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Erasmus+ Strategic Partnerships for vocational education and training

PROJECT NO: 2017-I-TR01-KA202-045941

Virtual and Augmented Reality (V&AR) in Design for Manufacture



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- Project Start Date : 01.10.2017
- Project End Date : 30.09.2019
- Total Budget : 154.631,00 Avro



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Background of project;

- The rate of discarded products resulting from employee errors can sometimes reach to a level that may pose a threat to companies because of the technical drawing issues .



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Why aren't we successful teaching technical drawings to students?



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The primary reasons not to achieve success in teaching Technical Drawings:

- student's lack of the adequate level of basic competence
- motivation,
- concentration,
- attention, confidence and background knowledge



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- Besides above, not effective delivery of teaching methods



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- The aim of this project is;
to develop a curriculum, implementation
program and materials covering;
- technical drawing,
 - geometrical tolerances,
 - assembly under "design for manufacture"
subjects targeting mechanical engineering
 - By using VR-AR technologies.



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Expected Project results:

the use of V&AR (virtual and augmented reality) applications in technical education:

- will increase the level of comprehension and persistent knowledge of the learners,
- indirectly shortening the training period
- decreasing the education and training cost



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J.1. Summary of participating organisations

PIC of Organisation	Name of the Organisation	Country of the Organisation
997723959	ULUDAG UNIVERSITESI	Turkey
999452208	THE UNIVERSITY OF HUDDERSFIELD	United Kingdom
913114642	Bizpark Bilisim San.Tic.Ltd.Sti.	Turkey
999868532	TECHNICAL UNIVERSITY OF SOFIA	Bulgaria

Total number of participating organisations	4
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Work package I: Background analysis and course curriculum development (Oct. 2017 - Sep 2018)

- Creating profiles of the learners needs
- Creating useful practical knowledge of target learners
- Identification of local networks and stakeholders
- Developing the basic design of course curriculum
- Development of training methods
- Definition of priorities subjects used in Virtual and Augmented Reality (V&AR) technologies



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Work package I Outputs:

- Learners' profile + needs analysis report.
- First draft of the training path(methodology + process + tools)
- Course Curriculum



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Work package 2: Material Development (April 2018- April 2019)

- In this work package, VR / AR technologies and training material will be developed by partners for the topics identified as priority areas in needs analysis
- Development of mobile / Hololens applications
- Development of VR applications
- Development of AR applications
- The content of "Design for Manufacture" will be developed according to the VR & AR technology determined by the partners in the kick of meeting.



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Work package 2 Outputs:

- Mobile/Hololens applications
- VR software/applications
- AR software applications



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Work package 3. Pilot training – Fine-tuning (Feb. 2019 – Oct 2019)

- Training of first trainees group
- Training of targeted students
- Evaluate of training groups in terms of trainees.
- Focus on learners' evaluations and input
- Re-design of curriculum/ materials



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This first draft of training path (methodology + process + tools) will be tested in pilot training with the direct target group. The training path will be revised and re-designed according to the evaluation results.

Work package 3 Outputs:

- trainer's reflections
- learner's reflections
- evaluation report of the pilot training
- re-design of the training path according to the feedback received.



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Work Package 4: Dissemination and sustainable implementation of the products (Feb. 2019 – Oct 2019)

UU will lead the communication aspects of the project thus designing an appropriate website and dissemination material



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Work Package 4 Outputs:

- Dissemination plan and reports
- Sustainability plan and report
- Dissemination material, Website
- Quality report
- Meeting and interim evaluations
- Beneficiary Evaluation
- Final evaluation
- Closing seminar



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Kick of meeting: (15 January 2018- Turkey)

The content of meeting is;

- **Progress of the project for initial planning and decision making;**
- **Setting first tasks and project activities;**
- **Discussion of development of curriculum and the priority of training methodologies and digital materials.**



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Second meeting: 18 April 2018- UK)

- The content of meeting is;
- For the discussion and finalization of the learners profile and needs analysis report;
- Collection of mobile learning technologies to apply during the training path,



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Third meeting: (18 October 2018- Bulgaria)

The content of meeting is;

- for the revision of the training path based on the testing procedures;
- Development of curriculum and the priority of training methodologies and digital materials



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Forth meeting: (19 April 2019-UK)

The content of meeting is;

- Discussing and reviewing materials for pilot training events
- Development of training Materials
- Evaluation and transferability guide, final guide book, digital materials and reports



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Training (19 April 2019- UK)

- Training of the trainers
- All project partners will attend
- How to uses of V&AR tools to teach in DfM and Technical Drawing courses.
- Testing of the developed V & AR training material
- The implementation and dissemination of the project results will be carried out by the trainers who will participate in this training program



Final / closing project meeting and closing seminar: (19 October 2019-Turkey)

The content of meeting is;

- Finalizing outputs and sustainability actions of the project products
- Evaluation and transferability guide, final guide book, digital materials and reports



THANKS!