MIDTERM ASSIGNMENT

RESEARCH IN ARCHITECTURAL ROBOTICS

INSTRUCTOR: BRETT BALOGH

STUDENT: JAQUELINE HITOMI FUNATSU

ID NUMBER: A20366320

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ABSTRACT

Robotics is an increasing issue of the technological society that exists today and it is present in almost all sections of industry, one of them is the construction industry, not only with robots that are architectural or in other words automated machines that help with the construction of a building, like putting bricks together, but the building by itself can be robotic. This type of architecture can be defined as adaptive, responsible, dynamic or iterative. To the architecture to be interactive, it needs to be capable of analyze the internal or the external environment conditions and respond to it. This process is possible because buildings are equipped with sensors, actuators and controllers, enabling them to collect information, process and act on it autonomously.

Branko Kolaveric said that “over the past decade we have seen an increasing interest in exploring the capacity of built spaces to change, to respond dynamically”, showing that the use of robotics in architecture have been increasing and becoming an important factor of the contemporary buildings nowadays.

Some well succeeded examples of robotics in architecture are the Institut du Monde Arabe, designed by Jean Nouvel, the Bahr Towers, in abu Dhabi by AHR and the tessellate adaptive facade system designed by ABI in collaboration with A. Zahner Company. These buildings use a responsible system to the light, the facades changes according to the sun, allowing the building to have as much natural light as possible or to block the sun when it is not desired. A different example of interaction in architecture is the Light Creature, designed by Studio Guto Requena where the building facade lights up with different colors, in response to the noise in the surrounding, the air quality and a mobile phone application that allows anyone to directly interact with the facade by voice or by finger taps.

Robotics can also be present in a minor scale of the building like in lamps, furniture and infrastructure equipment. Some very simple examples of responsible objects that sometimes we even do not perceive are automated doors, water tap and lights. But the furniture industry is going further and creating iterative furniture. For example, Adam Lassy created a project called Ikea where he designed automated furniture that respond to people with a behavior similar to the animals according to the furniture’s mood.

Although the number of experiments with furniture are much smaller than with facades inside the architecture field, it can be very interesting and bring a completely different experience inside the building. That is one reason for the idea for my project in this research: a responsible piece of furniture.

The initial idea for the project is to make a responsible chair that opens with the presence of people, inviting them to seat. It will use a photon to store and read the codes, a motion sensor and a motor that will allow the chair to open by itself. The project aims that people not only appropriate the building but also perceive and use the furniture.

REFERENCES

Kolarevic, Branko,Parlac, Vera. (Eds.) () Building dynamics :exploring architecture of change.