Chapter 12
Distribution of Food in a Specialized Hospital Using Ambient Intelligence to Improve a Model of Macroergonomics

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ABSTRACT

SIDA (Intelligent Food Distribution System, for its acronym in Spanish) is a proposed tool for the distribution of food that can be personalized depending on the medical characteristics of each patient. The target of the tool is to provide foods that contain higher nutrients in the diet set by a hospital. A model of decision trees was based on data from the organization of the United Nations Food and Agriculture Organization (FAO) and used for decision making in the simulated three basic foods based on the diet of Latin American countries typically integrated by rice, potatoes, and lentils from the parameters of fat, energy, and protein, respectively, that contains every type of food.

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INTRODUCTION

All forms of intelligent life must make decisions that will lead to a victory, a life victory, maybe food, water, or only a place for a rest. The tools like math's help us to choose the better decisions, the decisions tree is another tool to help an industrial, administrative and commercial business. In this case, a new tool for taking decisions about what kind of food is better for the patient using the food that has the hospital will be used. Intelligent Food Distribution System (SIDA, for its acronym in Spanish) is a proposed tool for the distribution of food that can be customized according to the medical characteristics of each patient that provides foods that contain greater nutrients in the diet established by the hospital. *Each hospital kitchen has menus for each diet that will be seen in a diet which food are the ones that benefit patients, in any case, will not eliminate the food or produce only food for each patient.* Since it stands to reason that all foods are required and must be suitably combined, however, it is known that foods more beneficial to a patient, it can serve to take to decide what kind of food decrease portion and benefit of any food its more beneficial for they (see Figure 1).

DECISION TREE USED FOR THE ALLOCATIOIN OF FOOD IN A HOSPITAL

In a visit to the hospital in order to see the way that assigned diet to patient and who and as diets design, basically four types of diets were found; 1) Normal diet where there is no restriction, can consume any food 2) in the soft diet foods must be chewed so that they can consume, however, all liquids or food restricted gelatinous allowed. 3) The low sodium diet does not restrict foods but limits the amount of salt that they possess and 4) low-carb diet limits foods that contain sugar. However, although the four types of constraint are different, in all of them was included rice, lentils, and peeled potatoes to the latter should be prepared as a mash diet soft. Cebola et al. (2016) suggest the need to regularly evaluate the nutritional status which allows to identify and reduce the complications associated with malnutrition.

For this razon, there are several quality systems that ensure care in the handling of food, and in the specific case of hospitals, a rotation of ingredients that help the patient's recovery according to their specific needs. Thus, Caracuel García (2007) have listed the benefits of having to support systems for the management of food in hospitals, among which it stands out; the guarantee that the food that is being

Figure 1. Decision tool attached with SIDA Tool of ambient intelligence