

0.1

- Haptic perception is distributed in the whole body through thousands of receptors embedded in the skin and muscles. On the contrary, vision relies on the eyes and audition on the ears.
- It is private in the sense that nobody is experiencing what you are touching on the contrary of visual and auditive stimulations that can be simultaneously experienced by a large number of people.
- Haptic perception is localized since what you feel is what you touch unlike vision and audition.

0.2

1. Kinesthetic submodality because it creates boundaries of the game space through force-feedback which enable the user to stay in the game field without the need of visual information. In addition, information about the localization of the objects of interests (e.g.: opponents, soccer ball...) are provided through a second kinesthetic handle which maps their orientation on the position of the handle. The first handle outputs force while the second outputs position.
2. Haptic feedback enables the user to stay in the game space and know where the elements with which he or she has to interact are.
3. The device senses the position of the user's hand on the me-handle in order to locate the avatar and consequently provide informative force-feedback.
4. The device outputs force feedback through the me-handle and position feedback through the it-handle.

0.3

1. Kinesthetic and cutaneous modalities. The pen is grounded by being supported by the paper surface and mainly provides force feedback. It also provides pressure over the contact area on the user's skin, which induces an extra cutaneous cue about the direction and intensity of the stimulation.
2. The pen's haptic feedback enables passive constraints, which means that the haptic force feedback activates when a certain boundary is reached. In addition, it also provides active constraints which dynamically activates to bring the user to optimally draw the pre-programmed shape.
3. The device senses its position, which also the position of the user's grasping hand and reacts accordingly. It also senses the pressure exerted by the user, which it uses to calibrate its 'shared control' mode.
4. The device outputs a force field that is rendered through constriction of a rolling contact ball on the paper.

0.4

Ideas of devices and applications: TouchMover 2.0, Woodenhaptics...