



## Chapter 15

# Innovative Aspects of Virtual Reality and Kinetic Sensors for Significant Improvement Using Fireworks Algorithm in a Wii Game of a Collaborative Sport

**Alberto Ochoa-Zezzatti**

 <https://orcid.org/0000-0002-9183-6086>  
Universidad Autónoma de Ciudad Juárez, Mexico

**Ismael Rodríguez**

 <https://orcid.org/0000-0001-9722-610X>  
Jagiellonian University, Poland

**José Mejía**

Universidad Autónoma de Ciudad Juárez, Mexico

**Jose Peinado**

Universidad Autónoma de Ciudad Juárez, Mexico

**Saúl González**

Universidad Autónoma de Ciudad Juárez, Mexico

**Jesús Bahena**

Universidad Autónoma de Ciudad Juárez, Mexico

**Víctor Zezatti**

Universidad Autonoma del Estado de Morelos, Mexico

## ABSTRACT

*A new report on childhood obesity is published every so often. The bad habits of food and the increasingly sedentary life of children in a border society has caused an alarming increase in the cases of children who are overweight or obese. Formerly, it seemed to be a problem of countries with unhealthy eating habits, such as the United States or Mexico in Latin America, where junk food is part of the diet in childhood. However, obesity is a problem that we already have around the corner and that is not so difficult to fight in children. In the present research the development of an application that reduces the problem of the lack of movement in the childhood of a smart city is considered a future problem which it is the main contribution, coupled with achieving an innovative way of looking for an Olympic sport without the complexity of physically moving to a space with high maintenance costs and considering the adverse weather conditions.*

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## INTRODUCTION

The increase in childhood obesity, a problem of great importance in an intelligent city, determines the challenges that must be built with respect to applications that involve Artificial Intelligence. Computer games to combat childhood obesity are very important to reduce a future problem in our society. Exergaming, computer games to exercise children increasingly play less on the street and spend more time with video games and computer games, so they lead a more sedentary life. This, together with bad eating habits, increases the cases of obese children every year. What can parents do to avoid being overweight in childhood? A bet that comes to us from the University of Western Australia, Liverpool John Mores University and the University of Swansea in the United Kingdom is the exergaming, an Anglicism that comes from joining the word “exerdizze” in Turkish (exercise in English) with gaming (game). These are games that offer consoles such as Xbox, Kinect or Wii in which you interact through physical activity in tests in which you have to run, bike, play bowling or jump fences. The researchers tested children who performed high and low intensity exergaming and measured their energy expenditure. The conclusion reached was that the exergaming generated an energy expenditure comparable to the exercise of moderate or low intensity, depending on the difficulty of the game. In addition, the game was satisfactory for the children, who enjoyed the activities they did. It is an advantage that parents can take advantage of to prevent children from spending so many hours sitting in front of the console, since it has been shown that they can obtain long-term health benefits. In any case, it must always be one of the means we can use to encourage children to do some physical activity but not the only one. Going out the street to play, run, jump, must always be on the children’s agenda, as is shown in Figure 1.

*Figure 1. Intelligent application using Kinect*



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