OPENCV AI COMPETITION 2021
No Sedentarismo Game - Mendoza Cracken 13

Carlos Alberto Bustillo López*
Computer Vision Engineer | Software Developer | Mechatronics Engineering Student
Universidad Nacional de Cuyo. Mendoza, Argentina
Email: *cabustillo13@hotmail.com

***Abstract*—A New way of playing video games, to get you moving and avoid sedentary lifestyle.**

***Index Terms*—Health, Fitness, Python, OpenCV, OAK-D**

I. Problematic

According to the World Health Organization, at least 60% of the world's population does not engage in the physical activity necessary to obtain health benefits. This is partly due to insufficient participation in physical activity during leisure time and an increase in sedentary behaviors during work and home activities. Consequently, non-communicable diseases associated with physical inactivity are the biggest public health problem in most countries in the world. The global evolution of physical activity is of particular concern in some high-risk populations: youth, women and older adults. It is important that, when developing and applying the "For your health, move" initiative.

II. Solution

One way to get moving in a playful, fun and inexpensive way for children, adolescents and even older adults, is to integrate physical activities while playing video games.
My project consists of an executable Python3 script that can be implemented simultaneously (in a parallel thread to be more specific) to computer games. Through a video capture system with the webcam, the script acquires the user's movements, processes them and translates them into keyboard commands (previously configured).
I had previously mentioned that it is a low cost tool. There's no need for the Wii console, no Xbox 360 kinect, or other expensive add-on to play with body motion. For our case, because the script works a certain range of colors. It is enough for the user to get some cardboard of the color corresponding to the configured color, paint with colors on a sheet, look for an element of the proposed color or change the color that the script is detecting to adapt it to the elements that he has at home. And with that is more than enough to be able to start playing your video games.
With the OAK-D device this proposed script can be executed, performing the activities in real time and in different environments. Improving the gaming experience and increasing the user's quality of life.

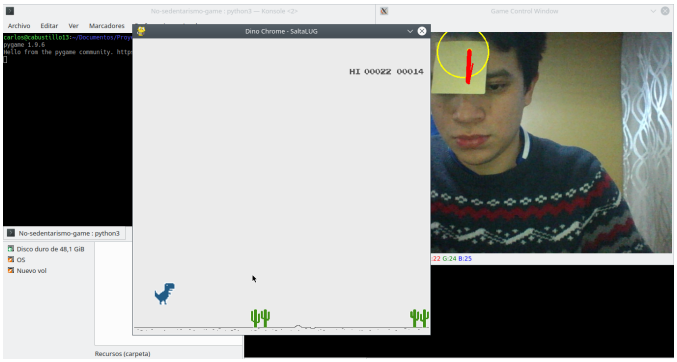

Figure 1. Play Dino Chrome Game just moving the forehead to control it.

III. Results

The objectives proposed at the beginning of the competition were achieved:
1) Being able to create generic scripts that work for your different types of video games and that more people get moving, have fun, improve the experience of the game and above all generate significant progress in their health to have a superior quality of life.
2) Convert this script as an additional tool where your joystick is your body, and it is controlled by your movements.

IV. Code Description

There are two versions of code: The first one shows the actions that are being captured by the screen in real time. The second version is Lite, for computers with low CPU resources or microprocessors (for example Raspberry Pi).

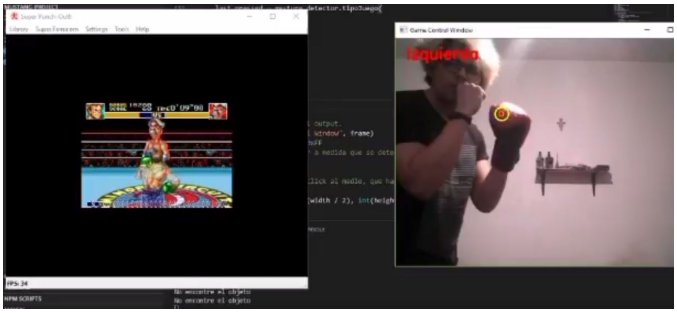

Figure 2. Play a classic boxing video game, where the control is the red boxing glove.

V. Conclusion

- The objectives set were achieved.
- Explore and discover interesting features that can be achieved with the OAK-D.
- For the next implementation, we will seek to apply the scripts to 3D games, since with the OAK-D we can determine the depth.

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