

# INNOVATION PROJECTS OF THE VICE-MINISTRY OF VOCATIONAL TRAINING OF EUSKADI

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**Tknika**

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CIFP AGRARIO ARKAUTE LHII  
CIFP MENDIZABALA LHII

## Estimation of production by sounding pastures and managing herds with virtual fences

Digital pasture management, optimising production levels with the consequent economic improvement and secondary improvements through pasture sensing and virtual fencing.

IES LAUDIOALDE LANBIDE  
ESKOLA BHI  
CIFP MAQ.-HERRAMIENTA LHII  
CPIFP ARRATIAGO ZULAIBAR  
LANBIDE IKASTEGIA LHIPI  
CIFP MIGUEL ALTUNA LHII

## Additive (WLMD and SLM) vs Machining

This project compares the capabilities of WLMD and SLM additive technologies for a 5-axis machining process. The aim is to analyse the benefits and limitations of each technology to manufacture parts with complex geometry.

CIFP ARMERIA ESKOLA LHII  
CIFP MIGUEL ALTUNA LHII

## Prescriptive maintenance of smart factories using Condition Monitoring and Artificial Intelligence

Just like the Industry 4.0 was a digital transformation, prescriptive maintenance was also a disruptive transformation within maintenance. Using the opportunity to experience these technologies with students, we will digitise one of the school's CNC machines to learn the machine's status at all times, using Condition Monitoring and Artificial Intelligence.

CIFP ARMERIA ESKOLA LHII  
CIFP DON BOSCO LHII

## Autonomous robotic chair for girls and boys with cerebral palsy and severe mobility issues

With the cooperation of Aspace Gipuzkoa, the main goal of the project is to design and build an autonomous robotic chair that can be replicated and is based on ROS and artificial intelligence, so that girls and boys with cerebral palsy and severe mobility issues can move about autonomously. Moreover, by using reverse engineering, an open autonomous robot will be developed that can be used both in electronic training cycles and in skills tests to boost the sector's visibility and reduce the huge deficit of qualified workers in demand.

CIFP DON BOSCO LHII  
CIFP MENDIZABALA LHII

## **5G FPeuskadi, roll-out of professional 5G infrastructures at Vocational Educational Training centres in the Basque Country**

The main goal of the project is to create a professional 5G infrastructure model for the Basque Country's Vocational Educational Training centres and to roll out private hubs at different centres. To this end, we will research typologies of dedicated and shared core 5G networks. This way, we will complete and broaden knowledge of experimental networks that work in specialising communications for Tknika and cloud computing.

CIFP DON BOSCO LHII  
CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII

## **Smart 3D-printed bionic prosthesis activated with biosensors: autonomy, rehabilitation, natural and functional experience**

Development and implementation of a 3D-printed prosthesis for individuals with different mobility. This prosthesis is controlled with electromyogram (EMG) and electroencephalogram (EEG) biosensors, allowing the user to operate it intuitively and naturally, as activating one of their muscles triggers the prosthesis. The importance of this project lies in its ability to transform the experience of prosthesis users, offering a solution that integrates more naturally and functionally into their lives.

CIFP DON BOSCO LHII  
CIFP BIDASOA LHII

## **AI Prototyping, artificial intelligence in microcontrolled boards for prototyping in electronics**

This project shows how to develop embedded prototypes based on microcontrollers with the aid of artificial intelligence, focusing on implementing pre-generated and pre-trained algorithms

CIFP DON BOSCO LHII  
CPIFP CEINPRO LHIPI

## **Blended Reality in refrigerator facilities with low environmental impact**

The intent is to enhance safety in handling sustainable coolants through realistic simulations, reducing risks for technicians. This initiative is adapted to EU regulations on fluorinated gases, promoting more sustainable and efficient solutions in the cooling industry.

CIFP MIGUEL ALTUNA LHII  
CIFP USURBIL LHII

## Prospective of Remote Technical Assistance tools based on Augmented Reality

Some companies that work with Augmented Reality software offer Remote Technical Assistance based on Augmented Reality as their own service. In this project, we analyse the products and services provided by two different providers and conduct different tests to compare experiences and draw conclusions.

CIFP MIGUEL ALTUNA LHII  
CIFP USURBIL LHII

## The digital twin in virtual reality

By developing digital twins, in this case using Software Machines Simulator, we intend to create virtual models of machines, mechatronic systems, and other customary resources in vocational educational training, where twins behave like and are similar to real devices and are finally placed and started up in virtual reality spaces and scenarios. In short, the idea is to fuse VR's enabling technologies and Digital Twins, adapting them to vocational educational training needs.

CIFP USURBIL LHII  
CIFP TOLOSALDEA LHII  
CPIFP HARROBIA LHIPI

## INTERACTIVETHERM - Development of interactive, immersive experiences based on BIM models of thermal installations and of fluids drawn with the aid of Artificial Intelligence

Development of 3D models of thermal and fluid installations to generate content for use in interactive classrooms. Analysis of the portability of different design software to programmes like Unity and different contents for student learning activities.

CIFP MEKA LHII  
CIFP DON BOSCO LHII

## Virtual Training Electromobility Technologies

This project encompasses two innovative sectors. On one hand, it works with systems that current electric cars have, and on the other, it virtualises the work methods of these vehicles. This way, students learn the processes in a safe way.

CIFP DE DESARROLLO  
SOSTENIBLE EN EDIFICACIÓN  
INTELIGENTE LHII  
CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII

## **OBRA360: 360° interactive virtual scenarios to track construction and digitisation of the construction sector**

The Obra360 project is focused on developing interactive virtual scenarios obtained from 360° images of construction sites that are currently under execution. These virtual scenarios help us to train students in the construction sector on how to use modern digital techniques for site monitoring, organisation, and control. Moreover, the scenarios integrated into interactive and immersive technologies help construction companies, design firms, and different institutions to take virtual tours of the sites easily, efficiently, and with no need for large investment.

CIFP BARAKALDO LHII  
CIFP TARTANGA LHII

## **Integration of AI algorithms in manufacturing cells through built-in systems**

Use of different built-in systems (Jetson Nano, Raspberry Pi, Arduino, ...) that use AI algorithms to increase productivity in different manufacturing cells with the use of new functions (artificial vision, voice recognition, etc.).

CIFP BIDEBIETA LHII  
CIFP TXURDINAGA LHII  
CIFP ANDRA MARI LHII  
CPIFP MARISTAK DURANGO  
LHIPI

## **Black box to improve cyclist safety through a statistical study using Big Data and Artificial Intelligence**

The main goal of the project is to ensure the safety, care, and well-being of cyclists and cyclo-tourists. To this end, an electronic device is designed and manufactured. Its function is similar to an aeroplane's "black box," but for bicycles.

CIFP EMILIO CAMPUZANO LHII  
CIFP ANDRA MARI LHII

## **ZIUR: Soulbound Token to certify professional skills**

The ZIUR project aims to develop a system to certify professional skills by implementing Soulbound Tokens (SBTs) on Blockchain networks. In collaboration with the company P4Q and the UPV/EHU, the project seeks to validate skills acquired by professionals and students, enabling the transfer and recognition of skills between different industrial and educational sectors.

CIFP EMILIO CAMPUZANO LHII  
CIFP SANTURTZI LHII

## E4SPACE: Electronic additive manufacturing toward certification for the aerospace industry

The project drives additive manufacturing of electronic circuits in VET, fostering collaboration among educational centres and companies in Bizkaia, with emphasis on technological transfer and employment inclusion.

CIFP EMILIO CAMPUZANO LHII  
IES SATURNINO DE LA PEÑA BHI

## Application of Artificial Intelligence technologies based on NeRF neuron networks in Culture

The project's goal is to use technologies based on NeRF neuronal networks to make immersive reconstructions of cultural sites and objects.

CIFP SANTURTZI LHII  
CIFP ESCUELA DE HOSTELERÍA  
LEIOA LHII

## Food Safety in Virtual Setting: HACCP

The project's objectives are:

- To model virtual settings that simulate hospitality establishments where food is processed
- To model virtual settings that simulate microbiological analysis labs
- To design interactive virtual interfaces for food processing, surface sampling, and microbiological parameter analysis
- To design an interactive game in 3D reality available for use at the Basque Country's vocational educational training centres.

CIFP SANTURTZI LHII  
CPIFP CEINPRO LHIPI

## 5GREEN

Virtualisation of compact installation 5G radio communications systems, with the added difficulty of orientation in a non-urban setting without optical references to help the installer and with geographical obstacles to overcome to provide service.



CIFP SANTURTZI LHII  
CIFP BARAKALDO LHII

## AI + Robotics: Processing natural language in robot

This project aims to develop a system with, based on Natural Language Processing, is able to understand the questions asked of it and provide congruent, accurate responses. This system shall be implemented in a robot to simulate a realer, more personal interaction.

CIFP ZORNOTZA LHII  
CIFP CONSTRUCCION BIZKAIA  
LHII

## MIG-MAG welding with low heat input and cold arc using a collaborative robot

Foster a sustainable and fair industrial transformation, based on Industry 4.0 and the circular economy, by developing specialised skills, promoting gender equality in technology, and guaranteeing job security in digitised environments.

CIFP TARTANGA LHII  
CPIFP SOMORROSTRO LHIPI  
CPIFP MONDRAGON ESKOLA  
POLITEKNIKOA LHIPI

## Implementation of high capacity networks for real-time control of automated systems with immersive technologies

This project studies the capabilities provided by high-capacity networks, including wireless, 5G, wired, and fibre optic, to delve into the use of Virtual Reality to control and visualise a Digital Twin and its matching real system in real time.

CIFP TXURDINAGA LHII

## Basque Quantum to FP (II) - QUANTUM IS COMING

Research and dissemination project, oriented toward incorporating Quantum Computing into vocational educational training. Objectives:

- To increase the complexity of executions on real quantum devices and the interpretation of results.
- Work on the two branches related to post-quantum cybersecurity: PQC (Post Quantum Cryptography) and QC (Quantum Cryptography) or QKD (Quantum Key Distribution).
- Provide a viable alternative to be able to execute Qiskit code in quantum simulators with no need to make local installations.

CIFP TXURDINAGA LHII  
IES XABIER ZUBIRI-MANTEO BHI  
IES UNI EIBAR-ERMUA BHI

## **ZiberHub: Automated Roll-out of Gamified Challenges**

Creation of a Capture The Flag (CTF) challenge system on a cloud platform. This system is designed to host and manage CTF challenges efficiently and securely, using cloud technologies. It enables collaborative and dynamic participation in IT security challenges, based on orchestrated and automated infrastructure.

CIFP TXURDINAGA LHII  
CIFP TARTANGA LHII  
CPES SAN LUIS BHIP

## **SMART WINDOWS 4.0 v3: Using Big Data analysis of data obtained from Artificial Vision applied to analysis of shop window performance**

Proiektuaren hirugarren fasean, urtez urte datuak biltegitatu eta aztertuko dira. Horretarako, gorde eta tratatu beharreko datuek sistema konbentzionalen ahalmenak gainditzen dituztenez, BIG DATA sistema ezartzea proposatzen da.

CIFP TXURDINAGA LHII  
CPES SAN LUIS BHIP  
CPES ARCE BHIP

## **MenteK-AI Worlds. Technology and AI to measure emotional well-being in VET classrooms**

This is an innovative support tool for professionals at VET centres in the Autonomous Community of the Basque Country to care for students' emotional health issues and to prevent suicide in the classroom through AI and Big Data. It has the following modules: Student App, which collects emotional well-being data through gamification, and Personal Psychologist App, a predictive tool with a generative AI model with care protocols for specific risks. This year, in addition to new uses, the product is going to be tested by collaborating centres to make it available to all Basque VET.

CPIFP GOIERRI LANBIDE  
ESKOLA LHIPI  
CPIFP NAZARET LHIPI

## **VR-TRAIN: Virtual Reality for Multidisciplinary Training**

The VR-TRAIN project develops a training platform based on Virtual Reality to provide training in multi-disciplinary processes at vocational educational training centres in the Basque Country. By using videos and interactive elements, we create immersive experiences so that users acquire skills effectively.

CPES SAN LUIS BHIP  
CPES ARCE BHIP  
ESCUELA SUPERIOR DE  
HOSTELERIA BILBAO ESHBI

## XR TKAdvisor. Virtual assistant to adopt XR technology and design contents for ETHAZI challenges with AI

XR TKAdvisor is an AI-based virtual assistant who helps centres to adopt XR thus:

- Providing assessment on what kind of immersive technology to select, thinking of producing and rolling out content from the first moment (XR TKechnologies).
- Helping to design effective short lessons based on simple mechanics, reducing the learning curve, both in production and in exploitation (XR ETHAZI TKDesign).
- The end goal of this project is to familiarise the user with use of XR, boosting acquisition of knowledge of skills that are not only technical, but also cross-cutting, fostering an exponential use of these technologies to acquire knowledge.

CPIFP LA SALLE BERROZPE  
LHIPI  
CPIFP CENTRO DE  
ESTUDIOS AEG LHIPI

## IAProtect Entry - AI technology for PPE detection in industrial settings

IAProtect Entry is a safety portal to control personal protection equipment identified by Artificial Intelligence able to detect the most important PPE missing at conventional machining or CNC shops.

CPES ALMI BHIP

## Artificial Intelligence for automatic sign language translation

The project seeks to develop a mobile application that uses artificial intelligence to translate sign language in real time to text/voice and vice-versa, facilitating communication between individuals with hearing difficulties and the hearing. The motivation is to enhance inclusion and accessibility for this collective, eliminating communication barriers.

CPIFP MONDRAGON ESKOLA  
POLITEKNIKOA LHIPI

## Deep Learning applied to PdM in industrial settings and processes on the LHab4.0 platform

Provide advanced artificial intelligence to the strategic LHab4.0 project implemented in the MGEP laboratories, utilising neural network sets to achieve automated predictive maintenance techniques.

IES FRANCISCO DE  
VITORIA BHI  
CIFP HOSTELERÍA LHII  
(Gamarra)

## Fusing tradition and technology to nurture the memory of our elderly with chewing and/or swallowing difficulties

Using 3D printing to create sustainable and nutritious dishes, especially adapted to the elderly with chewing and swallowing difficulties, promoting sustainability and recovery of memories through food.

IES FRANCISCO DE  
VITORIA BHI  
CIFP DON BOSCO LHII

## Microencapsulation of bioactives: developing personalised and sustainable solutions

Research and application of microencapsulation techniques to facilitate microencapsulation of bioactive substances of different kinds, and promoting the development of personalised products with more effective, safer, and healthier advanced properties. Encapsulation will protect bioactives and modify their release profiles, improving the efficacy and safety of pharmaceutical, nutraceutical, dermo-cosmetic, and similar products.

CIFP CIUDAD JARDÍN LHII  
CIFP HOSTELERÍA LHII  
(Gamarra)  
CIFP MENDIZABALA LHII  
IES ZARAOSBE BHI

## ØndAAkin: 0 food waste using Artificial Intelligence

A system will be developed to significantly reduce food waste and hold greater control over food consumption at hospitality businesses and in the home. The system will identify food thrown out, providing valuable data on consumption habits, identifying areas for improvement with Artificial Vision and Artificial Intelligence. Moreover, it will propose making new dishes, using ingredients that would otherwise be wasted.

CIFP HOSTELERÍA LHII  
(Gamarra)  
CIFP MENDIZABALA LHII  
CIFP CIUDAD JARDÍN LHII  
CIFP TXURDINAGA LHII

## IoS IMMERSIVE RESTAURANT. Virtual Reality, Internet of Senses and Emotions, and Big Data applied to the restaurant industry

Offering restaurant clientele an immersive, multi-sensory experience based on the concept of the Internet of the Senses, complemented with the development of smells, lighting, image, and sound, such that they are entirely immersed in a specific situation while enjoying a menu. In turn, data will be analysed on how the elements in this experience affect emotions, change perception of the sense of taste, the satisfaction level of clients, and consumption habits.

CIFP MURGIA LHII  
CPIFP SAN VIATOR LHIPI

## **ROBOFOREST - Autonomous robotics for forest management**

Project joining autonomous mobile robotics and analysis of point clouds and digital models applied to forest masses. Its aim is to use autonomous mobile robots to manage the forest environment, improving quality and precision, as well as increasing digitisation in the sector.

CIFP FRAISORO ESKOLA  
LHII  
CIFP DON BOSCO LHII

## **Forest treasures: sustainable use of resin and sap**

Forests offer a diversity of products and services besides wood. Many of the products and services are already being used, and others have yet to be researched, like resin and sap. The objective of this project is focused on sustainable use of resin and sap and characterising the obtained products.

CIFP FRAISORO ESKOLA LHII  
CPIFP OTEIZA POLITEKNIKOA  
LHIPI

## **BASERRIAN MURGILTZEN: Augmented Reality in agriculture and farming**

The objective is to optimise agricultural work to make it more efficient, sustainable, and appealing to youth.

To this end, agriculturists monitor their land and animals in real time and create predictive models through Artificial Intelligence.

It then visualises and manages data collected with augmented reality Hololens glasses, improving product traceability and enabling early pest detection.

CIFP PLAIAUNDI LHII  
IES ESKURTZE BHI  
CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII

## **IDAZBLISS: Virtual writing and learning setting for the non-verbal bliss communication system to make communication accessible to all**

Development of a free digital tool to enable Bliss language learning through a gamified setting that includes learning games, fostering inclusion and accessibility. It will have a Bliss symbol generator to create and personalise pictograms, along with a translator to convert Bliss text and vice-versa, providing more effective communication. Since this is an open platform, IDAZBLISS offers fair access to collectives with special needs, reducing communication barriers and fostering social participation.

CIFP BLAS DE LEZO LHII  
CIFP PLAIAUNDI LHII  
CPIFP NAZARET LHIPI

## ONGIBIDE- Resources for teacher well-being

The project develops an innovative digital tool that offers different resources to enhance the physical and mental well-being of VET teachers, helping them to tackle challenging situations in their day-to-day work. The application also fosters the interaction and active participation of users, fostering collaboration between VET centres.

CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII  
CPIFP CALASANZ LANBIDE  
IKASTEGIA LHIPI  
CPES IBAIONDO BHIP

## ASISTIA

This project seeks to create an integrated technological ecosystem to improve the quality of life of the elderly by using virtual/augmented reality, wearables, social robots, and remote medicine. Focused on personalised care, the solution promotes independence and physical, emotional, and social well-being, while encouraging the transfer of 4.0 technological tools to the social and healthcare sector. Of note is the importance of balancing technology and the role of professionals in healthcare to guarantee success.

CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII  
CPES ARANGOYA ZENTROA  
BHIP

## CitoLab Digital: Interactive tool for cytological samples

The CitoLab Digital project seeks to develop an innovative, interactive tool to improve cytological diagnosis. It aims to ease access to cytological samples and provide support both to students and to professionals in diagnostic practise.

CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII  
CPIFP TOLOSAKO  
INMAKULADA LHIPI  
CPIFP CEINPRO LHIPI

## 360° immersive virtual hospital

Different settings in the Donostia hospital are recorded to create immersive spaces through virtual reality. This way, students, teachers, and healthcare professionals can enter these virtual spaces and improve their technical skills. This project delves into the professional sphere so one can overcome limits in education.

CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII  
CIFP IZARRAITZ LANBIDE  
HEZIKETA LHII

## Healthy smiles, shining horizons: incorporating technology and education for oral health in the Basque School

With this project, the intent is to implement an oral healthcare programme in Basque schools. To develop the educational programme, innovative technologies will be used, creating a smart box of toothbrushes, an application, and a website. These technologies allow experts, teachers, students, and families to collaborate and improve oral healthcare for everyone.

CIFP MONTE ALBERTIA LHII  
CIFP PLAIAUNDI LHII  
CPIFP TOLOSAKO  
INMAKULADA LHIPI  
ESCUELA DE CINE Y VIDEO  
ESCIVI

## ON-kologia 360°: well-being, the backbone of the oncologic patient

The objective of this project is to meet comprehensive healthcare needs for oncologic patients, caring for body image, nutrition, therapeutic exercise, and psychological well-being. Three blocks of actions are proposed: organising a scientific workshop, conducting consulting workshops, and creating a digital platform to share pedagogical contents and recommendations.

CPIFP JESUITAK  
POLITEKNIKOA LHIPI

## Applications of the gene edition system CRISPR/Cas

The project seeks to introduce the CRISPR/Cas9 gene editing technique into the Basque Country's vocational educational training centres in order to improve student training to meet the demand of companies in fields like biotech, personalised healthcare, and precision medicine. Different applications of the technique will be explored, in order to develop practical contents of biosanitary interest, such as the inactivation of antibiotic resistance genes in bacteria.

CIFP DON BOSCO LHII  
CIFP SANTURTZI LHII

## FagoAqua: Bacteriophages against resistant bacteria

Resistance to antibiotics has become a serious global health issue, causing millions of deaths. In response to this crisis, bacteriophages, viruses that specifically target bacteria, are offered as a promising alternative to antibiotics. They provide advantages like high specificity and lower impact on the microbiome.

CIFP TOLOSALDEA LHII  
CPIFP HARROBIA LHIPI  
CPIFP TOLOSAKO  
INMAKULADA LHIPI

## Euskadiko LH Fit: From the Osasungaming programme to a network to strengthen well-being in vocational educational training

The Euskadi LH FIT Project seeks to act as the seed for the first Service of Healthy and Athletic Physical Activities for Vocational Educational Training implemented in the country, springboarding off a recently approved law. To this end, we aim to analyse how sedentary vocational educational training students are and provide an innovative propose to manage the service. On the other hand, it aims to analyse the resources and needs to promote the service, and provide a research report with the evidence that, according to the law, a management model would provide.

CIFP EMILIO CAMPUZANO  
LHII  
CIFP NÁUTICO PESQUERA  
DE BERMEO LHII

## ITSASOKO - High precision ports

The project's main objective is to explore and apply high-precision geo-location technologies for application in the maritime primary sector and in port operations. Using the European satellite network Galileo HAS (High Accuracy Service) and private 5G cellular networks, the project drives development of high-precision positioning systems, both on land and at sea, applying it especially to Euskadi's fishing ports.

CIFP EMILIO CAMPUZANO LHII

## TANTA: Efficient water management through blended reality

The project develops a blended reality platform to interact with IoT sensor data to optimise water facility management.

The project seeks to improve water distribution systems by developing a blended reality platform that interacts with data obtained from IoT systems.

CIFP NÁUTICO PESQUERA DE  
BERMEO LHII  
CIFP FADURA LHII  
CIFP MONTE ALBERTIA LHII

## System to fight ocean contamination with USV

The objective of the project is to collect hydrocarbons from port waters with a surface vehicle in an automated, sustainable fashion. Absorption occurs by reusing human and/or animal hair, thereby creating a circular economy.



CIFP NÁUTICO PESQUERA  
DE BERMEO LHII  
CIFP TARTANGA LHII  
CIFP BARAKALDO LHII  
CPIFP CALASANZ LANBIDE  
IKASTEGIA LHIPI

## On-board emotional well-being with Virtual Reality

Creation of a specific training tool through Virtual Reality that simulates situations of sea workers' stays on ships, in order to psychologically and emotionally prepare our students for their professional future on board, placing special importance on the situation of women in a highly male sector.

CIFP DERIO NEKAZARITZA  
ESKOLA LHII  
CIFP ANDRA MARI LHII  
CIFP ZORNOTZA LHII

## Digital kit for the sustainable agro-food sector

The project's objective is to highlight more sustainable agro-food models by implementing a digital tool in craftsman shops that is based on blockchain technology, and the implementation of diverse sensors to facilitate management, traceability, and guaranteeing hygiene-health conditions for these productions.

CIFP IURRETA LHII  
CIFP ANDRA MARI LHII  
CIFP DON BOSCO LHII  
CPIFP LA SALLE BERROZPE  
LHIPI  
CPIFP CENTRO DE ESTUDIOS  
AEG LHIPI  
CIFP POLITÉCNICO EASO  
POLITEKNIKOA LHII

## Geolocation devices to foster autonomy and well-being in individuals with Alzheimer's

The project develops a geo-location device with UWB technology to improve the quality of life and autonomy of individuals with Alzheimer's, providing a precise location, both indoors and outdoors.

CIFP TARTANGA LHII  
CPIFP TOLOSAKO  
INMAKULADA LHIPI

## Future of proton therapy training in vocational education by using VR in immersive and interactive classrooms

Proton therapy is an advance technique that treats cancer with high precision. The project's goal would be to create a proton therapy simulator for an immersive-interactive classroom.

CIFP TXURDINAGA LHII  
CIFP CIUDAD JARDÍN LHII

## **THERAPEUTIC VIRTUAL REALITY applied to Paediatric Surgery patients**

Using Virtual Reality technology to reduce pre-operation anxiety in paediatric patients and their families, before a surgery, explaining what it will be like and what they will experience during each one of the phases in said surgical process in an understandable, personal way.

CPIFP ZABALBURU LHIPI  
CPIFP CALASANZ LANBIDE  
IKASTEGIA LHIPI

## **CardioVoice - Smart voice recording assistant for cardiac arrest**

Development of a tool to collect and record automated and disregarded information that uses voice recognition to document actions in real time during the RCP procedure based on the Utstein format.

CPIFP CALASANZ LANBIDE  
IKASTEGIA LHIPI  
CPES IBAIONDO BHIP

## **Improving lives through social robotics and blended reality: transformative potential of 4.0 technology to support highly dependent individuals and at the end of life from a compassionate perspective.**

Proiektu honek ikuspegi humanista eta teknologikoa integratu nahi du, mendekotasun-egoeran dauden pertsonen zaintza pertsonalizatuagoa, errukitsuagoa eta eraginkorragoa emateko, robotika soziala eta errealitate birtuala bezalako tresnak erabiliz. 4.0 teknologiak ikertuz eta egokituz, pertsona bakoitzaren behar espezifikoetara egokitutako irtenbideak diseinatzea proposatzen da, haien eta senideen bizi-kalitatea hobetzeko eta une kritikoenetan giza laguntza emateko.

CPIFP CALASANZ LANBIDE  
IKASTEGIA LHIPI  
CPIFP ZABALBURU LHIPI

## **Diagnostic approach to pathologies based on the automated analysis of blood cells using Artificial Intelligence**

The main objective of this project is to develop an Artificial Intelligence tool to facilitate diagnosis of disease based on analysis of images of blood samples obtained with an optical microscope. The tool would identify the cell type, detect different kinds of alterations (cytoplasmic and nuclear morphology, inclusions, atypias, numerical abnormalities, etc.) and subsequently propose associations with possible diseases, providing a diagnostic approach.



**Tknika**

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**EUSKO JAURLARITZA**



**GOBIERNO VASCO**

HEZKUNTZA SAILA  
Lanbide Heziketako Sailburuordetza

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