Athena project: virtual reality

The work will be divided into two main tasks: creation of the support and testing.

Creation of the support: the idea is to create software (video game) to work with an oculus quest 2 and HTC VIVE pro virtual reality headset. This "game" consists of taking the role of a goalkeeper (handball), creating the environment in 360° around.

The player sees a ball coming and must intercept it with his hands or feet.

In this software, we need to be able to configure the throwing and receiving areas of the ball, the speed, pace and color of the ball, the duration of the sequence, the color of the player's hands. We also want to give specific instructions, for example "stop the green ball with the green hand", then in the same sequence, change the instruction "stop the red ball with the green hand".

 We also need to be able to see on an external screen what is happening in the headset.

We must also have as information at the end of the sequence on an excel file, the reaction time, the speed and the precision of the movement (ball-hand contact point) as well as the number of errors (ball not stopped and ball stopped but not with the right hand).

Test: once the software has been created, it will have to be tested with sports people or not, in order to verify the relevance of the scenario as well as the information collected.

We will be particularly interested in the player's pleasure and sensations (athletic and non-athletic), the reliability of the information collected (comparison of speeds, reaction time, precision) as well as the energy expenditure generated by the activity in comparison to a real situation.

The idea here will be to put the same participants in real and virtual situations in order to compare the two situations and compare the same participant during different sessions