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# Video Processing Software-based Pipeline Endoscopic Inspection

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**Abstract :** Currently, all the codes and the standards of the fluids transport industries require rigorous pipeline inspection, in order to detect all defects and anomalies and avoid leaks and failures. For this reason, a team within the division of Signal Processing and Imagery had as mission to develop an endoscope which can replace the operator inspection inside the pipeline and improve its quality and diagnostic. This endoscope named 'Pipe Explorer' is controlled by FPGA microcontrollers, and is equipped with a camera. While moving inside the pipe, the camera records a video on the memory card. In this way and in order to offer a practical tool to the operator, we have developed graphical software based on processing techniques of the stored video consisting in video preprocessing and segmentation. At the end of this processing, we obtain a video result on which appears the analysis and the interpretation of the original video to give an internal pipe quality diagnosis. The results shows all the defective areas such as corrosion which are stained with {green, blue, red} color according to its degree of severity and the risk of harmfulness on the inspected pipeline.

**Keywords :** Pipeline inspection, endoscopy, video processing, video segmentation, corrosion.