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USE OF DIFFERENT TYPES OF SENSORS FOR SIZE MEASUREMENT OF SOME AGRICULTURAL PRODUCTS (FRUITS) GROWN IN MEDITERRANEAN CLIMATIC CONDITIONS

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Abstract

Climate and environmental conditions primarily affect the yield and quality of agricultural products. Turkey’s environment shows different characteristics between regions because of the position of the Turkey in the World. In the agricultural product industry, different techniques are used to measure the physical properties (diameter) of the agricultural products to determine the effect of the climatic difference between regions on the quality of goods. Many factors affect the classification of agricultural products such as the physical properties of the product surface, the color and the light condition. In this study, lemon, apple and orange varieties were chosen for the tests. Their diameters were measured by using ultrasonic, infrared and image processing techniques and the sensing qualities of these sensors were presented according to measurement results. In this research, regression coefficients changed between 92.20 - 96.00%, 72.80 - 77.00%, and 51.30 - 67.30% between three agricultural products, at ultrasonic measurement, infrared measurement and image processing methods respectively. The results showed that the image analysis method could be used more effectively than ultrasonic and infrared measurement techniques for the classification of products.

Key words: agricultural product grading, arduino, image analysis, infrared sensor, ultrasonic sensor

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