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Innovative 3D training platform for Recycling of Waste Electric and Electronic Devices

About the project

The production of Electric and Electronic equipment is one of the most developing sectors of the universal industrial production. This development makes these products as one of the most important waste categories that need to be treated properly due the high content of valuable materials and risks related to toxic parts.

RECDEV project's objective is the development of ICT-based self- and distance learning training courses familiarizing learners/users with the disassembly of Electrical and electronic devices and the identification of types and qualities of materials embodied. It targets both low level workforce(disassembly), aiming at strengthening employability, safety at work and developing skills as well as higher employers (materials identification) covering a crucial training gap in the WEEE industry. The training material for the disassemblers will be developed in the form of scenarios for 3D environments allowing the users to learn of the geometry and parts of each device, disassembling it to the virtual world with less text and more sound and animation instructions before it performs it to the actual device. The training material for the higher level personnel will be offered also in 3D scenarios, but with the help of an ontology they will be able to access further information around the devices, the materials for recycling, how to identify the quality of different parts, and their potential exploitation (who would buy them). The advantage of the RECDEV software is that the 3D training scenarios will be easily updated by non-expert content authors that they will be able with drag and drop parts to present different variations of the EEE devices, manufacturers' tips and other best practices.

Topics at a glance: WEEE recycling and the illegal operation and trading

WEEE equipment dismantling is sensitive and can be safely performed only by specialised personnel. The WEEELABEX normative, released in May 2013 lay down measures related to the protection of the environment and human health and safety through the prevention and mitigation of the adverse impacts of treatment of waste electrical and electronic equipment (WEEE). It defines both technical and management requirements for operators, which can be integrated into other management requirements and assist organisations achieving demands with respect to treatment operations. The chapter 4.4"Training" specifically refers to the need of "providing training materials and information including technical guidance documents, risk assessments, safety statements, information charts, information tables, photos or examples of components of WEEE, and safety data sheets for hazardous chemical that should be easily accessible to all employees at their workplaces".

RECDEV is tackling the training requirements of the WEEELABEX standard, in each organization by providing a training platform for both: workers and advanced employees in a modern, interactive, easy to use format.

WEEE illegal operation and trading

WEEE is not just improperly dismantled in many recycling companies in Europe and across the world but is also illegal traded. The illegal trading of the WEEE is opening the door for dangerous and polluting practices. Only around 3 million tons of the estimated total of 8 million tons in WEEE was officially collected, treated, and reported to authorities across Europe in 2010. E-waste contains materials such as gold, copper, and palladium which makes it very valuable on the black market; attracting not just illegal single operators but serious organised crime groups. However e-waste also contains hazardous substances such as mercury and cadmium. Therefore illegal e-waste handling, often in poorer countries, leads to huge health issues and environmental pollution. At the same time, European Union Member States are losing a vast amount of rare earth metals and other important minerals due to increasing illicit activities, poor compliance rates, and limited enforcement activities in e-Waste.(source UNU-VIE)

RECDEV Project achievements

The RECDEV Consortium through its work aims to provide a modern, interactive training platform to be used by WEEE recycling companies and promoted by WEEE Recycling Association. Two training course materials have been elaborated with significant contributions of Maribor and Mendelu Universities, targeting management personnel and workers. The training materials lay down besides other thematic, a detailed description of all materials contained in WEEE, types, properties, applications and value, technological options for their recycling. Moreover, OMEGA, the ITC specialised partner of the Consortium had the main role in the development of the RECDEV software. The RECDEV software was developed for the training needs of the Leonardo Da Vinci project RECDEV. The software contains all the necessary information for the material contenting in electric and electronic devices, the disassembly process and all the information needed for the proper recycling, reuse of the devices' material. The final version of the software will be delivered with a full handbook for the users and will be available soon on the project website.

Upcoming activities & events

The 5th International Conference on Environmental Management Engineering, Planning and Economics (CEMEPE 2015) and SECOTOX Conference, June 14-18, 2015 in Mykonos Island, Greece – More information you can find in the website: www.cemepe5.prd.uth.gr

Partners

www.RECDEV.eu



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