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**HENSE SCHOOL Partners**

I.N.G.V. - Istituto Nazionale di Geofisica e Vulcanologia (Italy)  
Fondazione Centro studi – Consiglio Nazionale dei Geologi (Italy)  
National University of Chilecito (Argentine)  
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EURODRONE FLYGHT SYSTEM (Italy)



**Athena**

SENTIENT INNOVATION HYBRID ECOSYSTEM  
FOR TERRITORY SAFETY AND SUSTAINABLE DEVELOPMENT

## >> the project

### an **innovation ecosystem**

capable of integrating scientific, educational, territorial, social, economic and ethical element into a **territory safety project**;

### a **research and experimentation path**

aimed at the **implementation of sensory and multi-source Big Data processing capabilities**, for damage scenario and impact analyzes carried out with procedures of **Artificial Intelligence**

### the objectives

- **transforming** the approach to the **territory management**, from **mere public expenditure to strategic economic field**, in the context of a holistic vision of territory safety, in accordance with the **objectives of sustainable development set by the UNO 2030 Agenda**
- **testing Athena** in different areas with high levels of seismic and hydrogeological vulnerability, even through **innovation ecosystem services**;

### the policy networks / ecosystemic services

**territory safety**: monitoring of territory elements; seismic damage scenario construction;

**resilience & sustainability**: transforming the critical issues of the territory into driving elements of sustainable development; promoting guided processes of territorial regeneration aimed at enhancement of resources;

**education**: higher education paths aimed at creating a "Network of Safety Professionals" - to be used in the Athena Ecosystem initiatives;

**social planning**: supporting all economic and social actors, identifying sources of financing, also developing the endogenous ability to create value, and integrating the three dimensions of sustainability: economic, social and environmental.

### the policy makers

**All social actors** of a given territorial district (*Universities, Public and private Research centres and Institutions, Companies, ONG, Professional bodies*)

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## >> patented devices with Civil Protection purposes

### System for allowing building evacuation in case of earthquake and operating method thereof.

An anti-seismic door designed with systems of **ACTIVE AND PASSIVE SEISMIC SAFETY**:

- an **ANTI-LOCK DEVICE** for **allowing damaged building evacuation** after a strong earthquake;
- an **element** (carried out in a heavy-duty steel structure) of a **chain of data transmission** with outside, **through each layer of rubble of collapsed buildings** relative to **number and distribution of people inside** for rescue management (nearly in RT with EW).

Patent n° EP 3445927 - PCT/IT2017/000069

diarnet

amministrazione@diarnet.it

### A Composite Foundation for the seismic protection of the structures.

The aim of CF is to filtrate the energy of earthquake inside the bad gap. In this configuration, the plates with the internal resonators are sandwiched between a load-distribution plate and a foundation plate to give a more-uniform load distribution on the CF and hence improve its dynamic response.

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ISTITUTO NAZIONALE  
DI GEOFISICA E VULCANOLOGIA

Dr. Massimo Chiappini – massimo.chiappini@ingv.it



Università  
degli Studi di  
Messina

Prof. Eng. Giovanni Finocchio - gfinocchio@unime.it  
Prof. Eng. Francesca Garesci – fgaresci@unime.it

### Device for the determination of the dynamical response and the monitoring of bridges through an innovative stochastic approach.

The device is based on an innovative stochastic method that allows the dynamic response of structures to be characterized and the degradation state of bridges, viaducts, elevated roads and road overpasses to be monitored. The innovative features of the patent lie in the use of a stochastic percussor for energizing the mechanical structure, in the application of correlation techniques for the response function reconstruction and in the employment of a wavelet approach for data analysis.

Patent n° 102021000006701



Università  
degli Studi di  
Messina

Prof. Salvatore Magazù – smagazu@unime.it  
Prof. Maria Teresa Caccamo – mariateresa.caccamo@unime.it