FROM LEARNING TO CREATION: DISCOVERING THE AI-VET PROJECTHUB

Throughout the AI-VET project, the partnership worked to make Artificial Intelligence understandable, practical and relevant to vocational education. The development of the AI-VET Kit and the training programme gave teachers and students the foundations needed to explore programming, computer vision, robotics, sensors and intelligent connected systems.

The next challenge was to transform that knowledge into something that could be used in real learning environments.

For this reason, each partner was invited to develop a collection of practical projects that would demonstrate how the technologies introduced through the course could be combined to address concrete problems. The result is a diverse European collection of activities that moves beyond explaining Artificial Intelligence and invites learners to build, test, evaluate and improve their own solutions.

The projects were not prepared merely as demonstrations of finished technology. They were structured as learning experiences. Each one introduces a problem or opportunity, identifies the intended learners, establishes educational objectives and explains the hardware, software and AI methods involved. Step-by-step implementation plans, evaluation criteria, code, photographs and demonstration videos help teachers understand not only what was created, but how a similar activity can be reproduced or adapted.
This shared approach gives the collection a strong educational identity while still leaving space for creativity. Some activities can introduce beginners to sensors, basic programming and electronic components. Others lead more experienced students into custom datasets, computer vision, IoT communication, intelligent automation and the development of complete prototypes.

These resources are now being brought together in the AI-VET ProjectHub, where users can explore projects by focus, difficulty, audience and language. The Hub already covers areas including AI in education, robotics, IoT and microelectronics, with activities ranging from introductory classroom experiments to complex integrated systems.

SUPPORTING HEALTHIER AND MORE SUSTAINABLE AGRICULTURE

The **AI Plant Health Monitoring System** shows how Artificial Intelligence can support smarter and more sustainable agricultural practices.

The project combines computer vision with environmental sensing. Images of plant leaves are analysed to identify signs of disease, while soil-moisture information helps the system assess whether irrigation may be required. Instead of treating AI as a purely digital subject, learners see how cameras, sensors, microcontrollers and intelligent models can work together to observe a living environment and recommend an appropriate response.

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For teachers, the project creates opportunities to discuss image classification, data collection, plant biology, water use and precision agriculture. Students can begin with the basic monitoring system and later explore more demanding questions: How reliable is the model? Does lighting affect its predictions? Can additional environmental information improve the recommendations? How can water be used more efficiently?

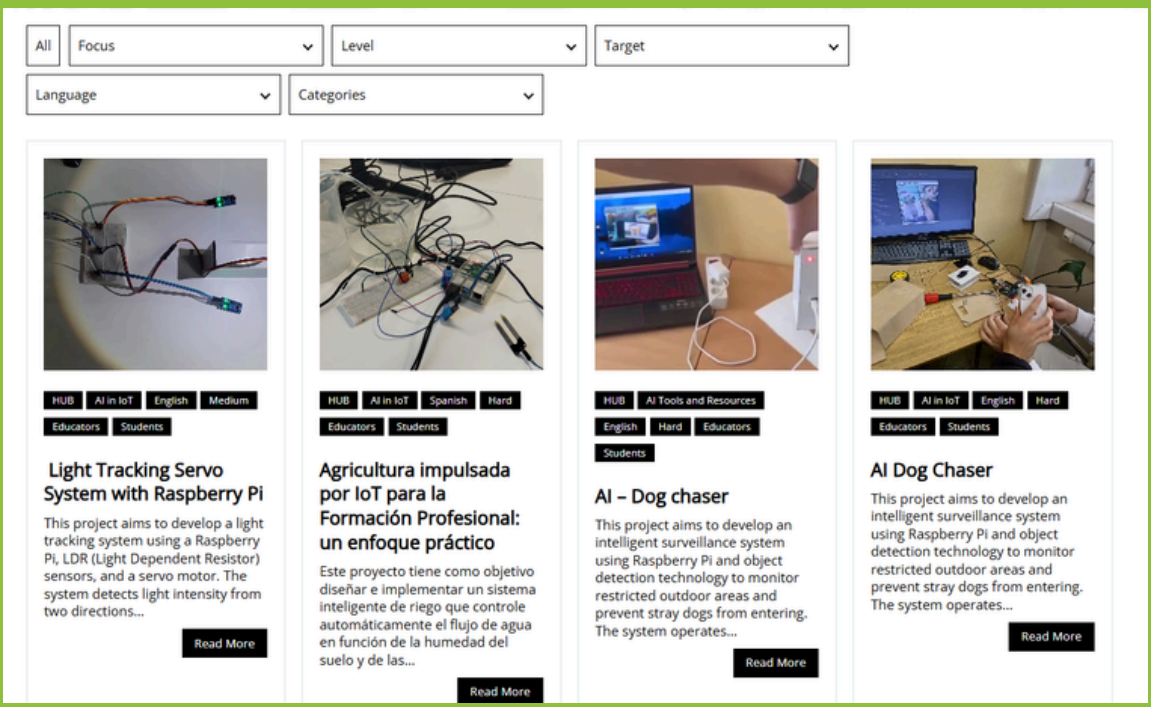
The activity therefore connects digital learning with environmental responsibility and demonstrates how the same technological principles can be transferred to agriculture, horticulture and urban gardening. The project is one of the advanced resources currently presented through the Hub.

RETHINKING HOW CITIES COLLECT WASTE

Another project, **Eco-robotics: Route Optimisation According to the Amount of Waste in a Container**, explores how connected technologies can improve urban waste collection.
Sensors monitor the fill level, temperature and humidity of waste containers. This information is sent to a Raspberry Pi-based system that displays the state of the containers and helps calculate more efficient collection routes. The system can also indicate possible emergencies, such as unusually high temperatures or water entering a container.

The educational value of the project lies in the way it connects several subjects. Students work with environmental sensors, wireless communication, data storage, mapping and route optimisation. At the same time, they examine a recognisable sustainability problem: collection vehicles should not travel unnecessarily to empty containers that are still almost empty, while overflowing containers should not remain unattended.

By turning real-time information into better decisions, the project demonstrates that sustainability is not always achieved by creating an entirely new service. Sometimes, it comes from making an existing service more responsive, efficient and informed.



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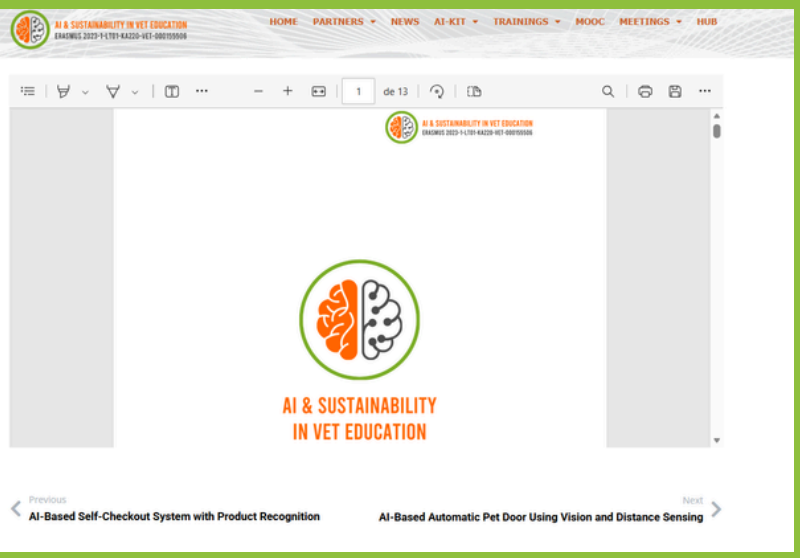
A COLLECTION DESIGNED TO GROW WITH ITS USERS

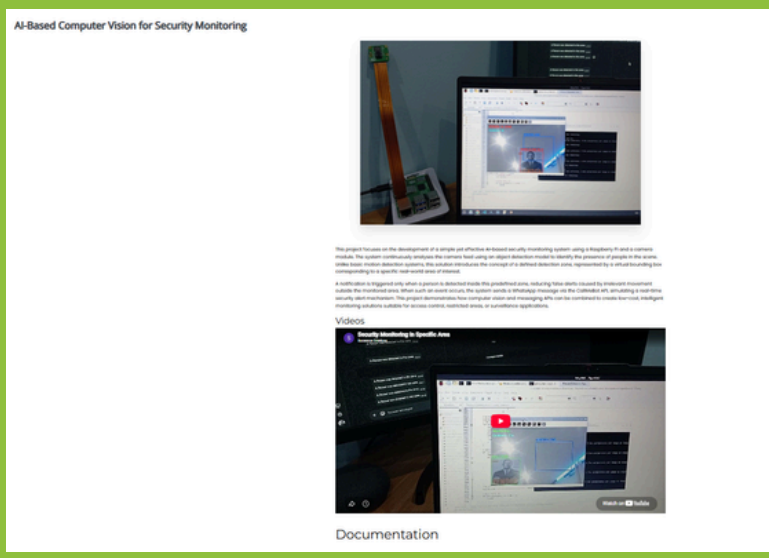
These examples represent only a small part of the work developed across the AI-VET partnership. The wider collection includes intelligent waste-sorting systems, weather stations, autonomous and remotely controlled vehicles, robotic arms, traffic-management prototypes, smart security systems, 3D-printer fault detection, timelapse cameras, handwriting recognition and many other activities.
Some projects begin with a simple sensor or movement. Others combine cameras, trained AI models, databases, web interfaces and connected devices. Together, they demonstrate that there is no single way to introduce Artificial Intelligence into VET education.

To make the resources accessible across the partnership, the projects have been translated into the partner languages. Teachers can therefore explore the collection in a familiar language while remaining part of a common European learning initiative. The Hub's multilingual structure currently includes resources and filters covering English, Greek, Italian, Lithuanian, Macedonian, Portuguese, Spanish and Turkish.

Most importantly, the ProjectHub is not intended to be a gallery of prototypes that can only be observed. It is a practical starting point. Teachers can select a project that fits their subject, available equipment and students' experience. They can simplify it, expand it, combine it with another activity or use it as inspiration for an entirely new idea.

With the project-development phase now completed, the AI-VET partnership is proud to present a new collection of resources ready to be explored. Every activity reflects a learning journey—from recognising a problem and selecting the right tools to building, testing and presenting a working solution.
The next project created through the Hub may begin with one of these resources. Where it finishes will depend on the questions, creativity and ambition of the teachers and learners who take it forward.





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