Automated system for classification of objects

Researchers from UNICAMP developed a method and a system for recognition and categorization of objects such as fruits and vegetables in environments with partially controlled luminosity, i.e. markets and supermarkets.

It can be applied to:
- Image categorization;
- Recognition of objects (fruits, vegetables, flowers, boxes, etc.);
- Markets and centers of distribution of goods.

The advantages of this technology are:

- Achievement of right categorization in approximately 99% of the cases, against 94% in the other systems;

- Requirement of less training for the operators than the traditional approaches;

- No necessity for mechanisms to relieve illumination and reflexes;

- Automatic and multi-class classification process, and permits the simultaneous identification of various products of the same type.

PATENT STATUS
Patent request deposited at INPI.

INTERNAL CODE
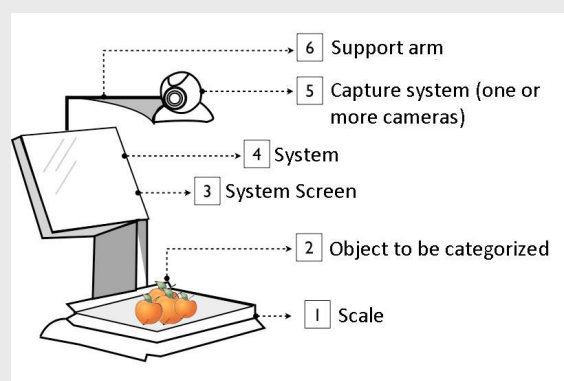416_AMBIENTES

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"Method and system for reconnaissance and classification of objects in semi-controlled environments"

The classification of different kinds of products, such as fruits and vegetables, is a recurring task in markets and distribution centers, where the checkout operators must be capable of pointing out the exact species of these products to identify their price. This classification is simple for packed products, because it can be automated with the use of barcodes. However, in the case of these products, the classification is usually performed by the human eye, what makes the process slower.

The technology developed by the researchers consists in a system of classification of objects in environments with any kind of luminosity. It allows the characterization of the objects' images, obtained by a video camera, combining properties like color, texture, form and profile, not imposing normalization restrictions to these.

Thus, the system is capable of updating its classification method to improve its effectiveness and its accuracy rate, and can be embedded to various devices or associated to additional devices, such as a scale, for instance, to provide additional information - weight or pricing - making the checkout process faster.

6	Support arm
5	Capture system (one or more cameras)
4	System
3	System Screen
2	Object to be categorized
1	Scale

General diagram of the system's operation and its associated components.

Responsible Researcher:

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