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Fresh juice pH evaluation using colorimetry

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Abstract

This paper details a low-cost application for the evaluation of the pH values of fresh squishes juices correlated with the quantity of light transmitted through the samples. The juice samples were analyzed using visible sensor and with a pH-meter. The sensor acquires data in the visible domain for six channels between 450 nm and 650 nm The sensors acquired data for three consecutive days. The goal of the application was to identify if there is a correlation between the pH variation and the data acquired with the AS7262 sensor. The results have shown that the transmission for the 450 nm channel increases over time for citric fruits (such as grapefruit, lemon and orange), whereas the pH decreases.

System Components

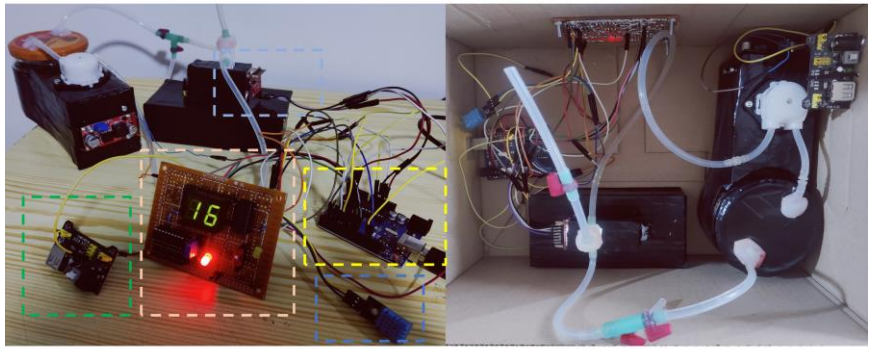

Fig. 1 – System Components

Experimental Results

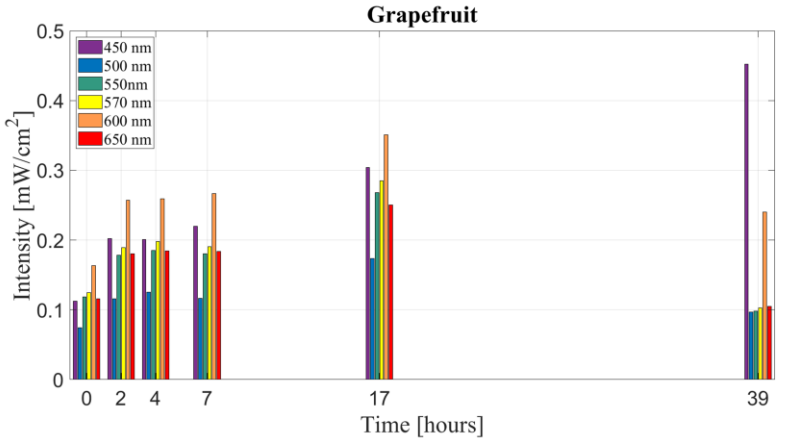

Fig. 2 – Grapefruit juice results

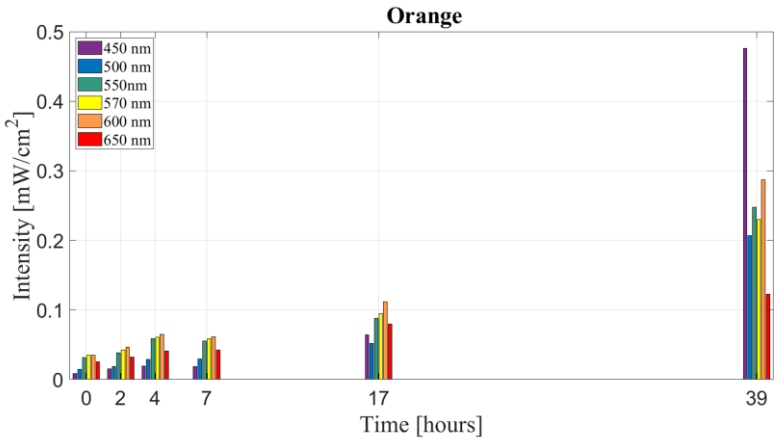

Fig. 3 – Orange juice results

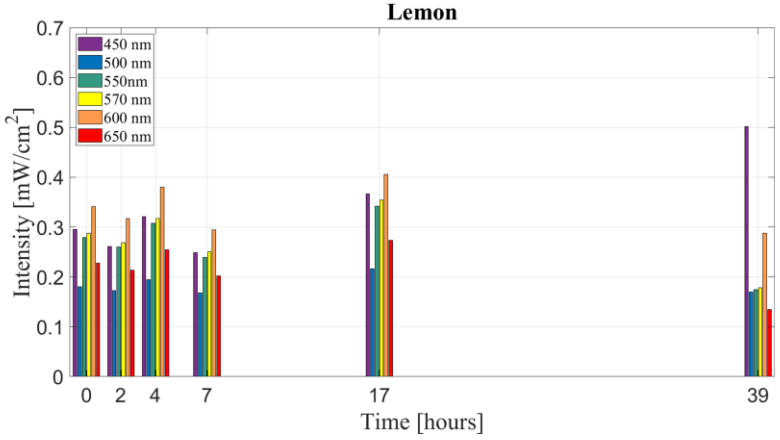

Fig. 4 – Lemon juice results

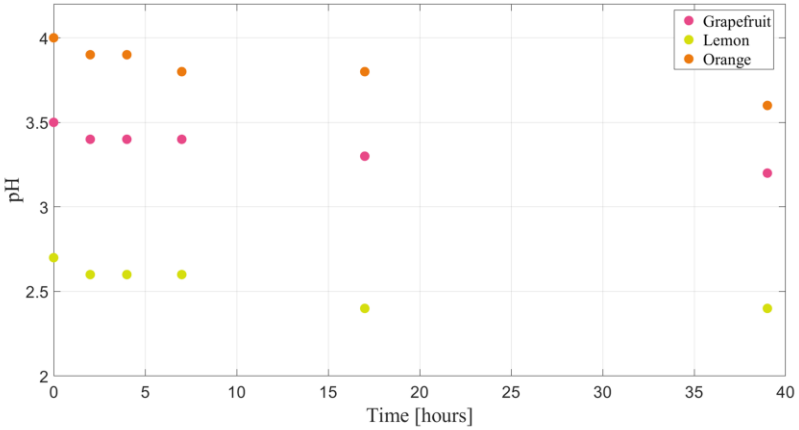

Fig. 5 – pH results for all juices