preparing agreements with Ilunion (the main accessibility advisor in Spain), Grupo Sifu (largest special employment company in the country), or Fundación Once, among others. 3- Installation partner: Inelcom. To be able to reach all Spain we have signed an agreement with the technological Inelcom, which is part of our shareholders, to make the installations on our behalf. Once this commercialization phase in Spain has been successfully passed, we will consider the internationalization process in the coming years. Visualfy has received more than 3 million in investments since its beginning, including a European Union Investment of 1.3 million through the H2020 program, and it is about to close its second investment round, worth more than 500.000 euros.

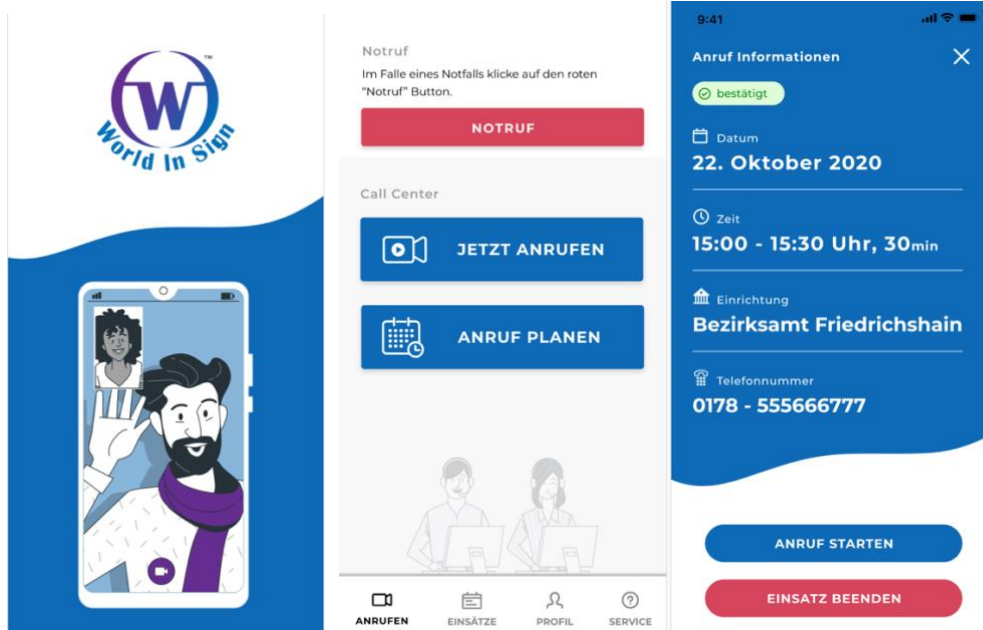# 3. WORLD IN SIGN EU GMBH

Information

(W)orld In Sign™

Country: Germany

Solution: WIS App

Website: www.worldinsign.com

Product in final development stage, with prototype for testing

Images

Components Description

The app will allow D or HoH people to schedule the virtual presence of a sign language interpreter for their appointments with a public service provider. If the meeting is taking place face-to-face, the D or H of H person will use their mobile device to connect with the interpreter, they will see the interpreter on their screen while the provider hears the voice of the interpreter from the speakers. If the meeting is taking place remotely, the 3 parties will be connected through the app with the ability to all be on the screen and see each other. To use the service, the D or H of Hearing person needs to download the app, register, and set up a personal account with all their information. In the language settings, the customer can pick their preferred interpreter and communication form they need. Once their profile is created, they can start using the app and the included service. The app allows for both "on-demand" calls and scheduling an interpreter for your appointment in advance. If they have an appointment already scheduled with a provider (f.e. doctor's appointment), they just request an interpreter by inputting the details of the appointment (date, time, information). If an interpreter is available at the requested date and time, the appointment is confirmed and booked on the app; if no interpreter is available at that time, the app will inform the user. The hearing party (for example the doctor) will receive a link to join the video call before the appointment time.

The structure of our app in terms of usability is simple and easy to understand. The customers themselves do not have to incur any costs for its use. At the heart of the

architecture sits a symphony-based software stack that provides a REST API through a nginx server to various clients.

MySQL/Maria is used as the database server. One API client is an Android and iOS app developed with Flutter. Other clients are Angular based webapps for different user groups (interpreter, admin, etc.). We use it to provide video conferences and chats between all participating clients. The third-party tool is used to generate text transcription from the video streams. All components are hosted on dedicated, redundant servers.

Use Cases Description

World In Sign-EU GmbH (WIS-EU) is a new company with its headquarters located in Germany. It was founded in collaboration with its mother entity World In Sign, LLC located in the USA. WIS and all its entities are owned and managed by deaf people or Children of Deaf Adults (even though hearing, sign language is their mother tongue) and are staffed by both hearing and deaf people. WIS-EU is dedicated to fostering access to all levels of society for ALL through innovation and technology.

WIS-EU, in partnership with the Center for Culture and Visual Communication of the Deaf Berlin / Brandenburg e.V. (ZFK) has been developing a mobile app to allow people who are deaf or hard of hearing, people with communication impairments and people who are deafblind to have access to a live sign language interpreter via video interpretation, live caption that also includes the possibility of a Braille writing. The app is multilingual. It allows deaf/hard of hearing people to communicate with hearing people (and vice versa) without barriers, anywhere and anytime, for all their needs.

The app also features a connection to the patented emergency app "HandHelp®" developed by our partner App-Sec Network UG (EP 3 010 213 B1), that allows anyone to contact emergency services and emergency contacts chosen by the affected person via the press of a button without needing to make a voice call. At the same time deaf people will be connected with an interpreter.

According to the European Center for Modern Languages, "There are an estimated one million deaf people in the member states of the Council of Europe [...]. In addition, many of their family members and friends use sign language as a second or foreign language, as do some hearing-impaired people." (Timmermans, N., 2005)1This indicates that a service enabling accessible communication for deaf and hard of hearing persons could benefit a substantial portion of the population. Within the EU, 34.4 million adults live with a hearing loss greater than 35 decibels (Hear-it.org, 20202).

The target groups are approx. 1 million people who are deaf and approx. 5 million people who are hard of hearing and sign language users. In addition, there are deaf-blind people and many migrants and immigrants who could need the interpreting service or barrier-free emergency alert system.

There are two (2) main motivating impulses behind the app's creation.

The first reason stems from Sign Language users' unmet need for access to effective and efficient communication in their own language. Communication and access to information is key to making informed choices and to weighing options, and deaf people are not equal in this matter while they have the legal right to have access to communication in their own language. In Europe, the average ratio is 93 Sign Language users to 1 interpreter (López-Ludeña, et al., 2011)3 but this is an average over all the European countries.For example, the ratio is 3,000:1 in Slovakia (Wheatley & Pabsch, 2010). Deaf &hearing people are working together to develop the app every step of the way to make sure that decisions are not made "on behalf of" but "with".

The second reason for this app is to bridge a gap in Europe where deaf people have been left on the side of society when it comes to telecommunications. For example, in the USA deaf people have had access to telephone communication since 1974, via text to speech technology first, and then video since 2003. Within Europe, Sweden was the first country in the world to start the video relay services. Right here in Europe, the technology is there, readily available, and already used in some places. The goal of our project is to make it possible for other countries to join in and provide access to interpreters for phone calls but also for appointments or meetings, or even just to ask a question to a clerk at the grocery store.

The app would allow for interpreters to work from anywhere, making the accessible pool of interpreters so much wider. Digital interpreting services in the areas of education, travel, socio-cultural participation, emergency calls, as well as disaster response are not yet available. Neither in the European Union nor in other European countries. The goal is to offer an accessible app in all languages/sign languages to everyone in all European countries. It doesn't matter where the hearing-impaired person is and where the interpreter is - they are connected digitally, barrier-free and self-determined.

According to German law, there is a right to reimbursement for the interpreter's travel and travel time as well as the cost of the work. Online interpreting effectively saves costs for travel time, travel costs as well as waiting time costs that you usually have f.e. in doctor's appointments. As a result, interpreters can turn around more jobs and support deaf people in the same amount of time. This app creates a WIN-WIN situation f.e. in our current situation of COVID-19.

Additional Information

Promotional material: https://xd.adobe.com/view/44c62004-ff1e-4f79-81ee-e1936fbc549d-1195/

Future plan for business development:

The goal of this app is to allow a person with a hearing impairment access to a communication aid anytime and anywhere – WITHOUT worrying about accessibility or cost. The application will be available through any app store and usable on both Android and iOS devices with an internet connection. The app itself will be available for free. Our app has been developed for Germany, but it is built to be easily adapted and customized to the laws, legislations, and other rules of the different European countries. For example, some countries provide benefit money for interpreters directly to deaf people, so they would pay for the service themselves (France), some countries cover interpreting costs for public services (Germany) and so forth.

The app is almost finalized and will soon be available for testing in Germany. For the first phase in Germany, we will focus on access to the public services that receive funding from the government to pay for Sign Language interpretation. The next phase will be targeted marketing to large companies as well as government lobbying, so that both the public and private sectors will provide funds for interpretation services on the base of equal accessibility and opportunity. After successful implementation of the first phase in Germany, the app will be deployed and offered throughout Europe and worldwide with the help of all the different World In Sign ventures and our many partners. As a long-term goal, the app's functions could also extend to vocal language interpreters for use by migrants or travelers.

CATEGORY 2: PERSONS WITH VISUAL IMPAIRMENTS

4. REMMEDVR

Information

Country: Poland

Solution: RemmedVR

Website: https://remmed.vision/en/

Social Media: https://www.facebook.com/RemmedEurope/

Product readily available for use

Images

Components Description

Remmed Vision Therapy System was designed for HOME use, reducing therapy time from 12mths to 90days, minimalizing commuting to clinics, providing highly engaging exercises. Remmed is available at an equal price to traditional, in-clinic, analogue vision therapy, and 2x cheaper than direct competitor. Therapists can serve 8x more patients on the same resources which increases the income and profitability of clinics. Remmed Home Vision

Therapy System is a combination of 3 elements:
1. methodology: developed with experts of paediatric ophthalmology, optometrists, and vision therapists.
2. software: a set of gamified therapeutic exercises and management panel for therapists to remotely monitor progress and adjust parameters.
3. hardware: technologically advanced VR based medical headset, external control screen, remote controllers for hand-eye coordination tasks.

Use Cases Description

Nowadays, amblyopia (lazy eye) and strabismus (crossed eyes) is one of the most common disorders of binocular vision. It is estimated that it affects up to 5% of children 4-12 in any given population. Children, who have such a defect, have a disturbed perception of depth, stumble more often, and thus get injured. They have weak visual-motor coordination and a deficit in the processing of visual information. Untreated, they may lead to reduced vision in one/both eyes or even complete loss of sight. Despite the treatment methods offered currently by medicine (surgery, eye patch, analogue vision therapy), the need of providing universal access to enjoyable, safe and effective treatment for home use has not been fulfilled.

Current treatments to improve eye alignment and coordination have numerous downsides, including very limited access (the best vision therapists have 6-9 months to even start treatment), high cost, long treatment duration, low efficiency and decreased patient's comfort.

The most common ways to cure or improve binocular vision impairments are eye patches and traditional, analogue, in-office vision therapy. Whereas the traditional vision therapy is time-consuming (requires visits at the clinics 2–3 times per week for 6-24 months), very expensive (the cost of one visit in most EU countries exceeds EUR 100) limited (access depends a lot on location), and discredited by many ophthalmologists as ineffective; the eye patches are medieval torture hated by children and have negative impact on socializing.

The system comprehensively addresses the needs of vision therapy patients, fully replacing recurring visits to medical facilities for therapy sessions. As a result, the entire therapy can take place at home, and visits to the facility can be limited to diagnostic, control meetings, and sight tests. Technically, RemmedVR introduces a number of breakthrough innovations, both in the context of vision therapy as such and introduces fully supervised remote vision therapy to the market as a telemedical service.

Remmed competes with international entities including VividVision, AmblyoTech, Amblyz, Caterna, HTSVision, NovaSight. The only direct competition for Remmed is VividVision (USA) that is the only competitor among others to utilize VR for Binocular Vision Therapy. The company exists on the market since 2015 and is present in nearly 300 eye clinics, mostly in the US. Vivid Vision provides only therapeutic software, meaning that both clinics and patients need to purchase their own consumer VR headsets that are excluded from medical use. Their software, however, was FDA Class I Certified in January 2018. Vivid Vision is dedicated to the in-clinic treatment, with the possibility of performing some limited exercises as supplementary at-home training.

Remmed Vision Therapy System allows performing the whole spectrum of therapeutic exercises at home, while Vivid Vision therapy is an in-clinic treatment with the possibility of performing limited exercises at home as supplementary training. Remmed offers a comprehensive solution that combines methodology, software, and hardware. Having major influence over all components of the system gives Remmed full flexibility in adjusting to customer's feedback, changing market conditions (covid19), and new business opportunities. Vivid Vision provides only the software, meaning that both clinics and patients need to purchase consumer VR headsets and computer.

Remmed further advantages include:
1. Full data analytics from both in-office and at-home exercises
2. Medical certification for the whole System
3. Breakthroughs in vision therapy (fixation control and virtual prism)
4. Neuro Vision Rehabilitation (in development)
5. Proprietary, patent-pending technologies (world's most precise eye-tracking and varifocal optics) that enable non-invasive, automated, objective diagnostics (ophthalmology and neurology) (in development).

Additional Information

Promotional material: https://youtu.be/mS-ai1fVx80

Future plan for business development:

Remmed is a telemedical platform for diagnostics and rehabilitation in eye care and neurology. All key components (methodology, software, hardware) have been built in-house giving founders full flexibility in adjusting to customers' feedback, changing market conditions (covid19), and new business opportunities. We have started from Vision Therapy of binocular vision disorders and Neuro Vision Rehabilitation of post-stroke, concussion, and brain damage. From the beginning of 2020, our sales of Home Vision Therapy in Central Europe were growing 50-60% quarter to quarter.

In January 2021 we are launching our sales in the United States which is the biggest market for Vision Therapy in the world. Yet, Vision Therapy is just the tip of the iceberg. We apply our proprietary, patent-pending technologies to utilize eye-as-a-biomarker in automated refractive error diagnostics (corrective glasses, contact lenses) and early detection of neurodegenerative disorders (Alzheimer, Parkinson, Huntington, etc.).
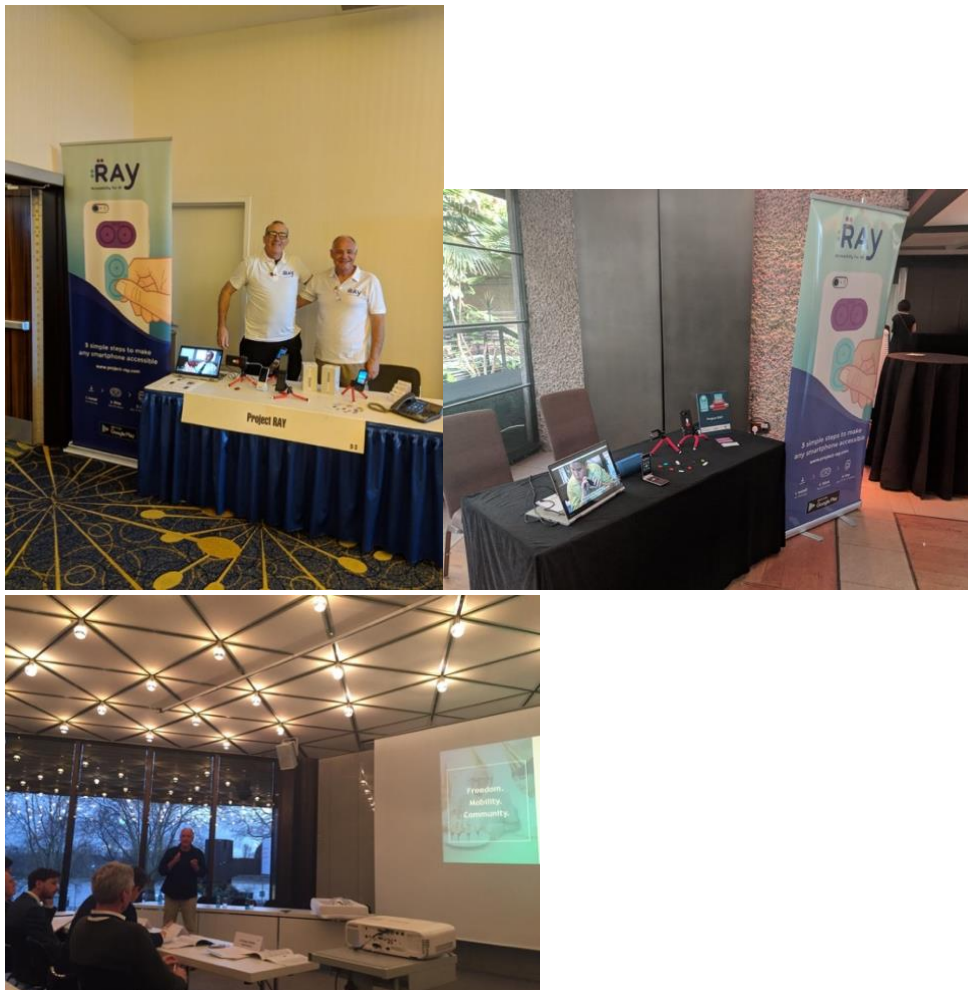
5. PROJECT RAY LTD

Information

Country: Israel

Solution: Project Ray

Website: www.project-ray.com

Social Media: https://twitter.com/ProjRAY

Product readily available for use

Images

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Components Description

RAY's solutions offer unique, new mobile experience for the blind, vision-impaired, and dyslexic individuals. They can now use cell phones, smartphones, touch devices, and connected digital tools without any obstacles and barriers. PROJECT RAY set out to bring these same lifestyle improvements to the blind and visually impaired, within a single affordable smartphone device tailored from the ground up for the unique needs of eye-free operation, simplicity of interaction, and common interface across any system function – from the operating system to the user interface and specialized content and services. Project Ray has a number of different products including an app and 6 types of smartphones with various features suited & adapted to the needs for the visually impaired.

Use Cases Description

Smartphones are supposed to be liberating, bringing the wonders of communication, community, and advanced technology to billions, worldwide. Living with visual impairment and the challenges of actually using smartphones should never limit your ability to join that global community of family and friends. But tactile devices have all but disappeared from the market in favor of flat touch screens, and graphical user interfaces put vision and images up-front. Making it extremely challenging for the visually impaired, to master the use of the technology and benefit from the advantages of digital connectivity. Project Ray bridges this technological gap to deliver all the benefits of the smartphone revolution to the visually impaired community. The Ray Vision app, coupled with our patented Ray Click technology, is a specially designed user experience that provides visually impaired individuals with full accessibility, instantly for any touch device. RAY technology is different in its core, due to its affordability and its simplicity of use. It is uniquely tailored to the needs of a growing market segment within the visually impaired community – that of elderly users – and therefore it provides a unique solution to 80% of the visually impaired community.

Additional Information

Promotional material: https://project-ray.com/blog/news/

6. FEELIF D.O.O.

Information

Country: Slovenia

Solution: Feelif device

Website: https://www.feelif.com/

Social Media:

https://www.facebook.com/FEELIFORIGINAL/ ;

https://twitter.com/FeelifOriginal ; https://www.linkedin.com/company/feelif

Product readily available for use

Images

SOLUTION FOR MUSEUMS AND GALLERIES

Step 1
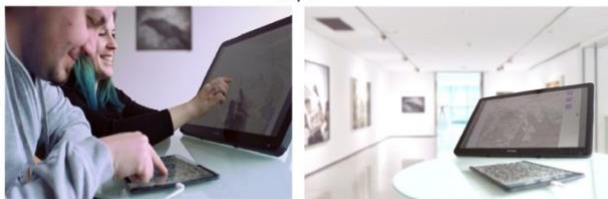Use special Feelif software for creating multi-sensory pictures

Step 2
Transform picture also for the partly sighted

Step 3
Test with the end users

Step 4

MAKE MUSEUMS AND GALLERIES ACCESSIBLE TO THE BLIND AND VISUALLY IMPAIRED

Education

Feelif makes learning fun, inclusive and effective.

Learning Braille
Learn Braille on your Feelif.

Geometric Functions
Learn, understand and feel the geometric functions.

Draw
Make, feel and explore drawings.

Shapes
Learn shapes through vibration and sound.

Games

Play while you learn and learn while you play.

Battleships
It's time to let the destruction begin. A timeless classic.

Chess
Play against any opponent, move pieces as easily as in the physical world.

Connect Four
With special sound effects, play against your friends or against your Feelif.

Farm game
Farmer George has lost his animals. Help him find them!

Memory
Test and train your memory skills with our Memory game.

Snakes and Ladders
Can you get to the finish first?

Tic-Tac-Toe
You know what you've got to do. Go out there and become a champion.

Tools

Enabling the blind and visually impaired to communicate and explore.

Feelif Camera
Take and feel great photos.

Feelif Picture Gallery
Explore photos through vibration and sound.

FeelBook Maker
Sighted users can create their own tactile books and content.

Feelif Browser
Experience the internet on another level.

Feelif Phone
Allowing the blind and visually impaired to stay in touch.

FeelBook
Read Tactile Books.

Feelif's exclusive content is specifically developed for the blind and visually impaired and opens up whole new ways of learning, playing, communicating and being creative. Discover the digital world, discover Feelif content.

Tactile books

Our range of revolutionary digital tactile books. Find out about the world around you through vibration and sound. New tactile books are always being added.

African Animals — What do they eat? How do they sound? Find out all about them in this hard tactile book.

Weather — Why is there hail? How hot is the sun? Find out more in this hard tactile book.

Count to ten — Learn to count to ten and find out about animals, instruments and fairytales along the way.

Christmas Story — Full of rich sounds, learn the story of the birth of Jesus.

Find the mammal — Out of many animals, learn the biology of animals, fun and easy!

Learning Notes — Learn notes, lines and spaces of music needs. Learn how to read music and play without reading notes on musical instrument.

Escape room — There is only one aim: to stay alive and escape.

Shapes and graphs — Brings shapes, charts, pictographs to life through vibration and sound.

Map of Europe — Find out about the countries of Europe by exploring our map of Europe.

Map of USA — A unique multisensory tactile book for the independent research and learning of the map of the USA.

Learn

Play

Create

Communicate

INCLUSION IS OUR MAIN GOAL

Components Description

Feelif is a standard Android tablet or phone with special relief overlay and special software. The purpose of the relief overlay is to give user orientation on flat surface. That way user can know exactly where his finger is moving. Touchscreen tracks the movement of a finger. Depending on that software triggers different responses which are different vibrations, sounds and speech. By paying attention to responses and knowing where his finger is moving the picture gets created in user's brain. By using all this different sensations Feelif provides a multisensory experience which is important, because studies show that when more senses are engaged better, faster and easier the information is perceived, remembered and learned.

For better user experience we developed different shapes of relief overlay, depends on the purpose of use. For common use, we offer overlay which is divided into the upper part with dots in the shape of Braille cells and the lower part with dots arranged in a grid. With this type of overlay and our app Learn Braille, the user can also learn Braille. For museums and galleries, we developed a special overlay where there are relief buttons instead of Braille cells which use less space and therefore more of the surface can be used for image display. For phones, we developed a unique overlay with relief lines connected into a rectangular grid. In this case, vibration points are not dots but spaces between lines.

We already made lots of apps for learning and playing games and also some apps for everyday use which help blind and visually impaired persons to understand and recognize digital graphic content and also to be creative. All our applications are based on game learning and encourage inclusion. Some of our apps also use artificial intelligence. The AI recognizes the objects in the image and Feelif tells us which objects we are touching. With the help of the grid and vibrations, the blind person knows exactly where the object on the picture is, how big it is and also what is its shape and color.

We also developed software called FeelBook Maker for people with vision who want to create multi-sensory content for the blind and visually impaired. All components and interfaces we have developed and tested with the blind and VI and their parents and they are the product of our experience and knowledge from that field. All Feelif devices can be used also as a standard tablet or phone. You can also use a tablet to make a phone call.

Use Cases Description

With Feelif the blind and visually impaired(B&VI) can feel and recognize digital pictures. Our main goal is to empower the B&VI by easily accessing information in the digital form and to help them become digitally sighted. All of humankind knowledge is on the internet today. A huge majority of that is in a form of pictures/maps/charts/graphs. We are an information-driven society. The problem is that B&VI cannot access digital pictures, therefore are excluded. That creates a huge gap, which shows in access to education, employment, social life and entertainment.

What options do B&VI have now to access digital images? Ignoring Feelif, B&VI use following technology:

1. Screen Readers: They mostly skip images because they only read texts.
2. Embossed print: These are special printers that print on special paper or foil. These solutions are expensive, not mobile and require preparation from a sighted person.
3. 3D print: The same goes for 3D printing.
4. Graphic Braille Displays: They physically move pins&down to create picture.

These are expensive and not mobile devices. They cost 30,000€. Other than Feelif, there is no other solution that allows B&VI to feel images while being affordable, interactive and mobile. Feelif offers multisensory experience and can be independently operated by B&VI. It is also a unique connection tool between the B&VI and a person with vision. Feelif technology is very easy to understand /learn so it can be used from early ages. With custom-made Feelif apps, Feelif device can soon become an early learning tool for the B&VI children and later on a device for recognizing more complex graphic like graphs/charts/maps or for learning geometric functions.

With Feelif you can also learn& practice Braille or be creative. Draw is a special app for drawing, with the possibility of sensing and listening to what a user has drawn. The app uses various combinations of vibration, sound and color. For each color we set its vibration and distinct sound of a musical instrument, to make it easier to distinguish between the lines that are drawn. By moving your finger along drawing, you will be able to elicit variety of tones repeatedly, as the sound harmonically changes according to the direction of the touch. With this app also parents/ teachers of B&VI children can explain illustrative content to children easier& faster.

With Browser and PictureGallery-PG apps the B&VI can access to graphic content on the internet independently even the content is not specially adapted for them. Browser is adapted app for browsing the web. It is connected to the PG and enables the user to open photos available on websites and feel their content. In addition to the essential accessibility features of Browser, the user can open photos and explore the objects and scenes, feel their shapes, colors and descriptions. With a simple gesture, the user can close the photo and continue browsing the web. PG enables B&VI user to feel photos with the aid of vibration.

Thanks to the AI Feelif is using, the user will get audio information of the objects that are featured on a photo. The most important difference from the so far developed apps which help the B&VI with a description to make a digital picture accessible is in that, that with Feelif B&VI themselves can explore the image. The shapes and surface of the photos objects can now be followed and be precisely positioned on the photo itself.

Inside the PG are several options of what visual information of the photo would you like to feel. It is possible to feel the edges of objects or entire surfaces. You are able to distinguish between different colors which vibrate differently. In addition to the touch sensing, the voice assistant will tell you what objects you have been exploring. With PG is connected also Camera app. With Camera B&VI themselves can take photos, record videos and scan surroundings. The app can instantly recognize objects around you; when

moving the device around the app speaks out the objects that are located near you. Taken photos are opened in PG.

Besides using Feelif for learning, discovering object nears you and to feel and recognize digital pictures, we developed several games. All games are inclusive and they can be played with a person with vision equally. We also developed a special program for people with vision like parents&teachers of B&VI. With FeelBook Maker-FBM they can create content for B&VI. A very simple interface allows you to adapt any picture into a multisensory experience. You can add sounds, voice, vibration and action to any part of the presenting picture.

Using different layers you can reveal new information in selected zoom mode. This allows B&VI slowly and interactive explore a picture by his needs and interests. With FBM was developed some very interesting FeelBooks and content for museums& galleries which now can offer totally new user experience, not just to the B&VI but also to people with vision, who are intrigued by new technology.

Additional Information

Promotional material:
https://youtu.be/6k6wZ4rBHXE , https://www.youtube.com/watch?v=huL3unAMD1Q

Link to testable solution:
https://play.google.com/store/apps/details?id=si.a4web.feelif.journey&referrer=utm_source%3Dwebsite ; this is a game where you can try different vibrations and get a little peek into part of Feelif technology, but Feelif is so much more than this.

Future plan for business development:
We have more goals we want to achieve in the near future:
1) Our vision is Feelif Open Platform which is a marketplace for content and apps. That will unite all stakeholders: blind and visually impaired, parents and caretakers, teachers, content creators and software developers. Each target group will have their own advantages.
- For blind and visually impaired people: they get a great learning tool, new and dedicated content and apps, easier access to knowledge, possibility of their own artistic expression, and they can share/sell their masterpieces on Feelif Open Platform.
- For teachers: improve the quality of their lessons, they can share/sell, content that they created, on Feelif Open Platform.
- For parents: give their blind children new opportunities/possibilities, as teachers, parents can also participate in content creation and distribution of knowledge.

_____

- For content creators: they can share/sale best content on Feelif Open Platform.
- For software developers: they can sell new apps on Feelif Open Platform.

We foster education and creativity between our target groups.

2) The second goal we want to achieve is that more galleries and museums become accessible to blind and visually impaired. There are already some museums which use Feelif and for now, we have only positive feedback, not just from B&VI but also from people who can see. Just now we are looking for new museums and galleries which are interested in our solution.

3) We also want that more schools would use Feelif. As we saw during COVID-19, B&VI are one of the most vulnerable group, because for all graphic content for them is in physical form. With Feelif learning would be much easier and faster. That is why we are looking for opportunities to introduce Feelif to as many schools as possible around the world. Feelif content can easily be translated. Teachers from all over the world would are able to exchange graphic content created on Feelif and translate it to their language.

4) We would like to have our own tablet, which would be bigger and would have a good vibrator, maybe more than one. In the future, we would like to develop a device and test it with B&VI where you will be able to feel the content with more finger that one at the same time.

5) We were invited to the project AAL (Ageing well in a digital world, coordinator was AIT Austrian Institute of Technology GmbH, Giefinggasse 2, 1210 Vienna | Austria) were we would build a case together with 10 partners from 4 other EU countries (Italy- University of Siena and Fondazione Musei Senesi, Portugal- Santa Casa da Misericórdia de Lisboa, Switzerland- Akademie Berlingen and Austria- Hilfsgemeinschaft, AIT Austrian Institute of Technology, NOUS, VRVis and Sign Time). With them, we would like to build upon the visual enhancement technology provided by AIT to support older adults with visual impairments, interactive multi-sensory touch stations based on tactile reliefs of artworks from VRV, and reading aid technology from SIG for deaf people, which enables them to understand texts with complicated or unfamiliar terminology. These assistive technologies are important for age-related impairments that are common in our target group. We are going to apply to a call shortly (in next months). All along we are developing and testing our solutions with B&VI, organizations for B&VI, teachers and parents of B&VI children and other relevant stakeholders. We are also looking for an investor and looking for grants to grow, because for now, selling a product does not bring us enough funds for all we want to achieve.

CATEGORY 3: PERSONS WITH SPEECH IMPAIRMENT
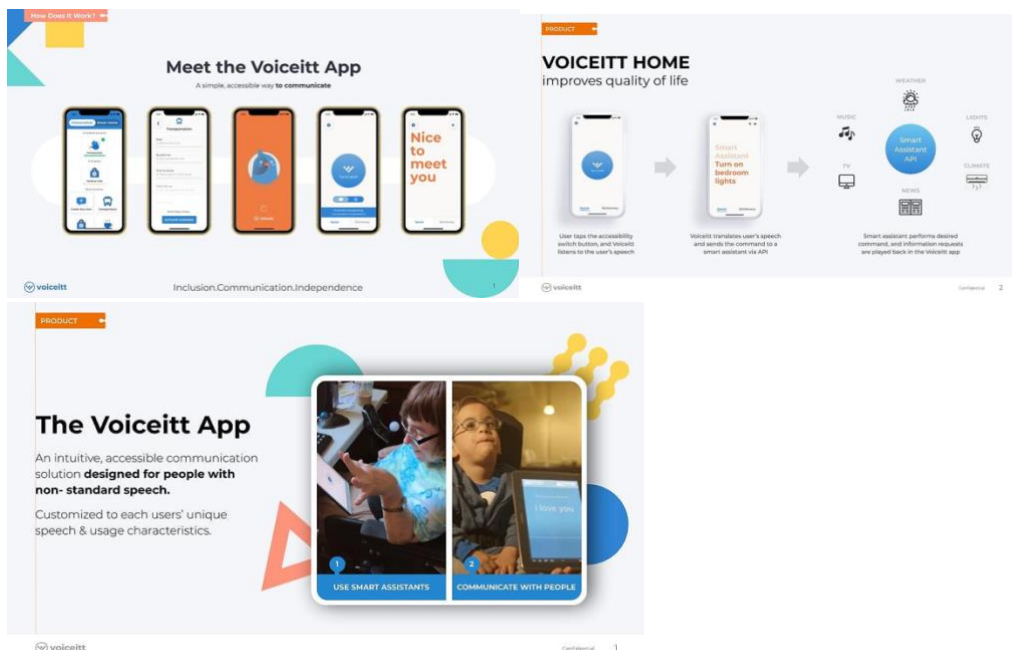
7. VOICEITT

Information

Country: Israel

Solution: Technologies of Voice Interface

Website: www.voiceitt.com

Social Media: https://www.facebook.com/VoiceItt/

Product readily available for use

Images

Components Description

Millions suffer from speech disabilities arising from developmental disorders, degenerative disease, stroke, and brain injury, causing reliance on tech like eye tracking, which bypasses the voice altogether. Standard speech recognition isn't designed to work for impaired speech ("dysarthria"). Voiceitt's automatic speech recognition (ASR) technology is designed to recognize and translate non-standard speech patterns. Its first product is a mobile app that translates unintelligible speech in real time, thus enabling users with dysarthria to communicate and be understood by voice.

Voiceitt also supports voice commands for environmental control through integration with voice assistants, enabling the person with speech and motor impairments to perform basic tasks independently. Voiceitt is creating both discrete ASR (i.e. based on a set of pre-calibrated words) and continuous ASR (i.e. it is possible to recognize other words and sentences of a language beyond the pre-calibrated set). For example, if the dysarthric speaker trains the discrete ASR software with the vocal pattern "uhwuh-o-uhah" and its meaning is, "I'm thirsty" the software learns to recognize this pattern and associate it with its meaning, which it can then produce through digital speech. In contrast to "discrete" ASR, Voiceitt's "continuous" ASR supports the recognition of any word in the language, not only words or phrases in the user's pre-calibrated dictionary. The Voiceitt software runs on an iOS device as a mobile application. Android will be supported in 2021.

Use Cases Description

"For ~1.3% of the world's population, communicating verbally is not an option as a result of medical conditions. These conditions, collectively called dysarthria, result in speech that is very difficult to understand. Technology that provides long-term support while also empowering people to take control of their own health is driving a significant shift in the traditional healthcare delivery model. This project's results can substantially support long-term care for people with significant speech and language difficulties by providing them with an accessible and clinically-validated tool for communication, and rehabilitation by speech and language pathologists at a stage when further recovery can still occur yet access to care is severely limited.

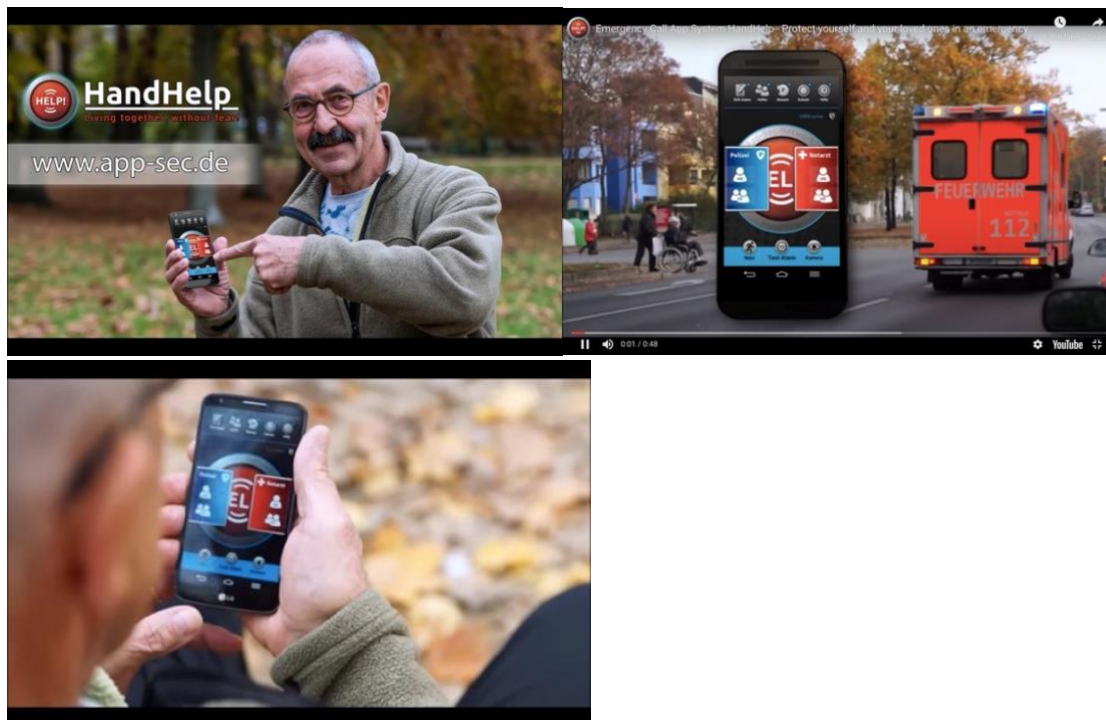# 8. APP-SEC-NETWORK

App-Sec-Network

Information

Country: Germany

Solution: Hand help

Website: https://app-sec.de/index.php/en/home/

Social Media: https://www.facebook.com/emergency.app.handhelp/

Product readily available for use

Images

Components Description

HandHelp™ – the 1. barrier-free emergency call app for all emergencies with direct emergency notification to the police*, fire brigade* / rescue services* as well as your trusted third parties / your helper network, because in an emergency it takes seconds!!!

- Direct – is the emergency call transmission within seconds to the control centres of the police*, fire brigade*, rescue services* as well as to your trusted third parties.
- Precise – is the positioning by satellite (eg GPS), radio networks, WLAN
- Personal and clear – is the profile for the rescue services

*Currently available for the countries: DE, AT, CH, LI

Use Cases Description

Key functions

In case of health emergencies, in case of accidents or personal threats you transmit with HandHelp at a press of a button a direct emergency call to the police or firebrigade/ rescue services, but also to your trusted persons of your choice. You maximize your chances of rescue with Handhelp tremendously.

- **Helper,** informs rescue services and additionally up to 5 trusted persons of your choice.
- **Emergency profile,** transmits your individual profile for an optimal rescue.
- **Preservation of evidence,** saves and transmits photos, audio and video clips of the happening.
- **Localisation,** uses radiolocation, WLAN, GPS for a precise localization.

Accessibility

So far, it has hardly been possible for people with health problems to initiate their own rescue and aid measures quickly. HandHelp offers a solution for the first time worldwide. Barrier-free emergency call app for deaf, hard of hearing, blind, aphasic, etc. The hitherto customary emergency communication by phone, such as answering the rescue-relevant questions, presents an enormous challenge to hearing and speech impaired people. In an emergency, the emergency app "HandHelp" automatically transmits accurate personal details, time and place including photo/sound recordings directly to the control center of the police or fire brigade/rescue services and informs the trustees of the person concerned. For the complete and one-off setup of the app a maximum of 5 minutes is needed. The completeness barometer reliably displays the achieved security level.

Additional Information

Promotional material:

https://www.youtube.com/channel/UCmHazAKFEfJ_EQ5dAU1MrZw

Link to testable solution: https://youtu.be/BbiiJ_mimS4 (Android) &
https://youtu.be/H1U3vDbM92E (IOS)

9. PICTOGRAM

Information

Country: Spain

Solution: Pictogram

Website: https://pictogramweb.com/

Social Media: https://www.facebook.com/yottacode
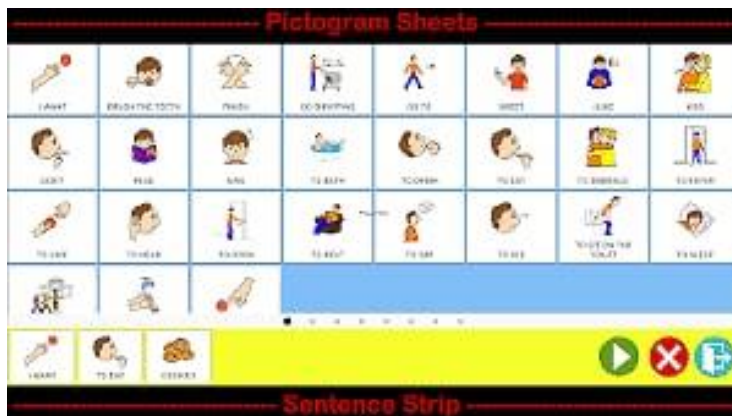
Product readily available for use

Images
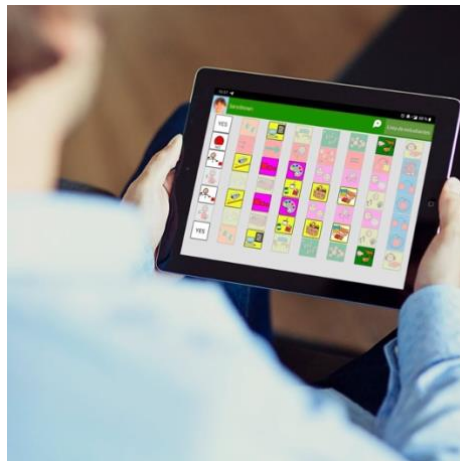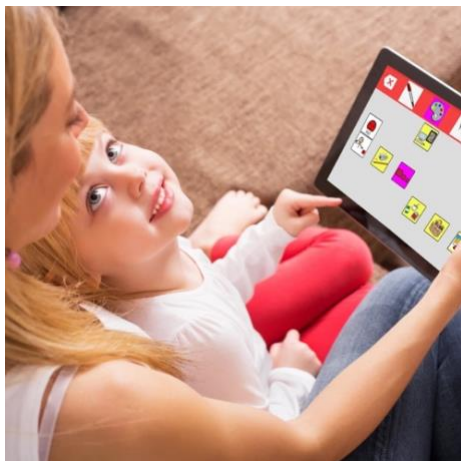
Components Description

Pictogram is a solution for children and adults with communication difficulties. Pictogram provide a simple learning and communication environment, adapted to each child and to each day-to-day situation. A complete environment to communicate and teach how to communicate through pictograms, anytime, anywhere. A language of its own that evolves at the rate of learning of each person. Easy to use, customizable and for everyone (students, parents, tutors, teachers, therapists ...).

Use Cases Description

Who is Pictogram for: People with ASD or language disorders who want to communicate with people in their family, school and social environment.

- Children and adults who communicate using gestures, vocalizations, facial expressions, body language.
- Children and adults who use pictograms and can ask for what they need, to refuse, and interact with those around them.
- Children and adults who use electronic devices and communicate through cards, pre-recorded messages, and pictograms and phrases of the same.

Key Features

1. Pictogram communicator
   - Communicate easily in any place and situation of the day to day.
   - Develop a common and personalized language for each person and environment.
   - Records the learning process in real time.
   - Easy and intuitive, use it from your smartphone or tablet.

2. Pictogram web
   - Easily configure Pictogram Communicator from any device.
   - Free remote access for parents, caregivers and therapists.

- Everyone knows in real time how procedures for language acquisition are managed and planned.
- Take a look at all the interactions and evaluate in time.

3. Pictogram analytics
   - Quick reports on student communication on a day-to-day basis.
   - Interpret all the information collected with an automated analysis engine.
   - Manages the student's communication device, management and analysis from a single platform.
   - Improve student skills using indicators of achievement of objectives, times, frequencies and vocabulary used.

4. Pictogram supervisor
   - Add pictograms in a few seconds using the mobile camera.
   - Manage vocabulary in real time for advanced intervention strategies.
   - Configure the glyph board non-invasively.
   - Start customizing it now and use it for free.

CATEGORY 4: PERSONS WITH COGNITIVE & INTELLECTUAL DISABILITIES

10. CAPITO APP
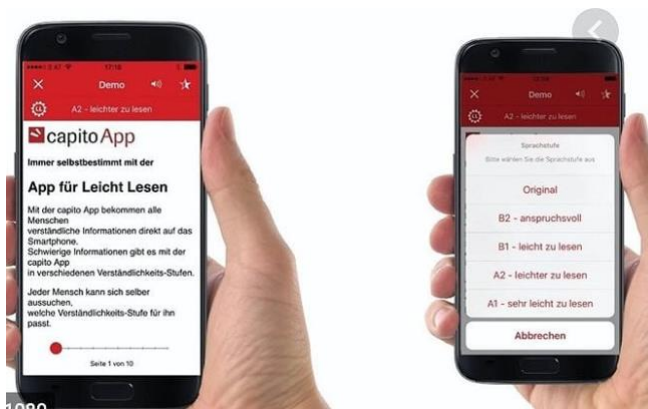

Information

Country: Austria

Solution: Capito App

Website: https://www.capito.eu/capito-app/

Social Media: https://www.facebook.com/capito.eu/

Product readily available for use

Images

Components Description

The capito app ensures comprehensibility and accessibility: Simply scan the capito QR code with the app and then select the appropriate language level yourself! You give us your original texts. We transfer your information to the language levels of your target groups. You will receive a QR code from us, which you can place online and offline as you wish. Your customers scan the QR code with the capito App. And the easy-to-understand information is available directly on the smartphone! iOS devices are compatible with the capito app from version 10 on Android devices are compatible with the capito app from version 4.4 and later. Distribution of your translated content using QR codes. Optional availability of public theme channels. With the capito iFrame there are two options for use: Option 1: The link of the iFrame leads to a separately hosted webview. Variant 2: The HTML code is used for the direct website integration of the iFrame. The following browsers are compatible with the capito iFrame: Chrome, Edge, Firefox, Safari 10+.

Use Cases Description

In the German-speaking world, about 80% of information is written at language level C. However, 40% of people cannot understand this. Those who offer content in easier language levels are understood by more people. With the capito app, customers can choose the language that suits them best. So you can be sure that you are understood. And thus contribute to inclusion and accessibility. The development of the capito brand was a major reason why atempo was recognized as an SDG Pioneer in 2016 for its "particularly innovative contribution" to achieving SDGs. With the capito app you can communicate barrier-free with your employees, customers and stakeholders.

Additional Information

Link to testable solution: https://www.capito.eu/fortbildung/kurse/

11. CLARO SOFTWARE

Information

Country: United Kingdom

Solution: Claro Software

Website: https://www.clarosoftware.com/

Social Media: https://twitter.com/ClaroSoftware

Product readily available for use

Images
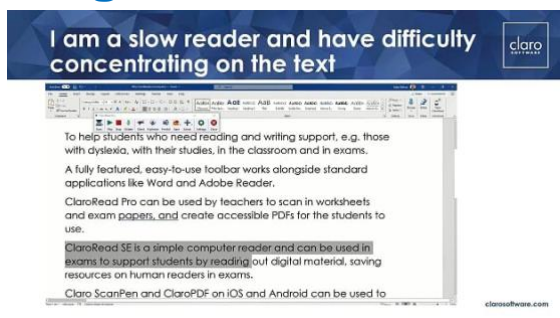
Components Description

Claro Software develops assistive technology, for people with print and reading difficulties like dyslexia, to help them achieve all they can. The product can be bought and then downloaded on your computer. Example of products include: ClaroRead reads any text aloud in clear, high quality voices. Whether it's a long PDF, proofreading an assignment or even reading a letter, the software helps you to concentrate on content and meaning rather than stumbling through each word. You can get any of our 80 voices in 30 languages for free through Settings in ClaroRead .ClaroRead's many tools include ScreenRuler (which tints the screen and provides a configurable ruler to help you follow text), word prediction and a dyslexia-friendly spell checker. Our apps (ClaroSpeak, Claro ScanPen and ClaroPDF) provide text-to-speech and other assistance on the move. They can even read text from your photos.

Use Cases Description

Claro Software develops Assistive Technology, software for people with disabilities such as print and reading difficulties like dyslexia, to help them achieve all they can. We are experts in speech synthesis, word prediction, spell checking and switch access, and combine them to make innovative, easy-to-use products on Microsoft Windows, Apple Mac, Google Chromebook, iPad and iPhone, Android, and on the Web. Our product allows people with disabilities to achieve their potential in education, personal life and the workplace through the use of innovate, easy-to-use assistive technology software.

Additional Information

Link to testable solution: https://www.youtube.com/watch?v=7gFy7o9vqMM

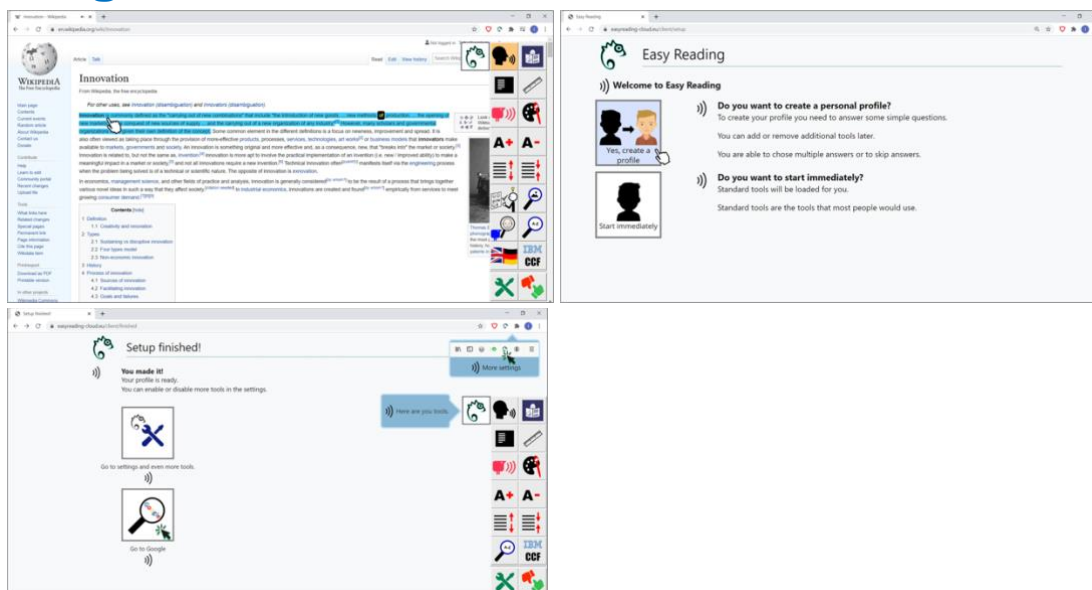# 12. TU DORTMUND UNIVERSITY

Information

Country: Germany

Solution: Easy Reading

Website: www.easyreading.eu

Social Media: https://twitter.com/EasyReading_EU

Product readily available for use

Images

Components Description

      The Easy Reading software framework is a support tool that allows users to adjust web content in real time based on their individual needs. With the software every user can see a personalized version of any existing webpage. The personalisation is only done on demand. The users can decide if they want to work with the original webpage or a personalized version of the page. By improving the accessibility of existing webpages, the Easy Reading framework supports digital participation and involvement in the mainstream digital discourse of people with different kinds of limitations (cognitive, sensory, social). The Easy Reading Software framework is implemented as a scalable and extendable cloud solution. External tools can integrate existing and upcoming solutions

for annotation, adaptation and translation in a proven user centered eco-system that allows flexible combining of functionalities for tailored personalized web page adaptation.

Use Cases Description

Actor: User with some kind of cognitive access limitation

Goal: Using the Easy Reading Tool to better navigate and understand a website of choice

Functional requirements: Installation of Firefox or Google Chrome Web browser Precondition 1: Installation of Easy Reading as an Add-on in Firefox or Google Chrome Store Precondition 2: Creation of a personal profile, choosing gradually the helping tools needed, or starting with standard tools in pre-set profile (anonymous mode) Basic Flow:

1. User visits a website of his/her choice e.g., Wikipedia, any shopping or news page.
2. User opens list of available support tools by clicking the Easy Reading Symbol on the right side of the webpage.
3. User clicks on desired tool (widget) implemented as an On/Off button. When the user selects the tool, the according Easy Reading symbol changes appearance to notify user that it is active.
4. User clicks on a paragraph/part of the website where he /she needs support.
5. The Website adjusts its appearance

Additional Information

Promotional material: https://www.facebook.com/EasyReadingEU/

Link to testable solution: https://chrome.google.com/webstore/detail/easy-reading/dgbgeoiaf

Future plan for business development: Partnership for promoting the Easy Reading framework with several German and Austrian governmental institutions and social service providers, applications for further research funding from the EC and national funding agencies (e.g. BMBF), cooperation with software companies to include additional functions into the Easy Reading framework.

CATEGORY 5: PERSONS WITH PHYSICAL DISABILITY
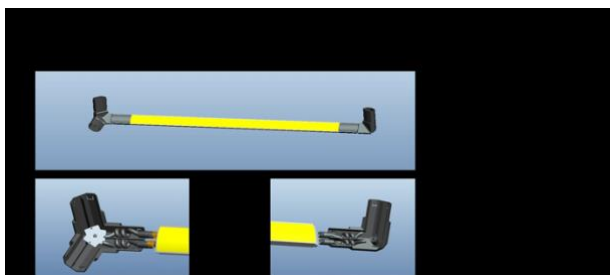
13. MAGICVIEW

Information

Country: Netherlands

Solution: Ianvs

Website: https://www.aal-ianvs.eu/

Social Media: https://www.facebook.com/Magicview

Product in final development stage, with prototype for testing

Images

Components Description

We equip residents with a one-button remote control that accurately locates them (10 cm) in their homes. Their motion patterns are analyzed by Deep-Learning AI. Thus, settings of appliances like lighting, burglar alarm, HAVAC etc are anticipated. By pressing the location-aware button on the RC, the resident has intuitive control on appliance settings, while the system learns to anticipate better. The system consists of a fixed infrastructure to be deployed in every room of the house. It consists of sensor nodes, which are powered and connected through conduits, consisting of pre-wired strips clicking together and also containing addressable RGB led lighting, so that the fixed infrastructure has added value on its own. The fixed infrastructure is designed for easy self-deployment.

The main type of sensor nodes are UWB IEEE 802.15.4z compliant radio transmitters that are able to position the RC wearable using TDoA (Time Difference of Arrival). To do so, they need wired signals (clock, power, IP), provided for in the conduit. UWB mac addresses and timestamps of each anchor that received a TDoA broadcast packet are forwarded to a raspberry edge and then to a backoffice for multilateration and AI processing. Next to UWB anchors, the sensor nodes may also feature PIR motion acquisition or sound capture. The backoffice has the notion of "Assets" i.e. hotspots in the room which which the user transacts. Transactions consist of entering the fence around the Asset, leaving the Asset or moving inside the Asset. Assets fences are automatically defined by convex hulls around clusters of capture points. Asset transactions give raise to MQTT events that can be processed locally in the Raspberry edge or can be forwarded to third party services under a gravitee-controlled API. The MQTT events are processed in node-red scripts that serve as rule engine, specifying how the inputs translate into outputs, driving various Home Automation appliances.

Next to our own RGB lighting, this can be anything that red-node interfaces. Less is More. To make the concept fit-for-use to a non-technophile audience, scripting freedom must be restricted. To this end, the next step is to replace the pre-programmed state machines by deep-learning and parameterized functions, so that the function adapts to the end-user wish by using and correcting. To this end, we are setting up a community of co-creators that produce appealing red-node content to be offered to the target customers.

Use Cases Description

The aim of the innovation is to keep elderly people stay longer in their own house. There is a strong societal drive in Elderly Care to avoid or postpone admission to costly care institutes. This is even more relevant since the COVID-19 pandemic. To contribute to this goal, Partners already engaged in an AAL project "IANVS". This project proposes so-called Comfort, Vitality and Safety services as a layered proposition, yielding "growing

apartments" that follow the course of life of the elderly customer. Please refer to https://youtu.be/FSsvtis5By4. By equipping a serviced residence with such versatile home care platform, elderly are encouraged to Self-care or appeal to secondary care takers (family and friends) rather than to over-stressed, under-staffed and under-budgeted professional care.

The common denominator behind all use cases is behavioral prediction, i.e. observing the motion pattern of the resident, analyzing it with deep-learning and predict the resident's intent, thus allowing the habitat to anticipate to the desired settings. The IANVS Comfort service is the foundation of the concept: by integrating the technology in their daily life, we make sure the system is up-and-running (and practiced by the end user) the moment the life-saving vitality and safety services are required. A first comfort use case is lighting, exploiting the addressable RGB LED capabilities in the room. The LED array can be divided in segments, each bonded to a certain Asset. Hence the lighting system is virtualized and may be software-reconfigured when furniture moves. The one-button remote control dims or switches the segment. This way, the user teaches the deep-learning system, so that next time there is no user feedback required anymore. Elderly are often lonely, hence video and audio communication is important.

Knowing the precise location of the resident helps pan-tilt-zoom camera to focus on the person and allows the built-in microphones to spot on the speaker, canceling environment noise. When getting older, cognitive decline may kick in. Comfort services will now become essential to maintain independent living, on condition that they are already practiced prior to the decline. They may need to be complemented with additional services like asset tracking, allowing the user to find objects lost in the space, starting with the Remote Control itself. A next suite of services is Vitality services. Its purpose is to assess if the resident is still capable of living alone. This is done by observing the motion patterns of the user in e trend, matching them with the so-called Quality-of-Life criteria, a scientifically established procedure based on e.g. gait speed. The senior may be asked to perform gym exercises on the "gym carpet" Asset before TV, while the motion patterns collect the level of participation. Finally, there is safety. Its purpose is to shield the resident from harm and warn caretakers to intervene when incidents occur. Big issue here is management of False Positives (alert but no incident) and False Negatives (incident but no alert). Two examples: Traditional burglar alarm require the user to activate when leaving and to deactivate when entering. This is for (cognitive declining) elderly a challenge.

Evidently, by locating the elderly this can be eliminated. Secondly there is fall detection. Traditional alert devices are based a button to be pressed. The are most often not carried hence risk of False Negatives. As the IANVS remote control is used every minute of the day to operate the house, it is there when needed. Some alert systems automate the

detection using accelerometer threshold and fail to alert when the person softly lands on the floor and cannot stand up again. The IANVS remote control operates based on position and not on forces and has a superior false negative/positive performance. Unlike Camera-based fall detection, it respects privacy. More useful use cases can be imagined. IANVS is an open platform with a privacy-protecting API, to which various third party operators, such as biomedical sensors, building automation etc. can be easily interfaced. IANVS can observe multiple persons in the same space. This includes service personnel (nursing, cleaning) for whom activity tracking can facilitate service accounting and billing.

Additional Information

Promotional material: https://www.aal-ianvs.eu/

Future plan for business development:

IANVS' Project Conclusion is that: 1) A more elaborate pilot needs to be conducted to achieve TRL-9 maturity, required for a product like this. 2) End users stated willingness to pay for Vitality and Safety services but not for the Comfort services, despite the latter is the basis for the first two to address this, we plan to deploy a large-scale pilot into a market segment that is willing to pay for Comfort services. We will do so by crowdfunding to an audience of Home-Automation enthusiasts, who not only want to invest in the societal goal of our venture, but also want to spend time in co-creating home-automation (red-node) use cases and test those out in their own habitat. By using this community of co-creators, we aim to achieve the TRL9 product maturity. The challenge of the value proposition is in the outlet channel. The proposition is to be sold via real-estate developers or care organizations, who seek trust and long-term maintainability. We realize economy of scale will be hard to realize by a tech startup and best chances for us is cooperation or even exit to an established brand, once the commercial viability is proven.

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14. TRAVAXY ACCESSIBLE TRAVEL SOLUTIONS

Information

Country: Isreal

Solution: Travaxy

Website: https://data.travaxy.com

Social Media: https://www.linkedin.com/in/lioz-amar-6479a8110/

Product readily available for use

Images

Components Description

Travaxy is enabling offline/online travel agencies/travel APIs / GDSs and wholesalers to book a worry-free holiday, flights-Airline notifications, and accommodation offering by specific needs in minutes, instead of hours and sometimes days. The best thing about it is that B2B partners don't need to disconnect from their service providers (hotel API and flights) we have a middle layer API to a fast and easy to

integrate solution, making them disability experts! Travaxy's API reduces the search time for the right hotel and notifies the airline about passenger accessibility needs / senior travelers. Travaxy is the only company to provide a disability certificate with more than 90 different parameters from the height of the bed, have a lift to get inside the Pool, Toilets Emergency Cord, hearing Kit, and many more. **Travaxy updates COVID-19 hotel instructions and measures. Product video clip: https://youtu.be/XgZ5xL9Fljc

Use Cases Description

Travaxy integrates these days the API for a pilot with Globalia the leading travel company in Spain / Latin America. Also recognized by Amadeus who is the biggest global distribution system worldwide, Amadeus for startups, Working to integrate a pilot with the Amadeus platforms. Israel Defense force recognize the supplier. Travaxy is the winner of the startup ole travel tech vertical 2020 (Spain). Also the winner of TechForGood and WSA global competition 2020.

Additional Information

Promotional material: https://startups.amadeus.com/en/startup-universe

Link to testable solution: https://api.travaxy.com/certification-docs

Future plan for business development: AI - offering accommodation based on the different abilities
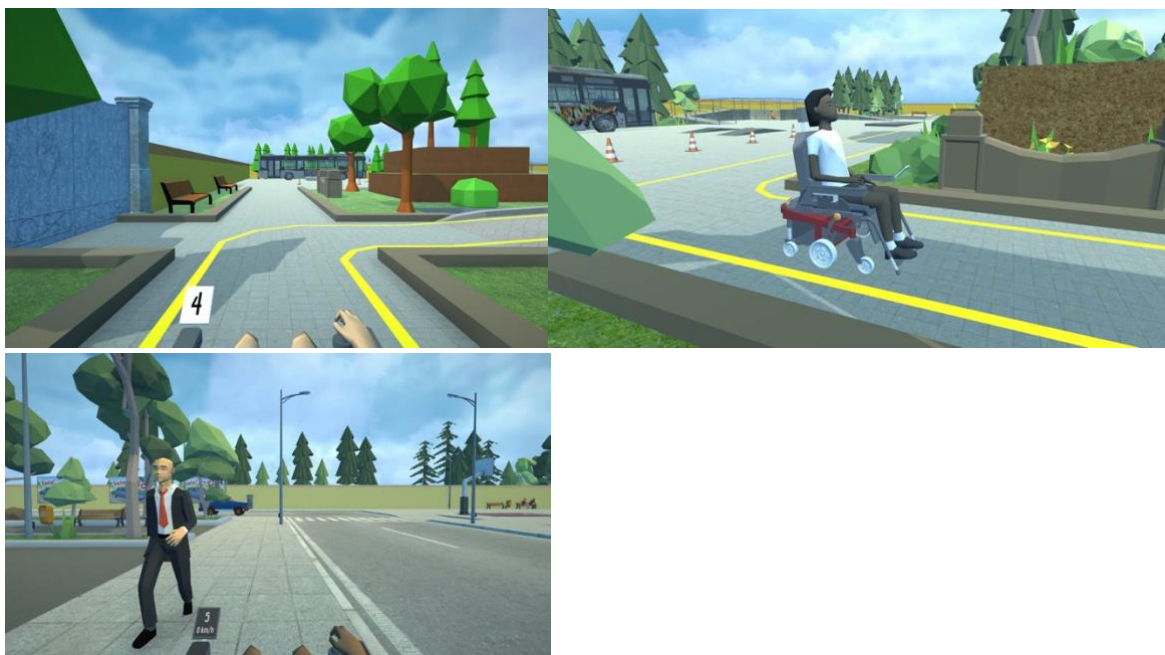
15. LIFETOOL GEMEINNÜTZIGE GMBH

Information

Country: Austria

Solution: WheeSim VR

Website: https://www.lifetool.at/en/research-development/rd-projects/project-details/wheelsim-vr/

Product in final development stage, with prototype for testing

Images

Components Description

WheelSim VR was developed in Unity, which is a 3D/2D game engine and powerful cross-platform IDE (integrated development environment) for developers. As a game engine, Unity is able to provide many of the most important built-in features that make WheelSim VR work. That means things like general physics, 3D rendering, and collision

detection. However, the specific physics for the power wheelchair model used were developed from scratch. WheelSim VR will be available in 3 versions:

1. VR app (Oculus store) for use with Oculus Quest/Quest2 VR headset
2. Desktop version (Windows store) that can be used on a PC without VR headset, supporting a variety of alternative mouse/input devices
3. Professional desktop version (Windows store) in combination with Oculus VR headset which is optimized for professionals, therapists and wheelchair providers, including: user-administration, extensive protocol functions, allows use of alternative mouse devices

Use Cases Description

WheelSim VR is a virtual power wheelchair simulator that uses the latest Virtual Reality (VR) technology. The aim is to enable people with disabilities of all ages to learn and train the controls of a power wheelchair in a realistic simulation. The aim is to simulate a variety of situations/environments relevant to everyday life. VR has added a new dimension to simulation technology in recent years. What could previously "only" be followed on a screen can now be experienced more realistically with a VR simulator. With this technology it is possible to immerse and interact in situations in such a way that they are perceived by the consciousness as real and a transfer of the learned into the real world is possible. In addition to the basic handling of a power wheelchair, traffic educational content (including important traffic situations, braking distance, speed adjustment, ...) will prepare the users for driving in the real world. In WheelSim VR gamification elements are deliberately used to increase the motivation of the users and to make the simulation training a playful learning experience.

Important parameters can be logged to evaluate the handling. WheelSim VR offers extensive virtual training in different situations (driving in home environment (using an elevator), driving in the protected area of a park, driving in the city (managing different situations with or without crosswalks, pedestrians, traffic lights, other vehicles etc.), to learn and consolidate the handling of the power wheelchair as well as special requirements and traffic-relevant rules of conduct. The expertise of the Austrian Road Safety Board as a project partner was used to define the training situations and all relevant aspects of road safety. Currently there is no comparable, commercially available product on the market that offers a comprehensive VR power wheelchair training simulation. WheelSim VR stands out from the current state of the art in numerous points:

1. WheelSim VR offers a comprehensive, realistic VR experience. This means that several daily and detailed situations/environments are offered such as park, flat, lift, road traffic etc. Which other situations/environments are still desirable for

users was qualitatively surveyed and implemented by means of interviews and focus groups.

2. On the one hand, the solution will be available in a cost-effective version. For example, mobile VR glasses will be used, which can be coupled with a standard joystick or all other common wheelchair controls that have a suitable interface, in order to enable low-threshold training for users at home. In addition, WheelSim VR will also be used in the form of a stationary simulator with better VR quality in various rehabilitation facilities for accident patients or at the premises of power wheelchair providers.

3. In WheelSim VR complex traffic situations are trained, furthermore a didactic mediation of traffic educational content takes place.

4. WheelSim VR can serve as a decision support for the assessment of driving and traffic capabilities of power wheelchair users, e.g. to support insurance companies in the approval process.

5. WheelSim VR is designed with gamification elements to be attractive and motivating for the users. The motivation for improvement is increased by means of rankings and skill races against time on 4 different routes.

Additional Information

Promotional material:

https://www.youtube.com/watch?v=CCiVyz3eidQ&feature=emb_logo

Future plan for business development: The target group of WheelSim VR includes people of all ages with physical and/or mental disabilities who are dependent on a power wheelchair. This target group can be reached optimally by LIFEtool - for this purpose LIFEtool has a network of very well-established distribution partners and the sales experience of almost 1.200 sold WheelSim software programs (predecessor software) in 23 countries. (The predecessor programme WheelSim enables the user to learn the power wheelchair control by simple computer simulation without virtual reality).

LIFEtool will take over the distribution of WheelSim VR and will use its existing distribution channels and establish new ones. Above all, it will rely on cooperations such as with Otto Bock in Hong Kong, where a WheelSim training programme is often sold with wheelchair supplies. The equipment of AT suppliers, health insurance companies, insurance companies, rehabilitation centres, etc. is planned as a first step in the D-A-CH countries. Throughout Austria, affected persons will be supplied with a power wheelchair at approx. 70 locations. Heindl, expert and project partner in the WheelSim VR project, has the best access to supply locations and the mentioned facilities.