

Abstract

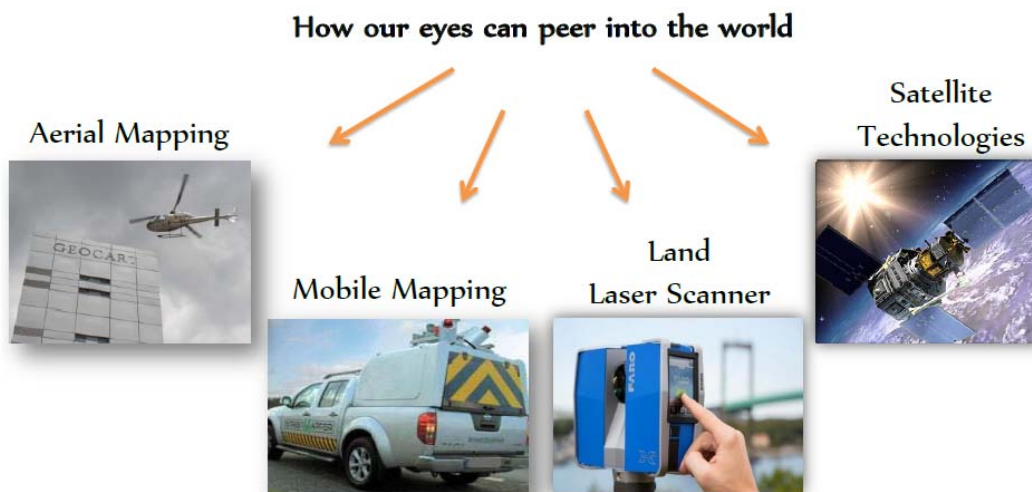
DIGITAL LIGHTHOUSE Project
“Virtual Realities and Digital Visual Effects”

Company profile

Geocart performs Remote Sensing activities for diagnostic-inspective purposes, aimed at collecting both qualitative and quantitative information about the environment and its related phenomena, about territory and infrastructures. At the moment, we provide our customers with such information by delivering:

- ✓ digital cartography
- ✓ videos
- ✓ images
- ✓ virtual realities based on point clouds

all of this is available through our softwares.



Mission

The Mission Geocart wants to pursue with the Research&Development project is to find out solutions to give customers easy access to information, by means of more and more accurate virtual realities and user-friendly softwares. Geocart strategic plan includes the following objectives:

- implementation of small-sized sensing instruments able to gather information even about not-readily accessible areas and, in said situations, to evaluate the effectiveness of sensors and alternative technologies such as land Lidar, photogrammetric techniques and drones;
- investigation of the most effective techniques which, starting from collected data, are able to develop accurate 3-D models of possibly any location. Particularly, the project aims at exploiting a laser-point cloud resulting from both aerial and terrestrial Lidar-based remote sensing activities. The cloud may lead to the innovative development of accurate digital 3-D models of the areas under investigation. The creation of such digital assets may allow for the production of further material and of digital libraries, which may be employed also for the development of videogames and Mobile Apps, for the production of visual effects (VFX) for cinema during the post-production phase, for the digital reconstruction of historical, cultural and natural heritage;
- development of open-source and complete software solutions, able to support a significant amount of relevant data, to be run on a wide range of devices and to embrace all the modern applications of Augmented Reality.

Strategic objectives for the project

The Cinema sector, Gaming sector and Cultural Heritage sector can count on a significant technological synergy. This happens to be an important strategic factor. Particularly, results obtained within the scope of Cinema industry may easily be applied also to the other sectors, being Cinema the most complex and complete field in terms of technologies, techniques and output quality. Furthermore, Cinema industry is experiencing a relevant metamorphosis due to the "crisis" it is going through in recent years, which is most likely to lead to a re-setting of the rules and practices currently employed. Post-production and particularly digital effects development will play an increasingly important role.

During our research, we will investigate and optimize the techniques currently employed in the post-production phase by introducing, within the process of production of Visual FX, the faithful reproduction of points of interest, objects and architectures, so as to obtain high quality results with a lower effort in terms of costs. The results of our research will be applied to the production of a feature film based on high-quality digital visual effects involving young talented professionals, both in terms of technical staff and of casting. The aim is to provide the market with a unique and innovative service which may represent the serious possibility to enact a positive revolution in Italian film industry by creating a cinematographic product which turns out to be new and original.

In order to make our efforts more concrete and effective, we are setting up an industrial area aimed at performing all the experiments required by the project itself and at shooting the feature film. Furthermore, we are willing to lead additional analyses with the purpose of exploiting the same area for the creation of a film studio, a production and post-production company and possibly a Hub for the rent of equipment.

Opportunities

- ✓ We live in the Digital Era. Digitalization processes are taking place in almost every industry and level of activity: telecommunication, e-commerce, digital convergence, digital agenda (databases, documents, certificates, information, public administration services), asset digitalization (virtual reproductions, virtual simulations, virtual libraries), digital cinema (production and distribution), fablab, a.s.o..
- ✓ Availability of more sophisticated technologies (SW and HW) and evolution of telecommunication infrastructures, of database management systems and of the potential of modern devices.
- ✓ More decisive and better financed policies in the fields of Media&Entertainment and Cultural Heritage (safeguard, management and promotion) on a regional, national and european level.
- ✓ Digital metamorphosis experienced by the Cinema industry. Today, thanks to digital technologies, it is possible to reproduce virtual scenarios, situations, objects and people down to the finest detail, able to interact with the actors while acting in a room. Such evolution is a sign for a huge change in the cinema industry, in which digital effects will play leading roles and will set out the rules of the game. In this dynamic perspective, we want to support Italian Cinema in the process of creating a kind of "smart" cinema, which will leave aside expensive real-world settings, built up every single

time, all over again. Smart cinema will rather choose digital settings and an optimal workflow in terms of post-production digital effects.

- ✓ The Media&Entertainment industry is experiencing a completely positive trend; in Italy, its annual turnover records more than 50 billion euros.

Expected results

- Definition of SW and HW which allow for a perfect virtual reproduction (both modeling and rendering) of any location starting from data obtained through laser scanner and photogrammetric aerial and terrestrial surveys;
- Development of new competences in terms of Modeling, Rendering and Animation, fundamental for a number of activities;
- Identification of the technical personnel needed throughout all the working phases (both inside and outside the company);
- Creation of a powerful instrument which relies on a solid professional network and on technological, methodological and infrastructural resources for the exploitation of research and market opportunities;
- Identification of methodologies and best practices that may allow for the assembly and optimization of the workflow needed for the creation of virtual realities (surveying, data processing, modeling, rendering and animation) and for their possible applications (production of VFX, videogames, Virtual Tours, a.s.o.);
- Creation of a Media library whose contents can be easily reached out and downloaded on the web;
- Definition of an IT instrument which allows for the visualization and simplified exploration of 3D models (Virtual Tours);
- Production of a featured film, set within Basilicata region, full of Digital Visual Effects developed, even partially, exploiting the inspected techniques;
- Development of a Videogame or Mobile App exploiting Virtual Realities;
- We aim at providing our current customers with a product/service which is more appealing, innovative and user-friendly.