ABSTRACT

Fraudulent practices carried out by gas stations operators in order to reap greater profits are often identified. One of the fraudulent practices is by manipulating the fuel volume that is channeled to motorized vehicles through a nozzle to be less than the amount transacted. Along with the technology development, perpetrators of fraud can deactivate the additional components used for these actions remotely using a special remote. This makes it difficult for inspection officers to detect fraud.

In this study, a fuel volume measurement monitoring system was designed to reduce the weaknesses of the monitoring system using standard measuring vessels. This system utilizes the concept of image processing. The system uses a Raspberry Pi 4 Model B as an image processor and a Logitech Webcam C270 as an image captureer, also a 16x2 LCD as a system output display.

The system can provide output in the form of fuel volume (ml) and errors of fuel filling volume (ml). The brightness of the light affects the most optimal threshold value for use by the system. The best light brightness to use on a system using natural light is 624 lux. Which has the highest optimal threshold value (107) and the smallest pixel error percentage (0%). Meanwhile, when the system uses artificial light, the best light brightness is 138 lux. Which has the highest optimal threshold value (105) and the smallest pixel error percentage (3.18%). With this system, hoped that it can be a solution to acts of fraud by gas station entrepreneurs.

Keywords*: Fraud, Image Processing, Standard Measuring Vessel, Fuel Volume, SPBU inspection.*