

Research highlights

Sociable Trash Box: Proxemics in Dynamic Interactions

Humans regulate their interactions according to different contexts, the degree of the relationship, cultural factors, gender, age, and so on. These factors can be utilized as an interpersonal boundary-control mechanism which is totally dependent on encouraging or discouraging another person's interactions. Humans are expected to dynamically optimize the above mechanism according to the interpersonal distances and personal spaces (proxemics).

Michio Okada and colleagues at Toyohashi University of Technology were interested in determining what kind of distances (spheres), effective social cue, and behaviors that an sociable trash box (STB) requires with children in order to convey its intention to acquire child assistance in collecting trash from the environment as a child-dependent robot.

We conducted the experiment in a Developmental Center for Children at Toyohashi City, and evaluated the validity and effectiveness of the approach through different interactive scenarios. The experiments on naturally interacting with the STBs were conducted with the participation of 108 children aged 4 and 11 years old.

The results of the proxemics showed that when the STBs moved individually in the environment and moved in a swarm (three STBs), the children established different spaces (according to distance and interactive time) to interact with the STB.

These extracted spaces can be utilized in the STB decision process (moving with distances, staying time, etc) to convey its intention to collect trash with assistance from children. This will be the basis of our future plans to extend our study in order to develop a decision hierarchy inside of the STBs

References

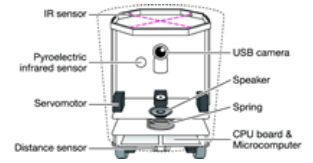
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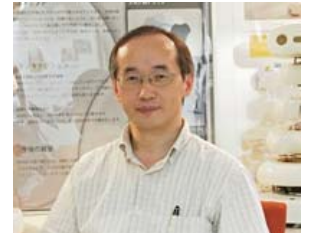
Designing concept for STB



Children interacting with the sociable trash-box



Interactive distances between children and STB



Michio Okada