

Mindspheres

Play your skills, relax your mind

Abstract

This device, consisting of two MindSpheres and a charging dock, helps the user to relax in a playful manner. The user can interact with the MindSpheres by making them orbit each other in the palm of the hand. The aim when playing with MindSpheres is to twirl them as smoothly as possible. Focusing on this skilled task provides a playful diversion which helps the user to relax mentally. At the same time, achieving such smooth hand movements is only possible when the mind is in a state of relaxed contemplation: it is not until the mind becomes quiet that the movements start to flow. Being nervous or overly concentrated is typically counterproductive when trying to make this kind of subtle movement.

While twirling, the user's movements are detected and analysed by MindSpheres in real-time. Changes in the smoothness of movement cause changes in the light and vibration feedback pattern of each MindSphere. At first, when the user's movements are jerky and incoherent, the feedback is random. Yet the smoother the user twirls the MindSpheres and the longer the user manages to sustain this smoothness, the more structured, restful, beautiful and mesmerising the feedback patterns become.

We see MindSpheres as a concept which takes a holistic approach to relaxation. Instead of treating physical and mental relaxation as separate phenomena it builds upon the very relationship between body and mind.

Introduction

Increasingly busy lifestyles have triggered a surge of interest in devices aimed at mental well-being. Most of these devices are based upon physiological measures such as heart rate, blood pressure and galvanic skin response. Since these measurements are easily disturbed by movement, the user must sit as still as possible, leading to a potential conflict between a cramped posture and the desire to relax.

MindSpheres is the result of a more free and playful approach to relaxation. It builds upon the idea that building fine motor skills through dexterous exercises is both a relaxing and a rewarding experience. Rather than making use of physiological measures and forcing the user to sit still, MindSpheres encourages users to enter a state of relaxed contemplation by making them focus on a challenging, playful task: twirling around the MindSpheres.

Reasons to Believe:

Bridging the mind-body divide

From a classical scientific point of view, in which mind and body are seen as fundamentally distinct, MindSpheres simply offers users an enjoyable way to hone their perceptual-motor skills and thereby exercise parts of their nervous system which receive little use in everyday life. In this 'disembodied' view of intelligence and action, the superior mind is the agency





which puts the inferior body to work [1]. However, there is a growing family of responses to this cognitivist conception of mind which question the Cartesian mind-body split. These approaches share a realisation that the body is not merely a tool for our use in accomplishing our purposes, but that instead there is an interplay between our state of mind and how we bodily engage with the world [2].

For example, in the concept of 'mindfulness' [3] it is said that by concentrating on the moment, on basic everyday actions in the 'here and now', users may learn to accept and re-interpret the stressful 'chatter' of the mind into a positive experience. Bringing the mind to focus on what is happening in the present moment, while simply noticing the mind's usual 'commentary', may help relieve stress and induce relaxation. Mindfulness is undergoing clinical trials in the form of the Mindfulness-Based Stress Reduction (MBSR) program [4], a form of complementary medicine offered in over 200 U.S. hospitals.

Another example of a theory which stresses the relationship between mind and body is Csikszentmihály's concept of flow [5]. Flow is the phenomenon which occurs when the user is completely absorbed in an activity for its own sake. When in flow people lose their feeling of self-consciousness, their focus of awareness is narrowed down to the activity itself, resulting in action-awareness

merging. When in flow, users forget their immediate surroundings and experience a sense of timelessness. Flow is described as a highly enjoyable, effortless experience which happens when the challenge posed by the task is in balance with one's ability level.

Whilst concepts such as mindfulness and flow have only recently made inroads in Western science, the discipline of overcoming the duality of self and object has been a central feature of spiritual development in Eastern philosophies such as Buddhism and Taoism. Such thinking has reached the West mainly in applied forms such as yoga, tai-chi and martial arts. From these applications it becomes apparent that certain motor actions can only be carried out when in a particular frame of mind, whilst at the same time, certain motor actions are believed to put us into a particular frame of mind. Chinese 'baoding balls', by which MindSpheres' physical design was originally inspired, also fit into this category. According to Chinese thinking, playing with 'baoding balls' is beneficial to both mind and body, in keeping with a Chinese understanding of medicine.

Aesthetic considerations

Aesthetic of appearance: a low-key skin, a high tech core

One of our challenges in designing MindSpheres was to find an aesthetic which would be appropriate for a relaxation device. We strongly felt that the current



day 'electronic product aesthetic' (e.g. high gloss finishes, LCD displays) would be inappropriate for a device aimed at mental relaxation. Therefore our intention has been to avoid associations with such electronic products. Instead, we have drawn upon a domestic aesthetic, taking our inspiration from typically 'low-tech' product categories such as tableware, textiles and wooden toys.

This has resulted in the dock having a simple curvi-linear form, finished in unglazed ceramic white and velvety orange, and the use of natural materials in the form of oiled walnut for the MindSpheres themselves. However, underneath this low-key exterior lies a high-tech core. Each MindSphere is equipped with accelerometers to detect movement whilst twenty high power LEDs and two vibration motors provide feedback. Motion analysis algorithms analyze the user's movements in real-time. Built-in Zigbee controllers enable wireless communication between MindSpheres and the dock. The dock itself provides wireless charging for the MindSpheres and features a 'light line' to indicate by means of colour the currently active exercise.

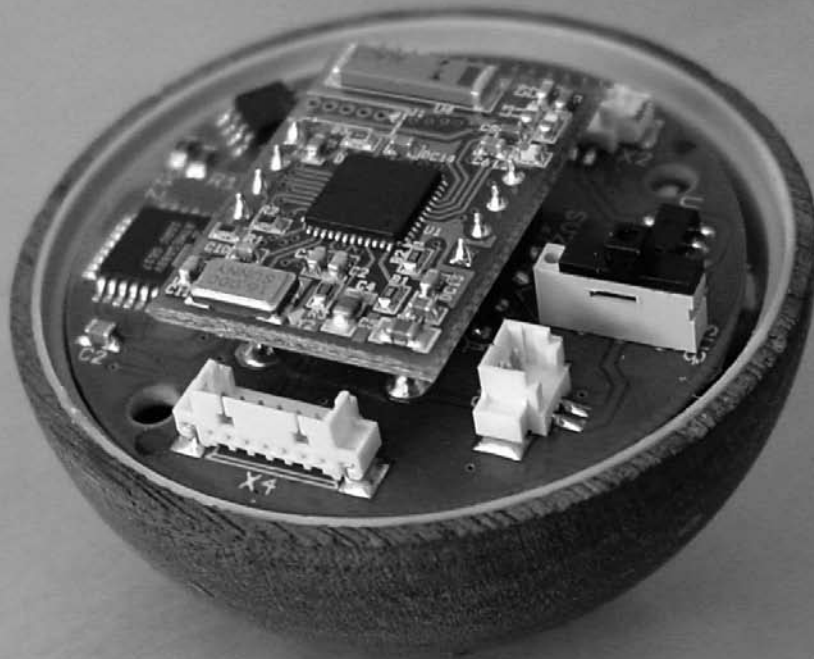
Aesthetics of interaction

In designing MindSpheres, we aimed to set it apart from the current product offerings in the area of relaxation. These offerings often come in the form of PC peripherals which take physiological measurements and

which use the PC's screen for feedback. In our opinion, being PC-based is at friction with the application area of relaxation for a number of reasons.

On a pragmatic level, being PC based means that these devices require complex set-up procedures including software installation and configuration. It also means that when looking for relaxation, the user is bound to a PC. On a more insidious – and perhaps more important level – it means that these devices have uncomfortable connotations with the PC's productivity and efficiency oriented interaction style. The screen-based feedback creates associations either with the fast-paced, performance-oriented world of gaming through the use of 3D computer graphics, or with being physically monitored through the use of scientific-style graphics typically found in medical equipment. We think that neither of these associations are desirable in a relaxation context.

In contrast, MindSpheres is a portable, standalone device, which allows it to be used wherever the user feels is the most appropriate place to relax. Action and feedback are co-located so that users may more easily focus their attention. Finally, we feel the dynamically changing light patterns and their interaction with the moving hand have a mesmerising aesthetic quality which contributes to rather than interferes with a feeling of relaxation.



Conclusions

In keeping with Philips' interest in the area of well-being, MindSpheres is a concept which helps users relax both mentally and physically by making them focus on playful dexterous exercises. Contrary to existing relaxation devices, which infer the level of relaxation from physiological measurements of the static body, MindSpheres builds upon the interplay between our state of mind and our bodily activity. We have argued our reasons for MindSpheres' appearance as well as for its interaction style. Again and again, these reasons come back to the same thing: improving MindSpheres' aesthetic fit – in terms of appearance, in terms of interaction and in terms of context – to its key functionality: relaxation.

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