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2nd General Meeting

KnowRISK

Know your city, **R**educe se**IS**mic ris**K** through non-structural elements

Catania 15 | 17 December 2016

33

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CATANIA 15 | 17 DECEMBER 2016

Editors Susanna Falsaperla, Horst Langer, Salvatore Mangiagli, Luciano Scarfì

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The 24 August 2016 Amatrice earthquake: partial collapse of a masonry building
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Augmented Reality applications as dissemination tools for the mitigation of non-structural damage from earthquakes

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Mt. Etna covers a region prone to earthquakes with low to moderate magnitude in southern Italy. Nevertheless, its seismicity can yield serious non-structural damage due to the superficial seismic foci. For this reason, it is necessary an effective prevention activity of education and preparedness to seismic hazard for the local populations.

One of the fundamental tasks of the European KnowRISK project (Know your city, Reduce seISmic risK through non-structural elements) is the dissemination of information to reduce non-structural damage from earthquakes in three pilot areas (Portugal, Iceland, and Italy). Focusing on tools that can convey such a useful information among laypersons and students, we choose Augmented Reality (AR) for its interactivity, simplicity and efficacy.

AR enhances the user's perception of and interaction with the real world. It has inspired the "Intelligence Amplification" concept [Brooks, 1996] in which computers are tools to make easier human being life. Elements that "increase"; reality are visible using a mobile device, such as a smartphone, through a video camera on board on a tablet, or any new wearable devices.

We tested our first AR application during ScienzAperta in May 2016, an open-door event organized at INGV in Catania, and addressed to pupils and students who live in the Etna region. For that application, we referred to Wikitude ™ framework provided by Wikitude GmbH (www.wikitude.com), under Android OS version 4+. Throughout ScienzAperta, all visitors were astonished by the AR experience, as the majority of them never heard before about AR applications.

What's happened after the *Pokémon Go!* revolution? Actually, the worldwide success of the game makes easy to understand the potential impact of AR, which is not only useful for games. This new video game experience represents indeed a milestone for the future of AR: "the success of AR games such as *Pokémon Go!*, which was downloaded more than 100 million times in its first month, reportedly earning $10m per day at the height of its popularity, has attracted widespread attention and investment" (The Guardian, [2016]).

As mobile devices (like glasses, smartwatches, etc.) will be even wearable in the next future, many important groups among the biggest technology communities are working hard to create some amazing smart devices (Fig. 1). This will increase the great success of AR technology among the "digital native" generation, raising our motivation to use this new way of communication to disseminate a better culture of safety.

Figure 1. Google Glass view example.