This project is co-financed by the European Union and the Republic of Turkey

TurKey Enabling Technologies 2012

Centre for Research and Technology -Thessaly

CE.RE.TE.TH

CERETETH
CENTER FOR RESEARCH & TECHNOLOGY - THESSALY

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Description of the Organisation

- The Centre for Research and Technology – Thessaly (CE.RE.TE.TH) is a legal, non-profit entity organized under the auspices of the General Secretariat for Research and Technology (GSRT), of the Greek Ministry of Development. The Center's main mission is to conduct basic, applied, and technological research that leads to new products and services with industrial, economic and social impact.

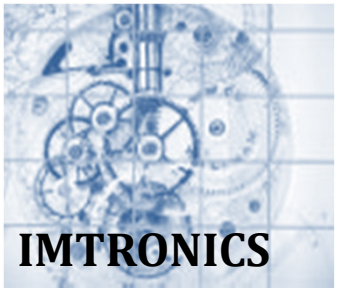
- It has four institutes:
  a)The Mechatronics Institute (IMTRONICS)
  b) The Institute of Technology and Management of Agricultural Ecosystems (ITEMA)
  c) The Institute of Biomedical Research and Technology (BIOMED)
  d) The Institute of Human Performance and Rehabilation (PerfoTech)

- CERETETH participated in over 45 R&D projects in the last five years and has worked with major manufacturing companies, research centers and universities all over Europe.

Description of the your research interest

Institute of Human Performance and Rehabilitation (Perfotech)
human-movement biology, aiming at increases in bodily-performance potentials and improvements in quality of life.

Institute of Biomedical Research and Technology (BIOMED)
basic and applied research with the ultimate goal of production of innovative results, which can be used for the discovery of novel drugs or diagnostic methods for the early diagnosis and treatment of human diseases.



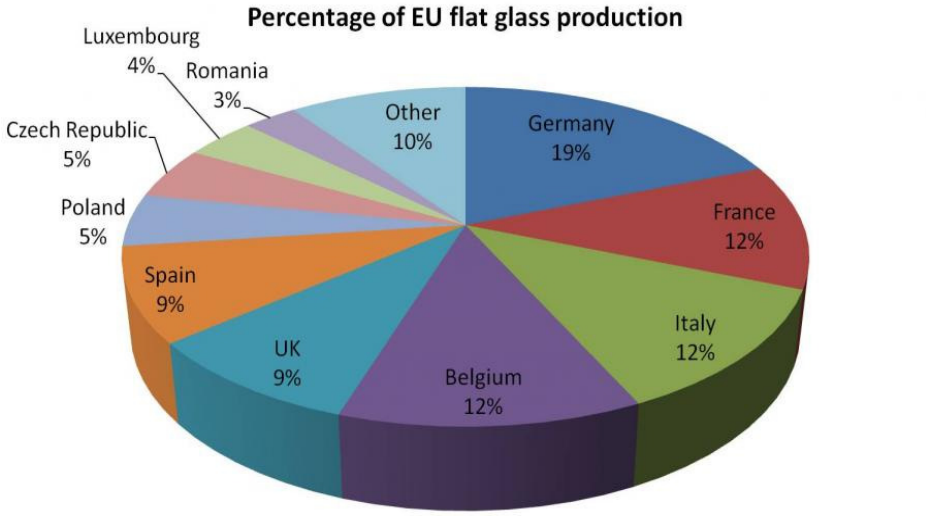
Institute of Mechantronics (IMTRONICS)
Micromechanics, Materials, Nanomaterials and Nanostructures, Information and Telematic Systems, Robotics and Control Systems, Embedded and Wearable Systems and Sensors, Biomechatronics Technologies, and Microelectromechanical Systems (MEMS).

Institute of Technology and management of Agricultural Ecosystems (ITEMA)
sustainable agricultural production, rural environment management and timber technology.

Strong Need

Flat glass is the second largest sector of the glass industry in the European Union after container glass (bottles, jars, etc.) representing around 30% of the total glass production.

Glass cancer: Microscopic imperfections in the glass, known as inclusions, cause cracking and additional tensile stresses which, in tempered glass, have lead to spectacular failures with no visible cause.



Hancock Tower, Boston, USA: All 10,344 glass panels on the building were replaced with tempered glass at a very high cost (estimated to be $5-7 million at the time of the replacement).

Foster & Partner's City Hall, London, England: Nickel sulfide failure in 2004, several floor-to-ceiling panels of tempered glass on the interior of the building spontaneously shattered.

SafeGlass
FP7-SME-2013

- **Objectives**:
  - a network of spatially-distributed, permanently-attached sensors for the efficient monitoring of large glass structures.
  - ultrasonic guided-wave transducers for identifying possible structural failures in large glass panels
  - tenzo-sensors for monitoring the local tensile due to appearance of stresses along the glass panels.
  - Data fusion between the signals drawn from the ultrasonic transducers and the pressure sensors.
- **Expected results**
  - Significant reduction in the number of glass failures
  - Reduction in the overall in-service maintenance capital expenditure budget
  - Significant improvement of safety conditions for people

Consortium - profile of known partners

No	Partner Name	Type	Country	Role in the Project
01	CERETETH	RTD	Greece	Signal processing, data fusion and pattern recognition
02	(*University)*	RTD		Ultrasonic transducers development /modelling
03		SME		
04		IND		
05				
06				
07				
08				

Consortium - required partners

No	Expertise	Type	Country	Role in the project
01	pressure sensors	RTD		development of novel tenzo-sensors, modelling
02	Ultrasonic inspection	SME		Support in development, integration and validation of the GWU sensors
03	Pressure sensors, electronics	SME		Support in development, integration and validation of the pressure sensors
04	NDT services	SME		Health Structural monitoring implementation and crack detection
05	manufacturer of software for sensors, instrumentation, automation	SME		Software and hardware integration
06	High-Rise Residential Building Manufacturer	IND		Guidance and final validation

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