



Tarea 03/A4

MEJORAS TÉCNICAS DEL REA Y LA HERRAMIENTA BASADA EN TIC



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Contenido

1.	INTRODUCCIÓN	3
2.	SITIO WEB DE SAFECRobot.....	4
2.1.	DESARROLLO DEL SITIO WEB DE SafeCRobot	4
2.2.	PRESENTACIÓN DEL SITIO WEB DE SafeCRobot.....	5
2.2.1.	PORTADA.....	5
2.2.2.	NOTICIA	6
2.2.3.	PROYECTO	7
2.2.4.	SOBRE NOSOTROS.....	8
2.2.5.	INFORMES	9
2.2.6.	OER.....	10
2.2.7.	HERRAMIENTAS DE REALIDAD VIRTUAL	13
2.2.8.	CONTACTO	16
3.	Mejoras técnicas	17
3.1.1.	MEJORAS TÉCNICAS EN LOS REA.....	17
3.1.2.	MEJORAS TÉCNICAS EN LA HERRAMIENTA VR.....	17
3.1.3.	PRODUCTOS MEJORADOS.....	17



1. INTRODUCCIÓN

Este informe se incluye en la tarea "O3-A4. Mejoras técnicas de REA y herramienta basada en las TIC", correspondiente al Producto Intelectual 3 "REA para la formación y sensibilización" del proyecto SafeCRobot.

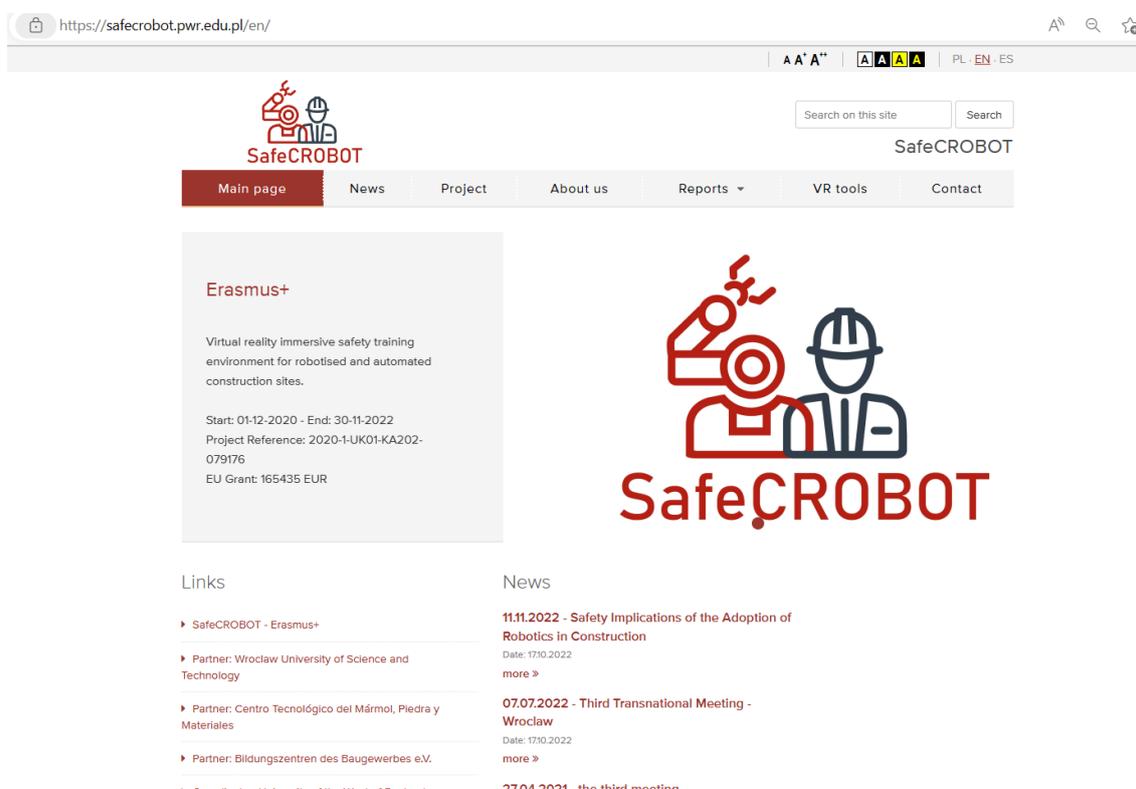
A partir de las actividades A2 y A3 de este Resultado Intelectual 3, se han mejorado los REA y la herramienta basada en las TIC y la versión beta del REA ha sufrido varias modificaciones con las mejoras identificadas en la evaluación realizada por los evaluadores externos del proyecto, así como las identificadas en los cursos piloto por los asistentes.

Este informe y toda la información sobre el proyecto están disponibles en la siguiente url: <https://safecrobot.pwr.edu.pl/en/>

2. SITIO WEB DE SAFECROBOT

2.1. DESARROLLO DEL SITIO WEB DE SafeCROBOT

Este sitio web del proyecto SafeCROBOT fue creado por PWR durante el primer período del proyecto y se utiliza como un lugar común para compartir los productos del proyecto y base de las actividades de difusión.



Una vez decididos, diseñados e implementados todos los detalles gráficos de la web, el menú y los logotipos, se empezó a incluir información básica sobre el proyecto, como el resumen, los objetivos, la lista de informes elaborados durante el proyecto, etc. Posteriormente, se han cargado los documentos finalizados resultantes de la investigación y los estudios realizados por los socios del proyecto.

El sitio web de SafeCROBOT incluye los principales resultados intelectuales del proyecto. Cabe señalar que todo el sitio web está disponible en todos los idiomas de los socios del proyecto. Para la traducción de los contenidos disponibles, todos los socios del proyecto participaron proporcionando traducciones a sus lenguas maternas.

Enlace a la web del proyecto SafeCROBOT : <https://safecrobot.pwr.edu.pl/en/>

2.2. PRESENTACIÓN DEL SITIO WEB DE SafeCROBOT

En la siguiente imagen, se pueden ver las diferentes secciones en las que se divide la web del proyecto SafeCROBOT y los enlaces a cada una de estas secciones.

2.2.1. PORTADA

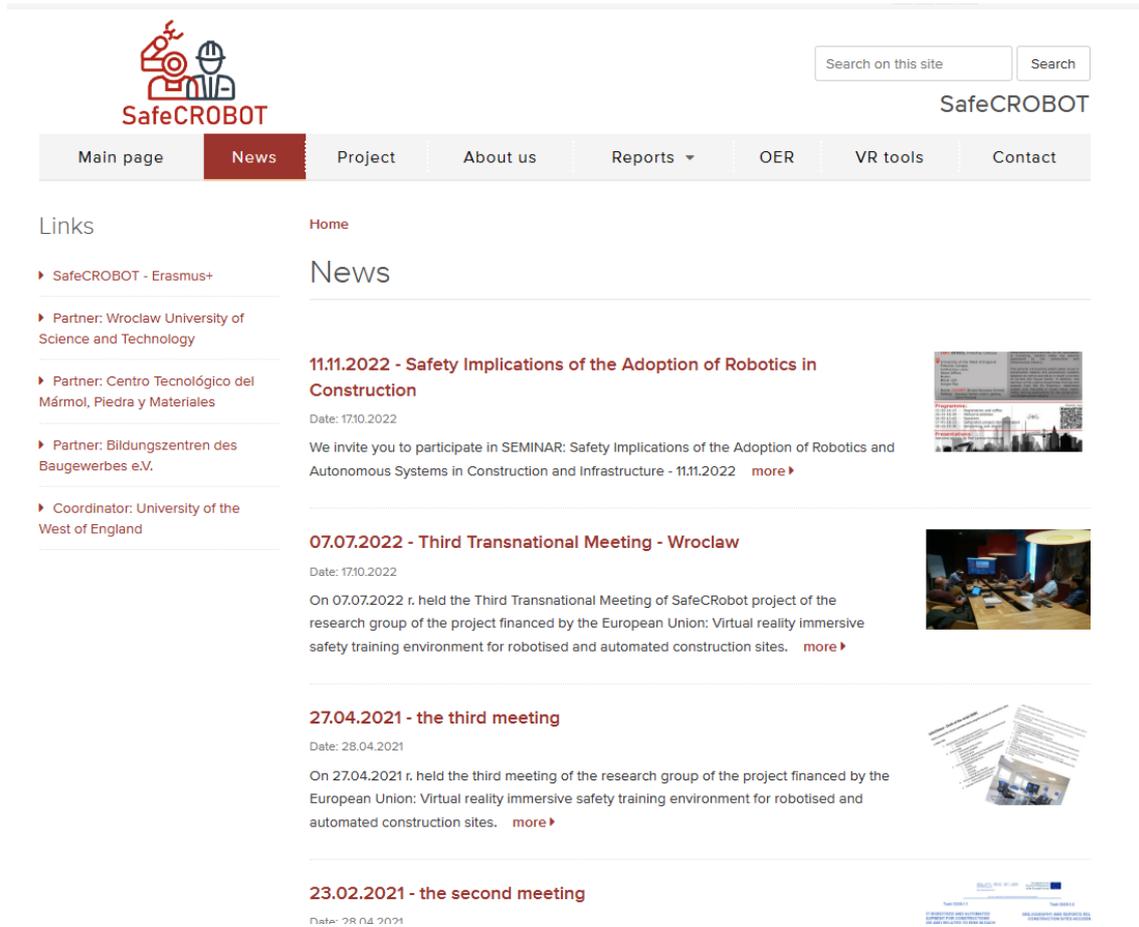
Enlace: <https://safecrobot.pwr.edu.pl/en/>



The screenshot shows the homepage of the SafeCROBOT website. At the top left is the logo, which consists of a stylized figure wearing a hard hat and holding a tool, with a gear and a target symbol. Below the logo is the text 'SafeCROBOT'. To the right of the logo is a search bar with the text 'Search on this site' and a 'Search' button. Below the search bar is the text 'SafeCROBOT'. A navigation menu is located below the search bar, with the following items: 'Main page', 'News', 'Project', 'About us', 'Reports', 'OER', 'VR tools', and 'Contact'. The 'Main page' item is highlighted. Below the navigation menu is a large section with the text 'Erasmus+' and a description: 'Virtual reality immersive safety training environment for robotised and automated construction sites.' Below this text are the dates 'Start: 01-12-2020 - End: 30-11-2022', the project reference 'Project Reference: 2020-1-UK01-KA202-079176', and the grant amount 'EU Grant: 165435 EUR'. To the right of this section is a large image of the logo and the text 'SafeCROBOT'. Below the main content area are two columns: 'Links' and 'News'. The 'Links' column contains three links: 'SafeCROBOT - Erasmus+', 'Partner: Wrocław University of Science and Technology', 'Partner: Centro Tecnológico del Mármol, Piedra y Materiales', and 'Partner: Bildungszentren des Baugewerbes e.V.'. The 'News' column contains two news items: '11.11.2022 - Safety Implications of the Adoption of Robotics in Construction' and '07.07.2022 - Third Transnational Meeting - Wrocław'. Each news item includes a date and a 'more »' link.

2.2.2. NOTICIA

Enlace: <https://safecrobot.pwr.edu.pl/en/news>



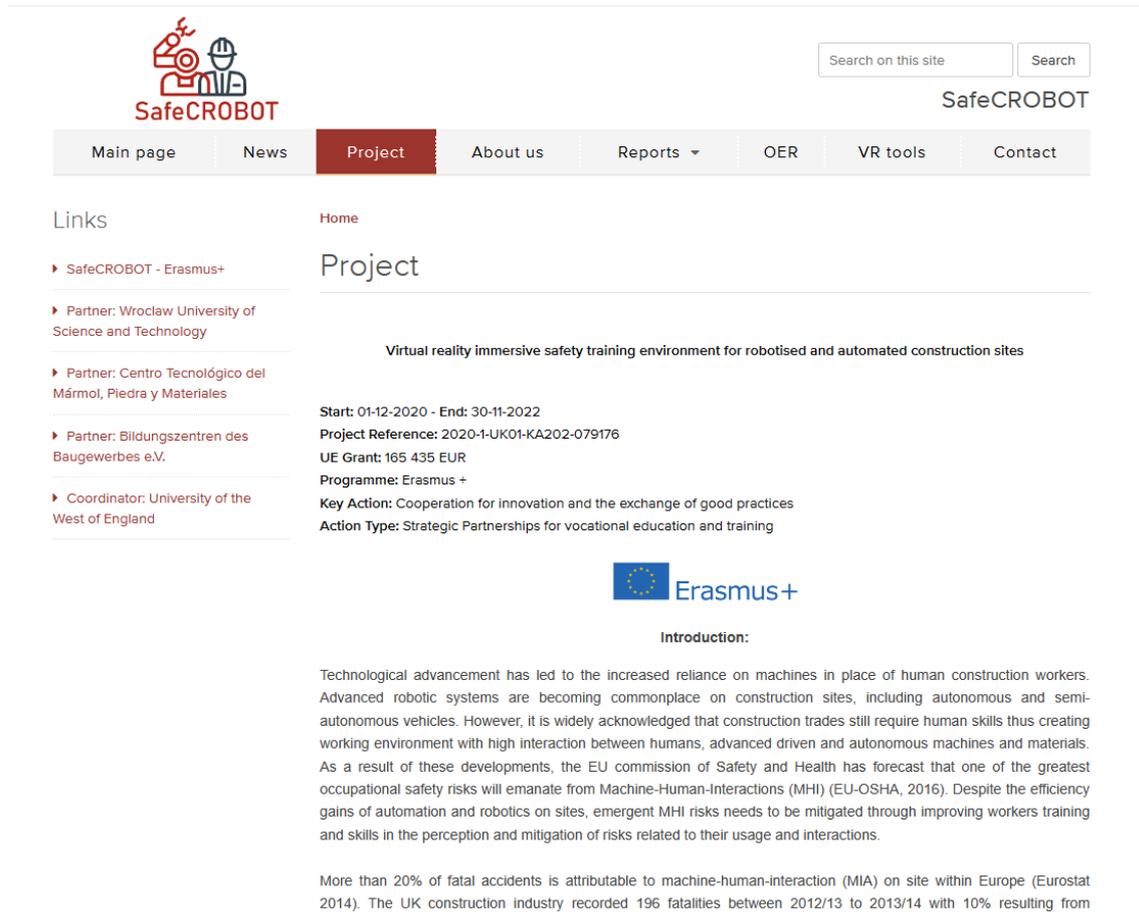
The screenshot shows the SafeCROBOT website's news section. At the top, there is a search bar and the SafeCROBOT logo. A navigation menu includes 'Main page', 'News' (highlighted), 'Project', 'About us', 'Reports', 'OER', 'VR tools', and 'Contact'. On the left, a 'Links' section lists partners and coordinators. The main content area, titled 'Home News', features three news items:

- 11.11.2022 - Safety Implications of the Adoption of Robotics in Construction**
Date: 17.10.2022
We invite you to participate in SEMINAR: Safety Implications of the Adoption of Robotics and Autonomous Systems in Construction and Infrastructure - 11.11.2022 [more](#)
- 07.07.2022 - Third Transnational Meeting - Wroclaw**
Date: 17.10.2022
On 07.07.2022 r. held the Third Transnational Meeting of SafeCRobot project of the research group of the project financed by the European Union: Virtual reality immersive safety training environment for robotised and automated construction sites. [more](#)
- 27.04.2021 - the third meeting**
Date: 28.04.2021
On 27.04.2021 r. held the third meeting of the research group of the project financed by the European Union: Virtual reality immersive safety training environment for robotised and automated construction sites. [more](#)
- 23.02.2021 - the second meeting**
Date: 28.04.2021



2.2.3. PROYECTO

Enlace: <https://safecrobot.pwr.edu.pl/en/project>

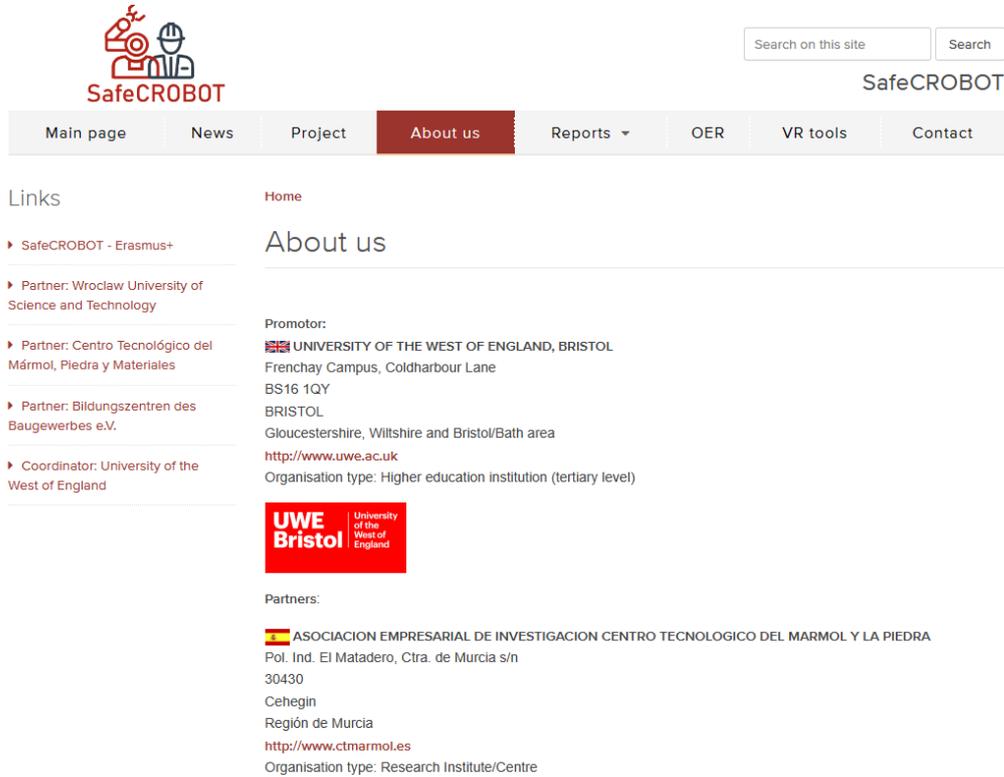


The screenshot shows the 'Project' page of the SafeCROBOT website. The page features a navigation menu with 'Project' highlighted, a search bar, and a list of links. The main content area is titled 'Project' and includes a subtitle: 'Virtual reality immersive safety training environment for robotised and automated construction sites'. Key project details are listed, including the start and end dates (01-12-2020 to 30-11-2022), project reference (2020-1-UK01-KA202-079176), grant amount (165 435 EUR), and the program (Erasmus+). The key action is described as 'Cooperation for innovation and the exchange of good practices', and the action type is 'Strategic Partnerships for vocational education and training'. An Erasmus+ logo is also present. The introduction section discusses the increased reliance on machines in construction and the need for improved worker training and skills to mitigate risks from Machine-Human-Interactions (MHI).



2.2.4. SOBRE NOSOTROS

Enlace: https://safecrobot.pwr.edu.pl/en/about_as

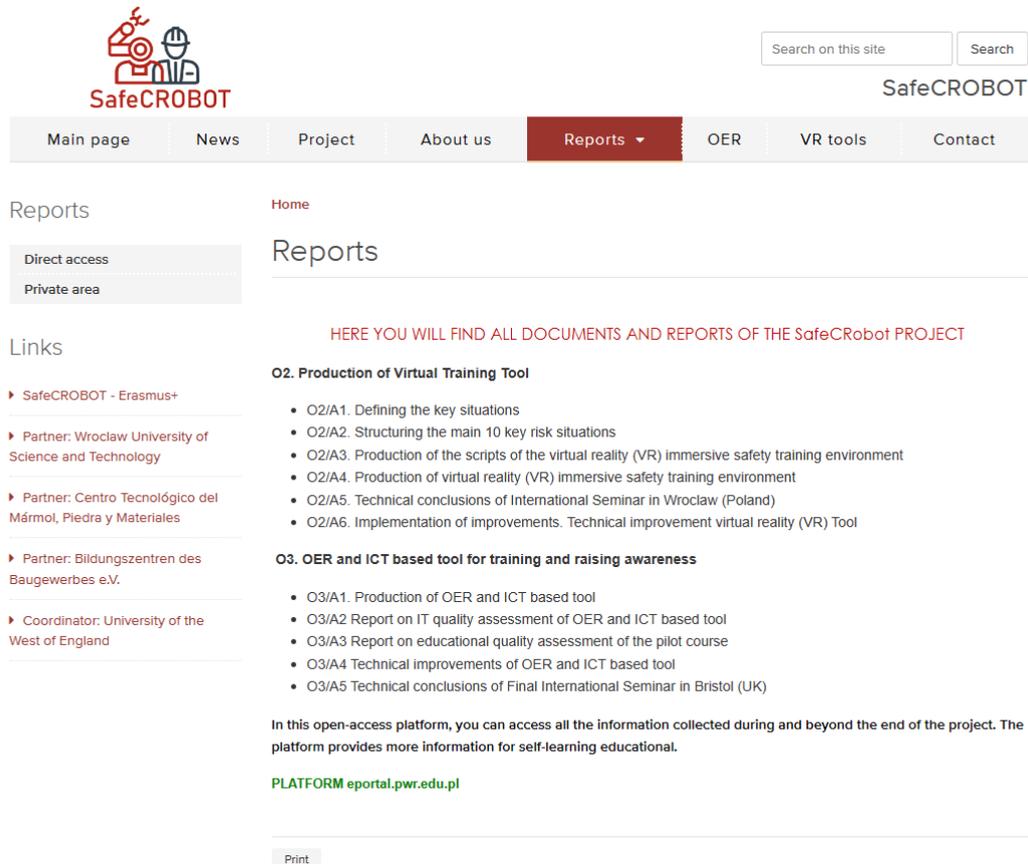


The screenshot shows the 'About us' page of the SafeCROBOT website. At the top left is the SafeCROBOT logo. To the right is a search bar with the text 'Search on this site' and a 'Search' button. Below the logo is a navigation menu with items: 'Main page', 'News', 'Project', 'About us' (highlighted), 'Reports', 'OER', 'VR tools', and 'Contact'. On the left side, there is a 'Links' section with four entries: 'SafeCROBOT - Erasmus+', 'Partner: Wrocław University of Science and Technology', 'Partner: Centro Tecnológico del Mármol, Piedra y Materiales', and 'Partner: Bildungszentren des Baugewerbes e.V.'. The main content area is titled 'About us' and includes a 'Home' link. The 'Promotor:' section lists 'UNIVERSITY OF THE WEST OF ENGLAND, BRISTOL' with its address and website. Below this is the 'UWE Bristol' logo. The 'Partners:' section lists 'ASOCIACION EMPRESARIAL DE INVESTIGACION CENTRO TECNOLOGICO DEL MARMOL Y LA PIEDRA' with its address and website.



2.2.5. INFORMES

Enlace: <https://safecrobot.pwr.edu.pl/en/reports>



The screenshot shows the 'Reports' page of the SafeCROBOT website. The page features a navigation menu with 'Reports' highlighted. A search bar is located in the top right corner. The main content area is titled 'Reports' and contains a heading: 'HERE YOU WILL FIND ALL DOCUMENTS AND REPORTS OF THE SafeCROBOT PROJECT'. Below this, there are two sections: 'O2. Production of Virtual Training Tool' and 'O3. OER and ICT based tool for training and raising awareness'. Each section contains a list of sub-items. A 'Print' button is visible at the bottom of the page.

SafeCROBOT

Search on this site Search

Main page News Project About us Reports OER VR tools Contact

Reports

Direct access Private area

Links

- ▶ SafeCROBOT - Erasmus+
- ▶ Partner: Wrocław University of Science and Technology
- ▶ Partner: Centro Tecnológico del Mármol, Piedra y Materiales
- ▶ Partner: Bildungszentren des Baugewerbes e.V.
- ▶ Coordinator: University of the West of England

Home

Reports

HERE YOU WILL FIND ALL DOCUMENTS AND REPORTS OF THE SafeCROBOT PROJECT

O2. Production of Virtual Training Tool

- O2/A1. Defining the key situations
- O2/A2. Structuring the main 10 key risk situations
- O2/A3. Production of the scripts of the virtual reality (VR) immersive safety training environment
- O2/A4. Production of virtual reality (VR) immersive safety training environment
- O2/A5. Technical conclusions of International Seminar in Wrocław (Poland)
- O2/A6. Implementation of improvements. Technical improvement virtual reality (VR) Tool

O3. OER and ICT based tool for training and raising awareness

- O3/A1. Production of OER and ICT based tool
- O3/A2 Report on IT quality assessment of OER and ICT based tool
- O3/A3 Report on educational quality assessment of the pilot course
- O3/A4 Technical improvements of OER and ICT based tool
- O3/A5 Technical conclusions of Final International Seminar in Bristol (UK)

In this open-access platform, you can access all the information collected during and beyond the end of the project. The platform provides more information for self-learning educational.

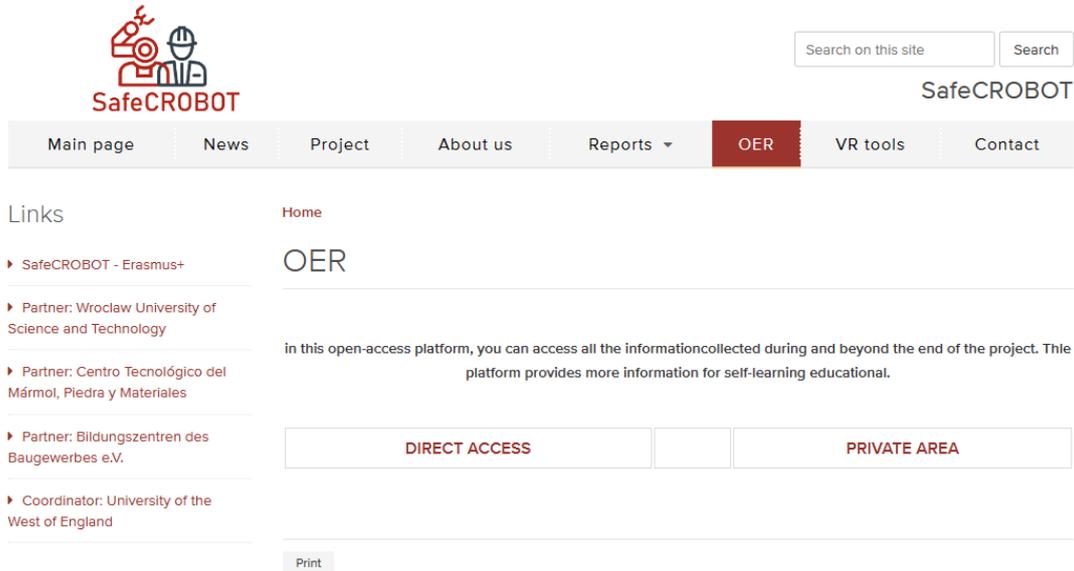
PLATFORM eportal.pwr.edu.pl

Print



2.2.6. OER

Enlace: <https://safecrobot.pwr.edu.pl/en/oer>



The screenshot shows the SafeCROBOT website interface. At the top left is the logo. A navigation menu includes 'Main page', 'News', 'Project', 'About us', 'Reports', 'OER' (highlighted), 'VR tools', and 'Contact'. A search bar is located at the top right. Below the navigation, there are sections for 'Links' (listing partners like Wroclaw University of Science and Technology, Centro Tecnológico del Mármol, Piedra y Materiales, etc.) and 'Home' (containing the text 'OER in this open-access platform, you can access all the information collected during and beyond the end of the project. The platform provides more information for self-learning educational.'). Below this text are two buttons: 'DIRECT ACCESS' and 'PRIVATE AREA'. A 'Print' button is also visible.

Acceso directo:

Direct access
Private area

Links

- ▶ SafeCROBOT - Erasmus+
- ▶ Partner: Wroclaw University of Science and Technology
- ▶ Partner: Centro Tecnológico del Mármol, Piedra y Materiales
- ▶ Partner: Bildungszentren des Baugewerbes e.V.
- ▶ Coordinator: University of the West of England

Direct access

LIST OF AVAILABLE DOCUMENTS

Task O2/A1.1 UK [.pdf] Task O2/A1.1 NATIONAL STATICAL DATA RELATED TO ACCIDENTS IN THE CONSTRUCTION AND FACTORIES SECTOR FOR EACH PARTICIPATING COUNTRY - UK (in English)	
Task O2/A1.1 SPAIN [.pdf] Task O2/A1.1 NATIONAL STATICAL DATA RELATED TO ACCIDENTS IN THE CONSTRUCTION AND FACTORIES SECTOR FOR EACH PARTICIPATING COUNTRY - SPAIN (in English)	
Task O2/A1.1 GERMANY [.pdf] Task O2/A1.1 NATIONAL STATICAL DATA RELATED TO ACCIDENTS IN THE CONSTRUCTION AND FACTORIES SECTOR FOR EACH PARTICIPATING COUNTRY - GERMANY (in English)	
Task O2/A1.1 POLAND [.pdf] Task O2/A1.1 NATIONAL STATICAL DATA RELATED TO ACCIDENTS IN THE CONSTRUCTION AND FACTORIES SECTOR FOR EACH PARTICIPATING COUNTRY - POLAND (in English)	
Task O2/A1.2 BIBLIOGRAPHY AND REPORTS RELATED CONSTRUCTION SITES ACCIDENTS [.pdf] Task O2/A1.2 BIBLIOGRAPHY AND REPORTS RELATED CONSTRUCTION SITES ACCIDENTS (in English)	



Área Privada:

Direct access

Private area

Links

- ▶ SafeCROBOT - Erasmus+
- ▶ Partner: Wrocław University of Science and Technology
- ▶ Partner: Centro Tecnológico del Mármol, Piedra y Materiales
- ▶ Partner: Bildungszentren des Baugewerbes e.V.
- ▶ Coordinator: University of the West of England

Private area

The platform for self-learning educational

PLATFORM eportal.pwr.edu.pl

Register. Create account

First name *

Last name *

E-mail *

University / Company / Organization *

I'm not a robot 

SafeCROBOT

[Dashboard](#) / [My courses](#) / [SafeCROBOT](#)

Project SafeCROBOT

HERE YOU WILL FIND ALL DOCUMENTS AND REPORTS OF THE SafeCROBOT PROJECT

The platform provides more information for self-learning educational.

O2. Production of Virtual Training Tool

- O2/A1. Defining the key situations - (available)
- O2/A2. Structuring the main 10 key risk situations - (unavailable)
- O2/A3. Production of the scripts of the virtual reality (VR) immersive safety training environment - (unavailable)
- O2/A4. Production of virtual reality (VR) immersive safety training environment - (unavailable)
- O2/A5. Technical conclusions of International Seminar in Wrocław (Poland) - (unavailable)
- O2/A6. Implementation of improvements. Technical improvement virtual reality (VR) Tool - (unavailable)

O3. OER and ICT based tool for training and raising awareness

- O3/A1. Production of OER and ICT based tool - (unavailable)
- O3/A2 Report on IT quality assessment of OER and ICT based tool - (unavailable)
- O3/A3 Report on educational quality assessment of the pilot course - (unavailable)
- O3/A4 Technical improvements of OER and ICT based tool - (unavailable)
- O3/A5 Technical conclusions of Final International Seminar in Bristol (UK) - (unavailable)



 Task O2/A1.1 UK

Mark as done

 Task O2/A1.1 SPAIN

Mark as done

 Task O2/A1.1 GERMANY

Mark as done

 Task O2/A1.1 POLAND

Mark as done

 Task O2/A1.2 BIBLIOGRAPHY AND REPORTS RELATED CONSTRUCTION SITES ACCIDENTS

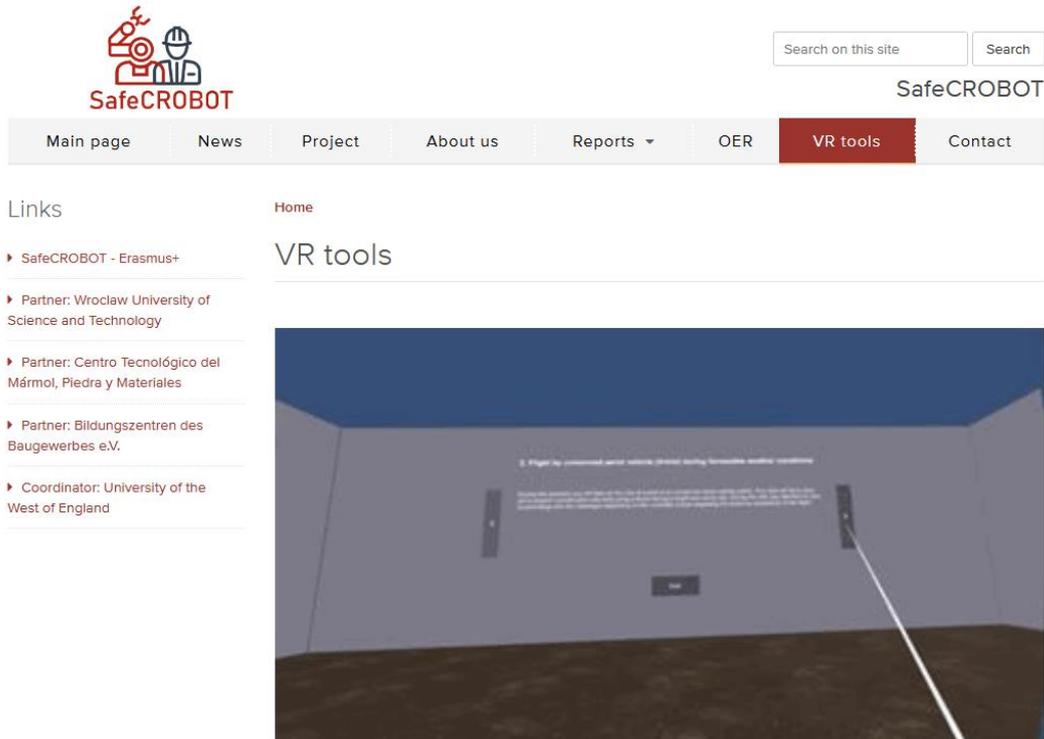
Mark as done

 Task O2/A1.3 LIST ROBOTISED AND AUTOMATED EQUIPMENT FOR CONSTRUCTIONS SECTOR AND RELATED TO RISK

Mark as done

2.2.7. HERRAMIENTAS DE REALIDAD VIRTUAL

Enlace: https://safecrobot.pwr.edu.pl/en/vt_tools



The screenshot shows the SafeCROBOT website interface. At the top left is the SafeCROBOT logo. To the right is a search bar with the text "Search on this site" and a "Search" button. Below the logo is a navigation menu with items: Main page, News, Project, About us, Reports, OER, VR tools (highlighted in red), and Contact. On the left side, there is a "Links" section with a list of partners and the coordinator. The main content area is titled "VR tools" and features a large image of a virtual reality training environment. The environment shows a dark floor, a blue sky, and a white wall with some text and a red laser line.





Print

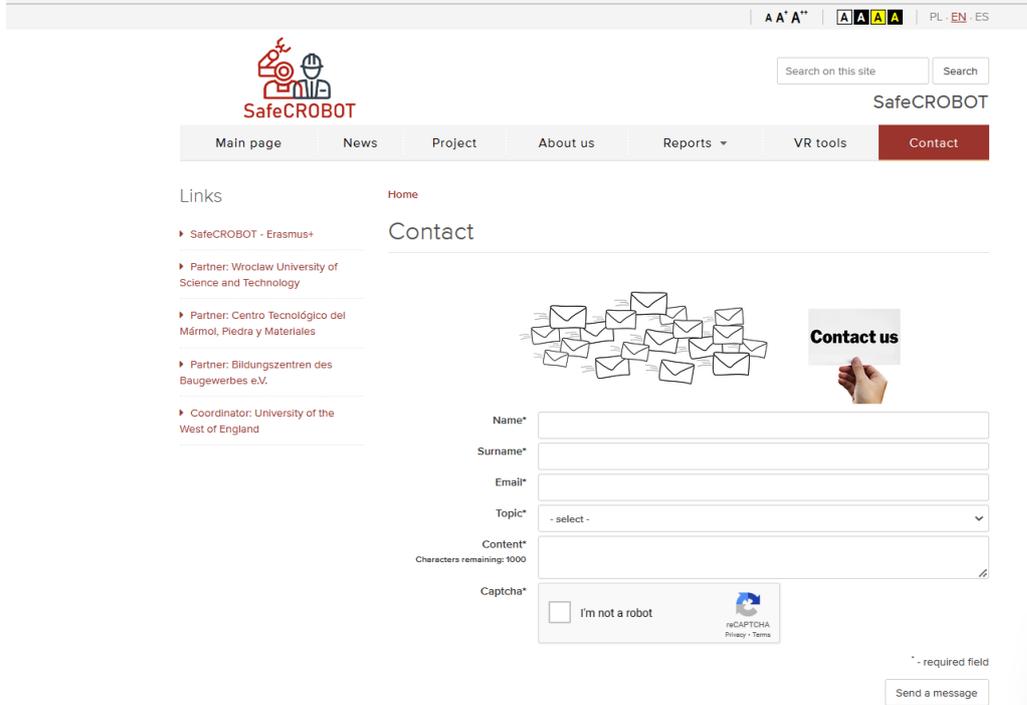


2.2.8. CONTACTO

Enlace: <https://safecrobot.pwr.edu.pl/en/contact>

https://safecrobot.pwr.edu.pl/en/contact

A⁹



The screenshot shows the contact page of the SafeCROBOT website. At the top, there is a navigation menu with options: Main page, News, Project, About us, Reports, VR tools, and Contact. Below the menu, there is a 'Links' section with several partner organizations listed. The main content area is titled 'Contact' and features a 'Contact us' button with an illustration of a hand holding a button. Below this, there is a contact form with the following fields: Name*, Surname*, Email*, Topic* (a dropdown menu), Content* (with a character count of 1000 remaining), and Captcha* (with an 'I'm not a robot' checkbox and a reCAPTCHA logo). A 'Send a message' button is located at the bottom right of the form. The page also includes a search bar and a language selector (PL, EN, ES) at the top right.

3. Mejoras técnicas

Teniendo en cuenta todas las evaluaciones de calidad de los participantes en los cursos piloto a través de sus comentarios en los cuestionarios y comentarios durante la implementación de los cursos, así como los resultados obtenidos en los cuestionarios de evaluación de la calidad enviados a los expertos relacionados con los principales elementos del proyecto y la opinión de los miembros del consorcio al mostrar tanto el REA como la herramienta, Estos resultados se han mejorado con respecto a sus versiones beta iniciales.

Las mejoras han sido las siguientes:

3.1.1. MEJORAS TÉCNICAS EN LOS REA

En lo que respecta a los REA, se han realizado varias mejoras:

- Se ha facilitado el acceso al REA al usuario para que pueda encontrarlo más fácilmente dentro del sitio web.
- Las tareas del proyecto se han ordenado por Outputs, para que sean más fáciles de encontrar.

3.1.2. MEJORAS TÉCNICAS EN LA HERRAMIENTA VR

También se han realizado mejoras técnicas en la herramienta:

- Se puede acceder a los diferentes escenarios desde un menú fácilmente visible.
- Se han mejorado algunos aspectos técnicos de los escenarios. Algunos de los aspectos mejorados se pueden ver a continuación:
 - Se han añadido barandillas protectoras en escenarios con alturas.
 - Se han añadido arneses a los personajes cuando es necesario.

3.1.3. PRODUCTOS MEJORADOS

Ambos productos ahora cuentan con todas estas mejoras. Se puede acceder a ellos en el sitio web de SafeCROBOT: <https://safecrobot.pwr.edu.pl/en/>