

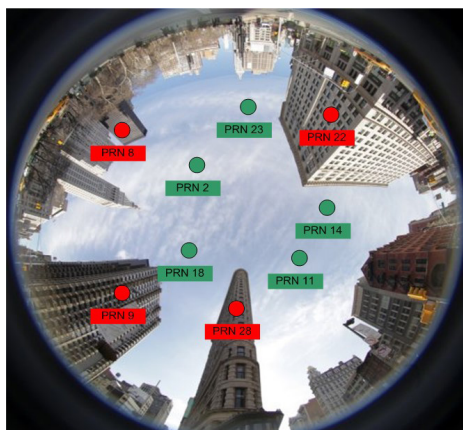
IMAGE FUSING TECHNIQUES (IMFUSING)

Goal of the project

The Line of Sight (LoS) of a satellite could be disrupted by obstacles, reducing the accuracy of the information provided to a Global Navigation Satellite System (GNSS) receiver. The first objective of the project is to eliminate or weight the signals coming from these satellites. To do simpler the identification of satellites having a direct LoS with the GNSS receiver this project proposes, as a supplementary sensor, to use a fish eye camera. The segmentation of the image provided by the fish eye camera permits to identify the satellites that are not on the LoS of the GNSS receiver.

Short description of the project

To provide sufficient information to the GNSS receiver, at the image processing level, the algorithms conceived will include the calibration of the camera sensor, image segmentation techniques, and distance and angle measurements deduced from calibrated image analysis. The algorithms at user sensor level will use camera information to discard measurements, will estimate boundaries of accuracy, will build a Quality of Service (QoS) indicator on the computed position and will authenticate the position. The algorithms at tracking loop level will use camera information to adjust the GNSS receiver correlator.



Project implemented by

Politehnica University of Timisoara - Coordinator
Thales-Alenia Toulouse France - Partnerf

Implementation period

1 October 2014 – 30 March 2017

Research centre

Research Center fo Intelligent Signal Processing

Main activities

Phase I 01/10/2014–31/03/2015: State of the art analysis,

Phase II April 1 2015 – March 31 2017

01/04/2015–30/09/2015: Core technical development

01/04/2015–31/01/2016: Test campaign

01/12/2015–31/05/2016: Performance analysis

01/06/2016–30/09/2016: Dissemination and exploitation.

Results

Deliverables:

Report on the State of the art in Image-GNSS fusion,
Preliminary Design Review Report,
Test Review Board Report
MATLAB codes for developed algorithms.

Dissemination:

Scientific paper in a scientific journal,
Technical Note on synthesis of the study.

Applicability and transferability of the results:

The subject is evaluated today at technology maturity level 1 (Scientific Research), and it is aimed to conclude the project at technology readiness level (TRL) 3 (Laboratory Experiments).

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Research Team

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