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Small PIG for inspection pipeline

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Abstract:

The intelligent PIG's is denominated by this way because it is implemented in them electronic, mechanics, ultrasonic, or electromagnetic systems, that allow to know the physical state of the pipe that they travel. The present work describes the implementation of the inertial navigation system (SNI) of an intelligent PIG that can inspect pipes from 2 " up to 6" with a simple change of shirts. The SNI uses accelerometers and gyroscopes of the type "integrated micro electro-mechanical systems" (iMEMS), with these it can be carried out the mapping corresponding to the inspected pipes. Besides carrying out this function, The SNI should have the interconnection, possibility, or connectivity for the interaction with other systems as they are: The electromagnetic, ultrasonic, or mechanics to be able to locate the anomalies detected in the pipe accurately. As well as with the systems of distance measurements like the odometers are that allow measuring the distance traveled by the PIG The complexity of this implementation is the available space for the implementation of the electronic systems. Since the PIG will run freely for the internal diameter of the pipe, and the existent bends, which they end up being of 90deg with a radius of bend of three times the diameter of the pipe.

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Contents

1. Introduction

At the present time, there are many companies that offer services of internal inspection of pipes, by means of intelligent PIG, the diameters of more common tools fluctuate from 6" to 32", which use diverse methods already magnetic, ultrasonic, and even mechanics to know the physical state of these pipes.

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Keywords

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Inspection, Pipelines, Gyroscopes, Accelerometers, Costs, Batteries, Intelligent sensors, Circuits, Robots, Automotive engineering

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