RESEARCH IN ARCHITECTURAL ROBOTICS
ROBOTICS AND FURNITURE

RESEARCH IN ACHITECTURAL ROBOTICS
PROFESSOR: BRETT BALOGH
STUDENT: JAQUELINE HITOMI FUNATSU
ID NUMBER: A20366328
ILLINOIS INTITUTE OF TECHNOLOGY
SUMMER 2016




SOME INSPIRATIONS

ROOMBOTS

THE ROOMBOTS PROJECT FUNDED BY THE SWISS NCCR IN ROBOTICS EXPLORES THE DESIGN AND CONTROL OF MODULAR ROBOTS, CALLED ROOMBOTS, TO BE USED AS BUILDING BLOCKS FOR FURNITURE THAT MOVES, SELF-ASSEMBLES, AND SELF-RECONFIGURES. MODULAR ROBOTS ARE ROBOTS MADE OF MULTIPLE SIMPLE ROBOTIC MODULES THAT CAN ATTACH AND DETACH
THE TYPE OF SCENARIO THAT THEY ENVISION IS A GROUP OF ROOMBOTS THAT AUTONOMOUSLY CONNECT TO EACH OTHER TO FORM DIFFERENT TYPES OF FURNITURE.

HOBERMAN AND ASSOCIATES

HOBERMAN AND ASSOCIATES HAVE CREATED SEVERAL INTERACTIVE STRUCTURES. THE BEST KNOWN ARE THE EXPANDABLE SPHERES THAT FOLDED UP, THEY LOOK LIKE STARS, ALL ANGLES AND RIDGES AND POINTS. PULL ON ANY PAIR OF POINTS, THOUGH, AND THE STAR BLOOMS INTO A SPHERE WITH NEARLY DOUBLE ITS ORIGINAL DIAMETER.
THE EXPANDING GEODESIC DOME BLOSSOMS (INDICATED IMAGE) OPEN FROM A 1.5-METER CLUSTER TO A 6-METER STRUCTURAL DOME WHEN PULLED OPEN FROM ITS BASE.
HOBERMAN SAYS THAT THE DESIGN FOR HIS BEST KNOWN CREATION CAME ABOUT THROUGH A PROCESS OF DISCOVERY AND TRANSFORMATION. “I WANTED TO KNOW IF I COULD USE THE PRINCIPLES OF MECHANISMS TO MAKE FORMS THAT TRANSFORM THEMSELVES, IN OTHER WORDS, THE WHOLE FUNCTION OF THE MECHANISM IS TO TRANSFORM ITSELF, BY ITSELF.”


HOBERMAN AND ASSOCIATES - GEODESIC DOME BLOSSOM

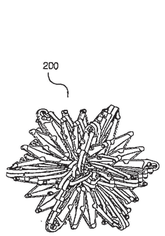

FIG.37

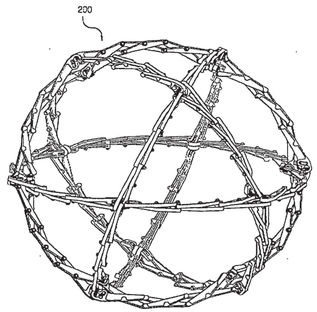

FIG.38

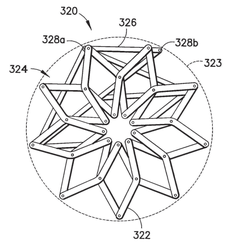

FIG.16A

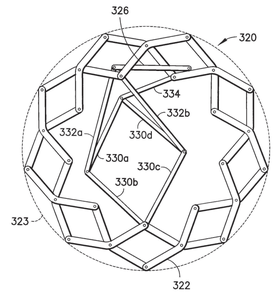

FIG.16B

THE IDEA

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.