

Technology Offer

Mobile system and mapping method for accurate mapping of objects or their components placed at a long distance from roads

Summary

A Romanian research institute has developed a mobile system and mapping method for accurate mapping of objects or their components placed at a long distance from roads. The system achieves fast geographic positioning of various objects or of their components. The targeted partners are research institutes, SMEs or universities that are active in the same field and interested in agreements for licensing, manufacturing, research cooperation or for technical cooperation.

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Last Update	07 January 2016
Expiration Date	07 January 2017
Reference	TORO20151209001

Details

Description

A Romanian research institute has developed a mapping that system consists of a mobile laboratory for the monitoring of deformations in incipient phases of some constructions, deformations that are due to some terrain sliding from natural or human causes, as also for the inscription on geographic maps of some terrain markings or circulation signs, simultaneously with the imagistic evaluation of their quality and estate. At the same time, the system achieves fast geographic positioning of some objectives or of their components, in the conditions in which these objectives are situated at big distances from roadways, (buildings, terrain markings) or are inaccessible in a direct mode, (dams, bridges, heaps of debris), by using a single video camera so as to increase the measurement basis of the stereo metric system.

In order to increase up to 100 – 200 meters, the distance up to which the sighted targets from the terrain can be positioned, it is resorting to use a single digital camera of high resolution in a fixed montage on a lab vehicle, so that the measurement basis of the applied stereometric method is constituted from the distance of 20 – 30 meters between the positions resulted from the lab vehicle displacement and from which the camera is sighting the same objective. Also to increase the time marking accuracy of the video images, the operation of video cameras triggering is achieved from exterior by the PPS signal (Pulse Per Second) received from the GPS satellite system.

The precise, in real time positioning of the lab vehicle, with errors that can be included between few millimeters and some centimeters, is achieving by using a GPS positioning system with multiple frequencies and with a functioning capability in a differential RTK (Real Time Kinematic) regime, system which is tight coupled with a IMU (Inertial Measuring Unit) unit, the data of these systems being distributed through a filtering element of Kalman type.

In conclusion, real-time monitoring based on GNSS technique has a key role in developing a

multi-risk approach to natural disasters, with particular focus on landslides and flooding hazards. The Romanian institute is considering partnerships such as license agreements with SMEs (for exploitation of the technology); manufacturing agreements with SMEs willing to introduce the mobile system equipped with the mapping method in the manufacturing process developed; research and technical cooperation with universities, research institutes and SMEs, in order to develop new applications or for testing this method in laboratory and in real conditions.

Advantages and Innovations

The main advantage of the system consists in the growth of several times of the measurable range till targets by enlarging the distance between the locations of two successive images of the same target. The measurable range till target is limited only by the resolution of the video camera and its lens. Only one image instead of two is displayed on the monitor, resulting a better resolution of the image. The extension of the measuring range till 200-300 m makes this system a competitor for "total station" optical topometrical equipment, particularly if considering the mobility of the embarked stereometric system.

Stage of Development

Prototype available for demonstration

IPR Status

Exclusive Rights

Keywords

Technology

01001001	Automation, Robotics Control Systems
01004007	GIS Geographical Information Systems

Market

01005002	Satellite ground (and others) equipment
02001002	Scientific computers
02002003	Graphics software
02006004	Data processing, analysis and input services
02007002	Database and file management

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering
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Network Contact

Issuing Partner

NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR OPTOELECTRONICS

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Open for EOI : **Yes**

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English

Client Country

Romania

Partner Sought

Type and Role of Partner Sought

The research institute is looking for partner(s) such as:
-universities and research institutes, in order to establish research and technical cooperation agreements for a) developing new applications and b) testing this method in laboratory and in real conditions;
-SMEs, for license agreements (for exploitation of the proposed equipment and method) and manufacturing agreements (for introducing the mobile system equipped with the mapping method in the manufacturing process).

Type and Size of Partner Sought

SME 11-50, University, R&D Institution

Type of Partnership Considered

License agreement
Manufacturing agreement
Technical cooperation agreement
Research cooperation agreement