Method and device for capturing and enhancing acquired images in digital form

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invention

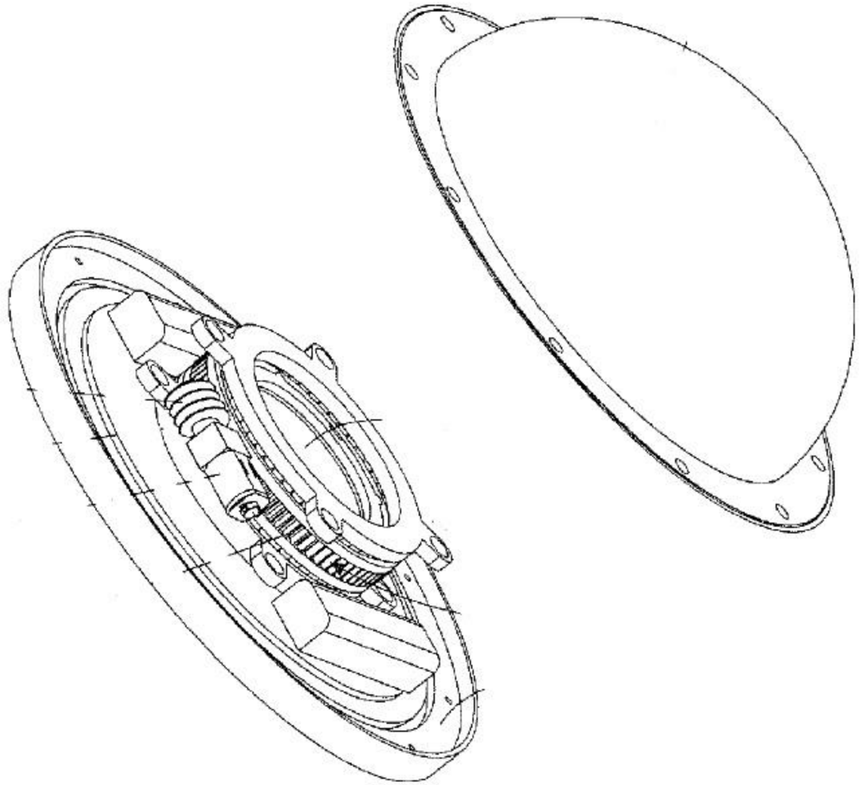
The invention is a polarizing filter able to rotate autonomously thanks to a mechanical component that allows to acquire a sequence of frames with different polarization and send them to a processing system. The processing includes algorithms evaluation metrics for images selection, allowing to obtain images without the scattering related to the diffusion of the light in the water.

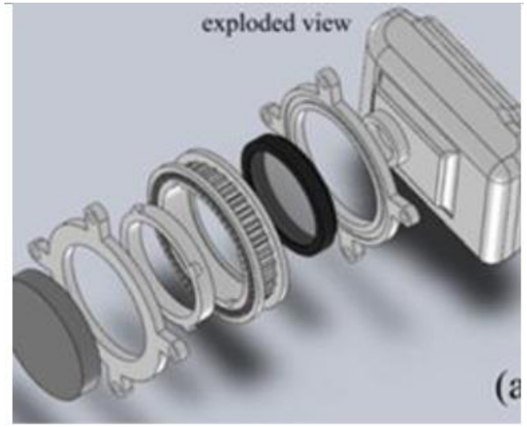
Underwater vision is subject to phenomena that negatively affect the quality of images as the propagation of light under water and mainly affected by attennuation and scattering.The invention is a polarizing filter able to rotate autonomously thanks to a special mechanical component that allows to acquire a sequence of frames with different polarization and send them to a processing system. Images selection and the processing using classical algoritms through evaluation metrics. This allowed to obtain images without the scattering related to the diffusion of the light in the water.

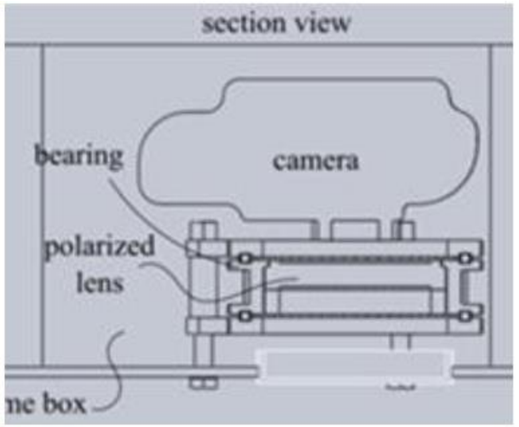
The main advantages are:

- Complete images from variable polarized image frame
- Scattering reduction
- Reduced light signal attenuation

Drawings & pictures







Industrial applications

The main applicarions are:

- Mobile phone
- Underwater documentary
- Underwater exploration
- Scattering Analysis in vitro diagnostic
- Deepsea monitoring
- Underwater Oil platform

Possible developments

The research group is interested in obtaining industrial collaborations aimed at increasing the technological maturity of the present invention or industrial partners interested in taking the license of the technology object of this patent.

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