

**Technical-economic analysis of level measurement of liquefied petroleum gas in residential environment: Applicability and development of a non-intrusive automated low-cost system**

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The increase in energy demand generates the request for different energy sources, among them we can highlight hydrocarbons, which play a vital role in the country's energy supply. Liquefied petroleum gas (LPG) is a mixture of hydrocarbon gases widely used by Brazilian families. Normally, the gas is transported and stored in 13 kg cylinders. On the market it is possible to find some equipment and mechanical devices capable of measuring the level, but electronic equipment, which have more precision and greater capacity to store data, are found more easily in industrial area and at a high cost, but not in an accessible way for residential use. Thus, this project aims to analyze in detail different possible ways of level measurement of a domestic cylinder and propose a low-cost and non-intrusive method. The analysis results will allow to develop a system to control expenses and better planning for replacement time of the cylinder.