PUSH / PULL

Push / Pull is an interactive installation which consists of two "floating" objects on two different playgrounds. The objects are round and move freely in any direction in the field, gliding as if on a hovercraft aircushion. They can move by themselves but can at the same time be moved by the audience. The visitors interact in a direct and physical way by pushing and moving the objects, playing a game with them but also with each other. When a visitor moves one of the objects, the other one will imitate the same movement. When someone else moves the second object at the same time, the first one moves, too. This means that two visitors can communicate with each other through the objects. They start to push against each other while their physical locations are not related. It's important that the interface (the sensors detecting the visitor or visitors moving the object) and the result (the object that moves itself) both communicate through the object. For example, you push the object, and the object pushes you at the same time. Communication between the two objects consists purely of digital messages going in both directions. The objects are physical interfaces which communicate with each other via a network.

The objects are placed in two separate spaces of at least 10 by 10 metres each. They have a diameter of about 2.4 metres and are fully controllable in movement by two omnidirectional wheels that touch the floor. The objects are round, which means that there is no front and back.

On one hand the movements of the objects is determined by their programmed behaviour, but on the other hand it is constantly influenced by the movements the audience gives them. Their route is the sum of the input from the audience and their own behaviour. This is permanently communicated between the two objects. When a visitor touches one object, this also influences the other object (and vice versa). Although the visitors are in different spaces they can "feel" each other through the objects.

The interaction

As described earlier there is a direct relation between the movements of the two objects. The visitors can 'touch' each other through the two objects which communicate with each other. However, this is not the only form of interaction. The objects have their own kind of behaviour which can alter as time passes. This behaviour is determined by two parameters. First of all the objects memorise the movements they are given by the visitors, reproduce them and process them into new movement patterns. The visitors are confronted by this. Secondly the specific location of the objects in the space can play a role in their behaviour which is comparable to an object in a complex magnetic field. The object can have a pulling force to a specific location in the space—it is attracted by that

location and wants to return there all the time. There are also locations that have the opposite role. They keep pushing the object away. The balance of the different forms of interaction is dependent on what the visitors do. The objects' behaviour keeps changing, which tempts the visitors to continue to explore the installation.

The movements

The objects glide over the floor on the hovercraft principle, and this technique enables them to move quite easily. The two omni-wheels are the only parts that touch the floor. These wheels are suspended beneath the air cushion as a separate unit which can move freely so the wheels are in contact with the floor at all times, not influencing the gliding behaviour. The objects can spin around their centres and also make controlled movements in any direction.

The sensors

Sensors are used to determine the location and the rotation of the objects in the space. From the location, the speed and acceleration can be calculated, and this enables the movement to be very precisely controlled.

The sound

The objects have built-in speakers. The sound forms another level of communication with the visitors which is independent of the movements. The objects can express themselves via sound and have a language of their own. The sound will continuously express the state/mood of the object. Their speed, the location and the direction influence the sound, but so do the visitors who move the objects. The object can express whether it wants to be moved or not, whether it is pushing against you or moving with you, and gives information about its location within the space. The sound forms another dimension in the communication between the visitor and the objects.

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