



Scratch for visually impaired children – Fruit Slicer

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Abstract

The idea of this study was to develop the game "Fruit Slicer" in Scratch using a new interaction form based on the recognition of sounds and textures. Fruit Slicer is based on the Fruit Ninja game for smartphones and tablets. The new approach uses real fruits as input devices. Another novelty resides in the possibility of visual impaired children be able to play this game.

Goal

The goal is for the player to interact with the system in a more immersive way, thus allowing new applications to target different populations.

Application

The game's implementation was based on the combination of the MakeyMakey board with the use of real fruit as the controller. Instead of slicing fruits with the fingers through touch gestures, in Fruit Slicer the player has to hit the corresponding fruit in front of him. The player can assimilate the shapes and textures of the fruits and hit them when the game calls them out through audio signals. The game is being ongoing tested by a small group of visually impaired children and the preliminary results are very promising.



Fig. 1 – The Game



Fig. 2– New Interaction

Modes

• *Mode: Classic*

In classic mode fruits are launched from the bottom of the screen. The player has to hit the corresponding fruit on screen with the real one in front of him, thus slicing it and scoring points. The fruits are launched randomly, and if one goes back to the starting point without being sliced, the player loses one life.

• *Mode: Zen*

In zen mode its the same gameplay but with a timer. In this mode the player doesn't lose any lives. This type of interaction makes the gaming experience more immersive and fun to the players with the added educational knowledge they get from setting up and understanding how the controller works.

Conclusions

Scratch is the programming environment for children. In this work the great newness of using this concept is its adaptation to visually impaired children. Consistent test will be done to measure the performance and the suitability of the game to the target population. The novelty of this work is to interpret the suitability of Scratch to new forms of interaction using a different target population: children with visual impairment.

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