



Unification and Enhancement of Planetary Robotic Vision Ground Processing: The EC FP7 Project PProVisG

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At present, mainly the US have realized planetary space missions with essential robotics background. Joining institutions, companies and universities from different established groups in Europe and two relevant players from the US, the EC FP7 Project PProVisG started in autumn 2008 to demonstrate the European ability of realizing high-level processing of robotic vision image products from the surface of planetary bodies.

PProVisG will build a unified European framework for Robotic Vision Ground Processing. State-of-art computer vision technology will be collected inside and outside Europe to better exploit the image data gathered during past, present and future robotic space missions to the Moon and the Planets. This will lead to a significant enhancement of the scientific, technologic and educational outcome of such missions.

We report on the main PProVisG objectives and the development status:

- Past, present and future planetary robotic mission profiles are analysed in terms of existing solutions and requirements for vision processing
- The generic processing chain is based on unified vision sensor descriptions and processing interfaces. Processing components available at the PProVisG Consortium Partners will be completed by and combined with modules collected within the international computer vision community in the form of Announcements of Opportunity (AOs).
- A Web GIS is developed to integrate the processing results obtained with data from planetary surfaces into the global planetary context.
- Towards the end of the 39 month project period, PProVisG will address the public by means of a final robotic field test in representative terrain. The European tax payers will be able to monitor the imaging and vision processing in a Mars – similar environment, thus getting an insight into the complexity and methods of processing, the potential and decision making of scientific exploitation of such data and not least the elegance and beauty of the resulting image products and their visualization.
- The educational aspect is addressed by two summer schools towards the end of the project, presenting robotic vision to the students who are future providers of European science and technology, inside and outside the space domain.