



Development of Smart Furniture with Artificial Intelligence and Medical Devices

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NOVOTA  ART



- Implementing medical measuring devices and sensors
- Innovative and stylish design
- Mechanized and automated parts of furniture and equipment
- Bio-composite materials with a layer of surface coating applied
- AI-controlled system with a direct link to a healthcare provider
- Complex and smart solutions for even the most unique of diagnoses
- Both individual and modular solutions



INDUSTRIAL RESEARCH OF SMART FURNITURE AND FUNCTIONAL ELEMENTS TO ASSIST HEALTH DISABLED AND ELDERLY PEOPLE IN THEIR HOMES

NOVOTA ART



FIRM NOVOTA ART, s.r.o

SUPERVISOR Mgr. Art. Adam Novota

PROJECT Industrial Development

REDISCOVERING THE EXPERIENCE OF COMFORTABLE AND HEALTHY LIVING

The project focuses on industrial research in the area of specialized smart furniture, modular sets with computer-controlled movable parts, both for indoor and outdoor use. The AI provides communication with a local healthcare center and it allows for the implementation of compatible, third-party devices, creating a complex, modular environment that provides care and comfort for the ill and the elderly within the context of their homes. The different sets and modules are developed with a view to catering to the most demanding needs of immobile people as well as those with very particular illnesses.

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IMPLEMENTING A NON-INVASIVE BIORESONANCE SCANNING DEVICE INTO SMART FURNITURE

DETAILED MONITORING AND VISUAL REPRESENTATION OF VARIOUS ORGANS AND BODY TISSUES. SIMILARLY TO OTHER SCANNERS, IT MEASURES ELECTROMAGNETIC PULSES AND SUBTLE CELLULAR FREQUENCIES

Medical thermovision cameras and touch-free monitoring devices based on the principle of acoustic resonance are capable of real-time visual imaging that helps analyze a patient's body. The images and the data can be used to provide immediate diagnostics, or they can be processed by specialized software to provide further analysis. These devices may replace a number of smaller medical scanners, as they are capable of measuring a patient's pulse, breathing, the activity of internal organs and many other variables.

Servo-motorized components in furniture. Adjustable height and length, automatic opening systems.



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IMPLEMENTING AUTOMATED AND SERVO-MOTORIC ELEMENTS INTO SMART FURNITURE, TO PROVIDE ASSISTANCE FOR SICK AND ELDERLY PEOPLE IN HOME ENVIRONMENTS

RESEARCH IN THE AREA OF IMPLEMENTING CUTTING-EDGE ROBOTIC TECHNOLOGY INTO A DOMESTIC ENVIRONMENT, WITH A VIEW TO KEEPING THE PRICE OF FURNITURE WITH AUTOMATED ELEMENTS AT A REASONABLE LEVEL



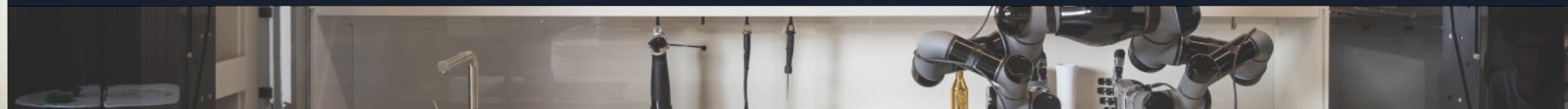
We believe that in the process of creating prototypes of smart pieces of furniture, the best results may be obtained using the top-down approach, addressing the general characteristics of a product and then moving on to more and more complex sets of details. Therefore, from the very first stages in designing a prototype, we aim to make use of the possibilities and the flexibility offered by numerous electronic devices, control mechanisms and software when implemented into the design of various constructions and automated elements. We also involve end users in the process - both elderly people and people with disabilities who live alone in their homes.

Developing automated mechanisms integrated into furniture modules, from concepts, designs and 3D models.

Development in stages, from an engineering design, through software and visual simulation up to the design and manufacture of prototypes.

Lab testing, including stress tests.

Adjusting existing automated devices for the purposes of drug administration, designing movable furniture modules etc.

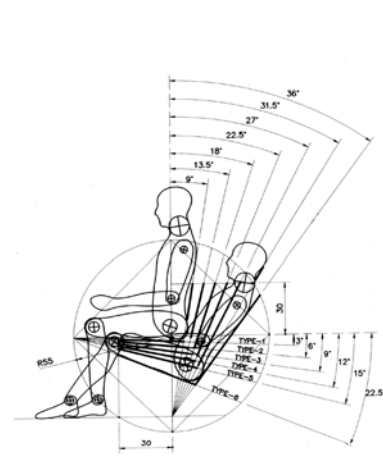


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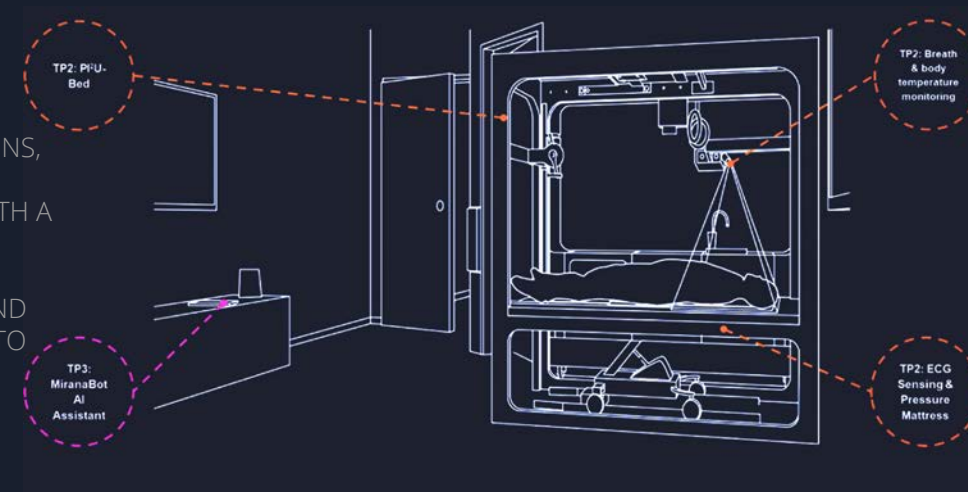


OUR RESEARCH AND OUR DESIGNS REDISCOVER THE WORLD OF MEDICAL EQUIPMENT AND TRANSFORM IT TO CREATE A SAFE, COMFORTABLE AND STYLISH HOME ENVIRONMENT

STYLISH DESIGN

NEW, CONTEMPORARY DESIGNS, USING NATURAL MATERIALS THAT ARE COMFORTABLE, WITH A SURFACE COATING

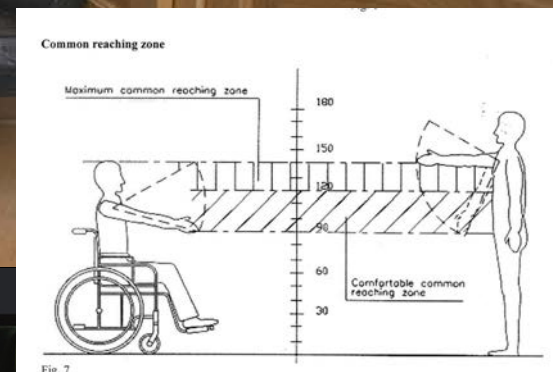
HYDRAULIC MECHANISMS AND AUTOMATED COMPONENTS TO CHANGE BODY POSITION





INNOVATIVE DESIGN AND HEALTHCARE TECHNOLOGIES

In the context of technology research, our focus will be on current technologies as well as those in the final stages of their development. These mainly concern devices such as acoustic resonance scanners, magnetic wave scanners and other touch-free monitoring equipment. Sometimes, the designs are fairly robust and their operation provides challenges for our target group of users. They effectively replace a number of smaller devices that provide non-invasive, touch-free measurements; however, they require adjustments in terms of the electronics and the materials used, to provide for a user-friendly environment. This includes smart solutions for incorporating the designs into home environment, and adjusting them to fulfill the requirements of home use. Our aim is to find practical solutions based on a functioning combination of contact measurements and touch-free measurements that would provide information about the patient's health status in the greatest detail possible.





Home Care Devices



Oxygen Concentrator



Patient-Monitor



AED



Pulse Oximeter



INNOVATIVE HEALTHCARE
TECHNOLOGIES ADJUSTED
FOR HOME USE

IMPLEMENTING BODILY FUNCTION SCANNERS AND ENVIRONMENT SCANNERS WITH AN AUTOMATED DELIVERY MECHANISM

An in-depth analysis of various pieces of current scanning equipment in the area of healthcare, with a view to integrating them in smart furniture modules as well as in the complex control system which communicates with the healthcare center. Designing adjustments to the equipment, to make it suitable for home use.



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Health Gateway Remote self-care monitoring environment



ARTIFICIAL INTELLIGENCE AND SMART FURNITURE WITH A LINK TO THE HEALTHCARE CENTER

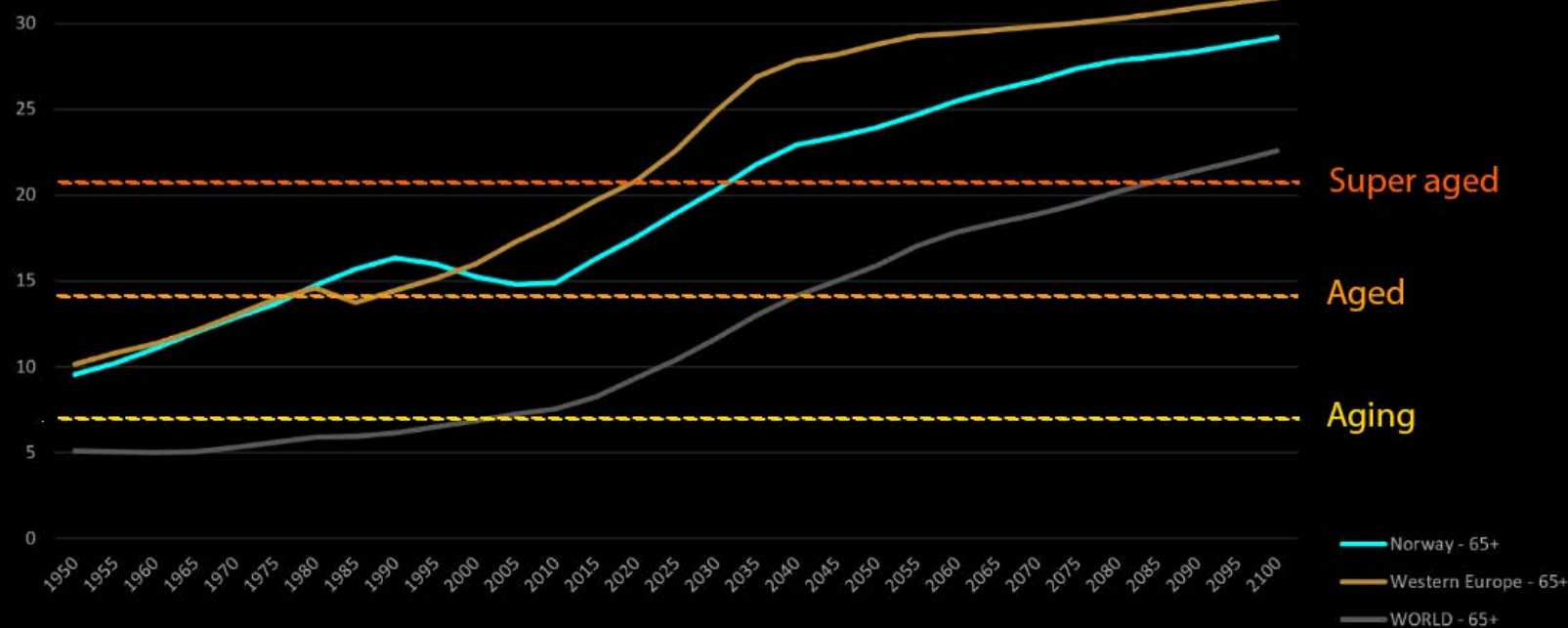
MONITORING AND MANAGEMENT OF BODILY FUNCTIONS

ARTIFICIAL INTELLIGENCE PROVIDES COMMUNICATION BETWEEN THE PATIENT, BODILY FUNCTION SCANNING DEVICES AND THE HEALTHCARE CENTER. IT SIMPLIFIES A NUMBER OF TASKS BY USING SPECIALIZED APPLICATIONS AND THE INTERNET.

- creating specialized software for every piece of smart furniture, incorporating it into a system that includes monitoring devices and providing a computer screen interface that allows for interaction using a speech recognition module
- providing a video link with the healthcare center
- integrating compatible third-party equipment
- developing a user interface that may connect to the internet to provide additional options (such as ordering medicaments, food or cleaning services, finding online exercise classes, learning or entertainment)
- developing the prototype of a complex control system for all smart furniture
- developing pieces of furniture that may house scanning devices to monitor bodily functions and provide early diagnosis
- implementation, modification and application of acoustic resonance scanners and various other touch-free devices to monitor bodily functions, their adjustment and validation for home use and their integration into furniture

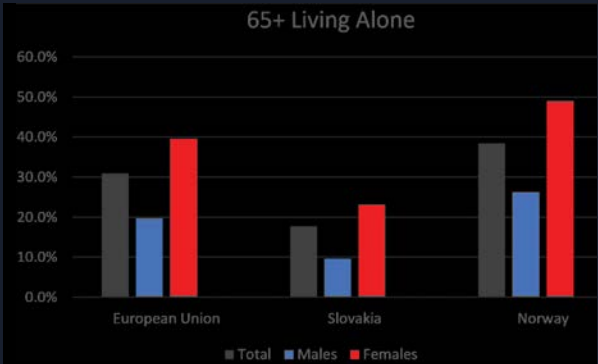


POPULATION AGING AS A CHALLENGE

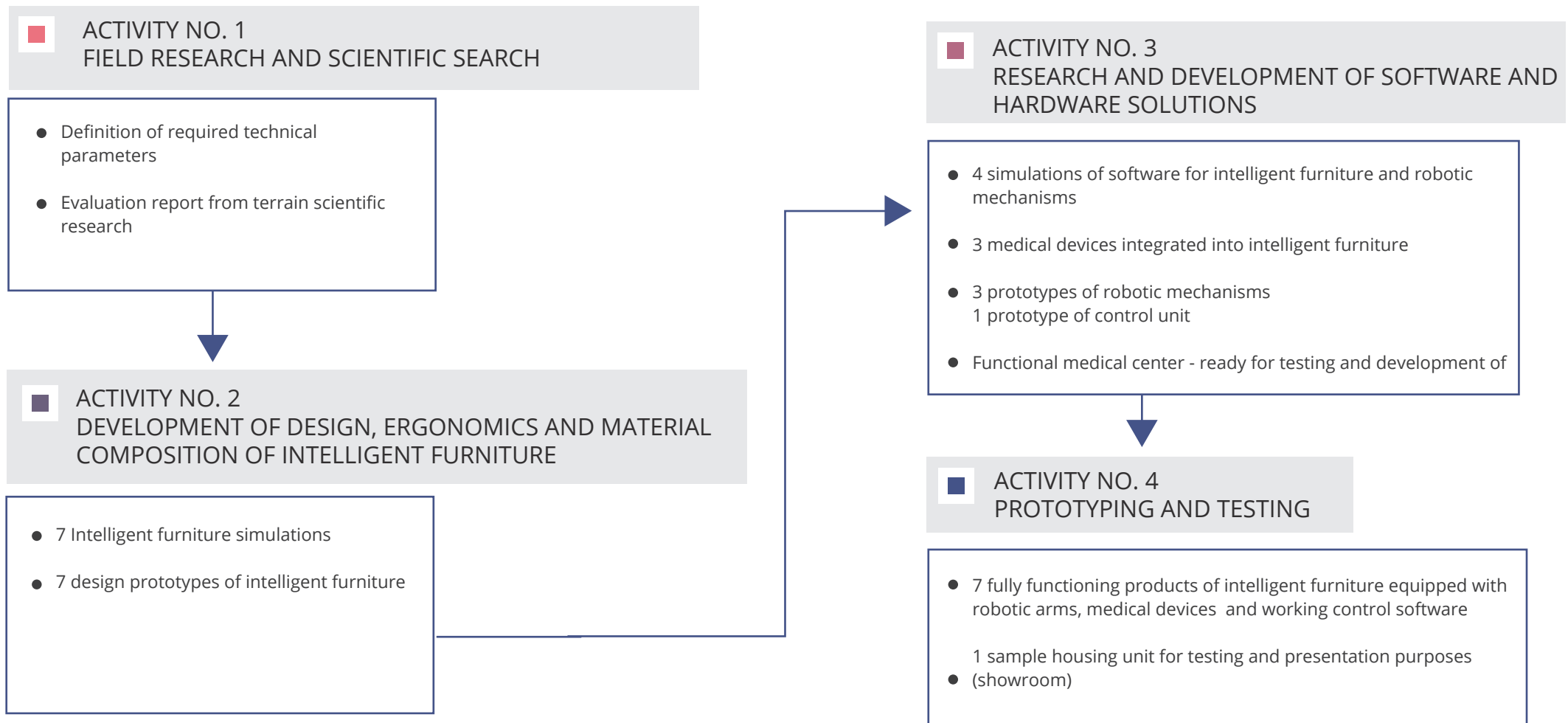


Already an aged society, Norway has been experiencing a dramatic increase in the pace of aging since 2010, when its baby boomers began to turn 65. Within the next 15 years, the nation is expected to enter a super-aged society, when the share of people age 65 and older exceeds 21 percent of the total population.

Almost 40% of Norwegians in this age group is currently living alone, which is significantly higher than average in EU countries.



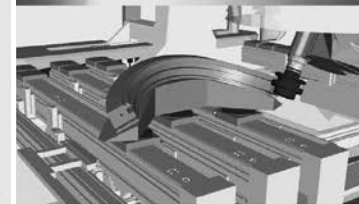
MAINLY PROJECT ACTIVITIES



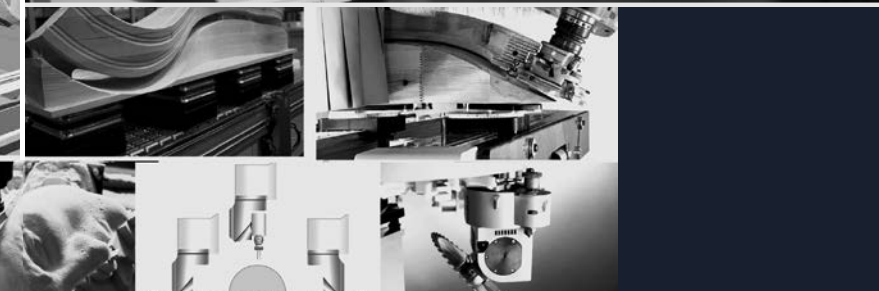
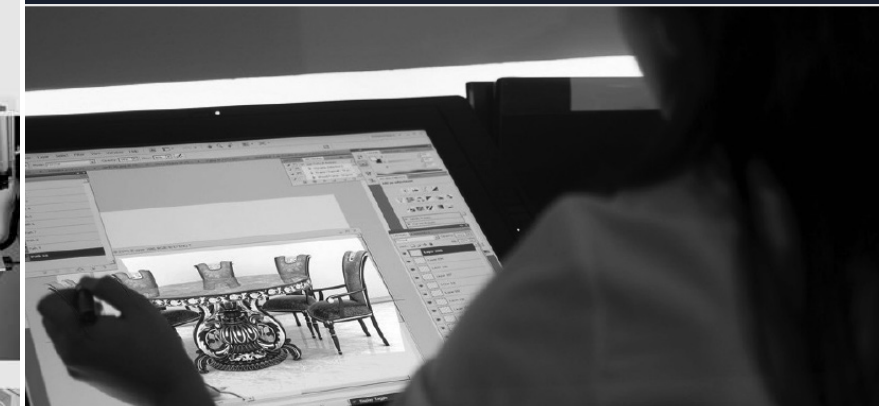
NOVOTA ART - GRANT APPLICANT

NOVOTA ART, s.r.o. is a family enterprise founded in May 2000. In their previous careers, the founding members had focused on highly specialized restoration work in both interior and exterior areas of historical buildings. Two of the founders, Olga and Dušan Novotovi, had previously worked on revitalizing historical monuments in the city of Bratislava, so they had a wide range of skills in different arts and crafts, as well as a great deal of professional experience at hand when starting their company. They had done restoration work in the historical center of Bratislava, and as talented art school graduates, they had developed their own graphic art as well. They decided to use their creative ambitions, as well as their technical skills and their craftsmanship, to run an independent business enterprise. Since the 1990s, they have expanded their range of activities to encompass every conceivable aspect of reconstruction, restoration and artistic revitalization of architectonic space. The third founding member, Matúš Novota, graduated from a restoration college in Florence.

The new generation brought modern technologies and contemporary design into the company. Adam Novota and Petra Čížková, postgraduate students at The Academy of Fine Arts and Design in Bratislava, found opportunities for cooperation with different studios at the university, which has yielded a number of innovative solutions in areas that are the company's biggest assets. NOVOTA ART has completed a great number of successful projects for both local and foreign investors.



Our company use different production machines, programming and 3d design software, has its own design studio and provides comprehensive production of interior and exterior architectural elements and furniture in highest quality



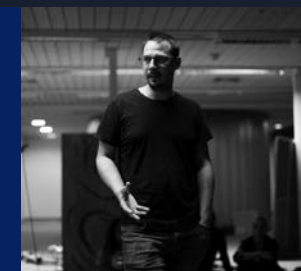
NOVOTA ART uses cutting-edge technology, working with 5-axis machining centers to produce some of the most complicated furniture parts and setups. The ACCORD 50 FX-M machining center excels in precision work as well as in providing top quality surface coating.

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NOVOTA ART company currently employs multiple specialists in areas of design, 3D modeling, mechanical constructions, software development, robotics and digital material machining such as CNC and 3D printing. Company maintains and keeps developing expertise and craftsmanship in artistic processing of complex sculptural shapes, ergonomy and design.

NOVOTA ART company cooperates with internationally recognized 3D designers operating in the area of development tools for elderly and immobile people.

Since the beginning of this project, we encountered a lot of interest also from the younger generations members, who often bring fresh and energetic ideas. We also cooperate with related departments of The Academy of Fine Arts and Design.

keep an eye on
your loved-one

Albert comes with its iOS/Android app. This enables the relatives of the sufferer to track and monitor the difficulties encountered and/or progress made, as well as to keep an eye on the sufferer's mobility.



Petra Čížková



Radoslav Lovecký



Juraj Rosa



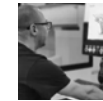
Oleg Yushko



Matej Novotný



Antoine Beynel



Adam Novota



Dušan Novota



Olga Novotová



Matúš Novota



Silvester Tavali



Our team member carries out research and development in the field of visual calculations. They creates its own applications for data visualizations, interactive 2D or 3D experiences, and for augmented and virtual reality. The team develops tailor-made solutions for clients in industry, culture, education and science. The team also operates in the field of computer graphics, information visualization, geometry modeling and interactive applications and construction design

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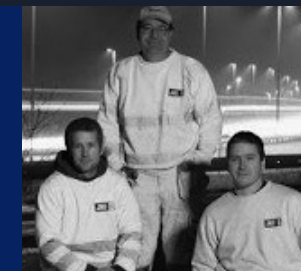
JAHO MUR OG FASADE AS

This company mainly operates in Norway, and in its history, it has undergone many changes and developments, including but not limited to a change of their name, from Jkg Mur AS. Their resumé includes a number of specialized projects in construction, architectural work and reconstruction of interior and exterior parts of buildings. Currently, the company focuses on homes for the elderly, where it does construction and restoration work both in the interior and in the exterior of buildings. At the moment, it is carrying out specialized masonry and architectural work at the Assisted Senior Home in Åseral, Norwegian inland municipality north-east of Kristiansand.



In the future the company would like to extend their activities into building residencies similar to Randesund Hageby, the largest residential area for elderly people in Norway, in the municipality of Kristiansand.

The company continues to direct its activities towards providing services for the elderly and people with disabilities, and it would like to expand its portfolio in this direction. There are family ties that account for that particular focus. The managing director, Jaroslav Holík, is married to Vlasta Holíková, who works as a nurse in the Assisted Senior Home in Åseral. She keeps in touch with various assisted living institutions, as well as people with disabilities who live in home environments and who she provides care for as part of her job.



OUR PARTNER IN THE AREA OF SPECIALIZED CARE THE VIA LUX - HOME FOR SOCIAL SERVICES AND SENIOR CITIZENS

BUDGET ORGANISATION, WHICH IS CONNECTED TO THE BUDGET OF
THE KOŠICE SELF-GOVERNING REGION BY ITS INCOME AND EXPENDITURE.



 **VIA LUX**
**Domov sociálnych služieb
a zariadenie pre seniorov**



The facility is located in a pleasant quiet environment in the city district of Košice - Barca. It is surrounded by a protected park with an artificial lake, benches and a gazebo. The park is used by clients throughout the year for rest, walks, physical activities and relaxation.

The mission of the facility is to provide social services within the meaning of the Social Services Act as part of the social policy of KSK.

The vision of the facility is to provide quality social services in a barrier-free facility according to the individual needs and requirements of the recipients of social services with respect for their uniqueness and respect for human rights and fundamental freedoms. To create a safe environment for the recipients of social services, as close as possible to the home environment in which they spend their daily lives.

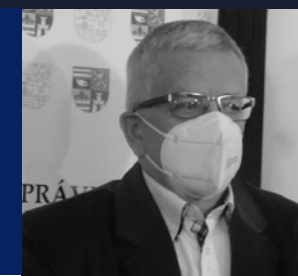
The facility's strategic goal for 2019- 2021 is to improve the readiness of the facility to provide better quality social services in line with DEI trends, taking into account the growing number of social service recipients with psychiatric diagnoses and the increasing number of older persons.

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JUDr. Vojtech Hintoš
**VIA LUX - Home of social services
and facility for the elderly**

Andraščíkova 2,
040 17 Košice - Barca
Slovakia



The Opening Seminar of the project

Development of Smart Furniture with Artificial Intelligence and Medical Devices

May 27, 2022 in the Hotel Carlton Bratislava.

Presentation of partners, activities and project goals. The project is supported by the grant program Development of Trade, Innovation and SMEs and financed from the Norwegian Financial Mechanism 2014-2021 and the state budget of the Slovak Republic.

