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Design & Systems
ASME JAPAN SECTION

# Bear deepens the bond between parent and child

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大阪大学 OSAKA UNIVERSITY

OSAKA UNIVERSITY CROSS-BOUNDARY INNOVATION PROGRAM

## Product Description

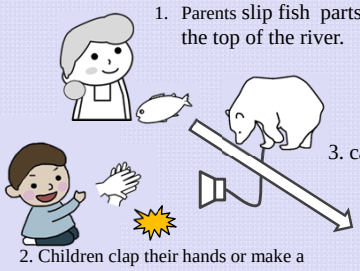
**"The Catcher in The River"** is the toy which is recommended for children ages three to five years.
It is a mechanical learning toy designed to make children engaged by moving their eyes, ears and hands through creative play with their parents.

## Concept

**Encourage Parent- child interaction**
This toy aims to deepen the bond between parent and child through playing.
Both parent and child take part in playing and they need to cooperate with each other.

**Educate child**
Through the play, child can learn knowledge of the natural environment. This toy works a teaching material about type of fishes and how wild bears live.

## How to play

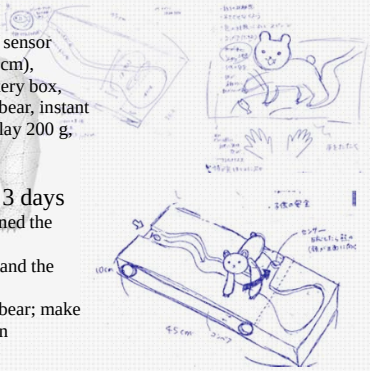


1. Parents slip fish parts from the top of the river.
2. Children clap their hands or make a sound to move the bear's arm.
3. catch the fish!

## Prototyping

Materials : $ 100
3 switches , stop switch, sound sensor switch, 2 acrylic sheet(30 x 45 cm), reduction gearbox, battery, battery box, motor, copper wire 3 m, teddy bear, instant glue, acrylic pipe 1 m, paper clay 200 g, color paints, sand

Production time: 8 hours × 3 days
1st day: brainstorming, determined the concepts, order the materials
2nd day: constructing the stand and the electric circuit
3rd day: put the circuit into the bear; make the power point for presentation



## Osaka University CBI Program

The Cross-Boundary Innovation Program at Osaka University has been established to produce next-generation Ph.D holders, leaders able to build bridges across disciplines and to think "outside the box" by cultivating students with the creative and strategic skills through special curriculum. This program offers innovative and unique courses focusing on comprehensive skills in research, leardership, business, communication, lifestyle and so on.
**"The Catcher in The River" was produced during the class offered by CBI program**, called "the Inroduction to Design Thinking by Experience Based Learning."

The product team was composed of three first year CBI students who are majoring philosophy, chemistry, and artificial intelligence. Since the team members have different fields, the idea of "The Catcher in The River" was thought through a brainstorming with various knowledge.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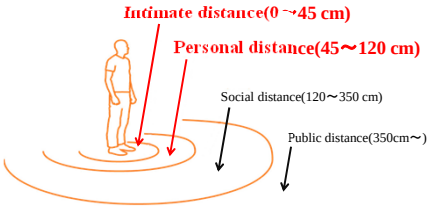
## Appropriate toy size




Determined the appropriate toy size
30cm × 45cm

◆Edward Hall's research on personal space
•Intimate distance (0cm~45cm) : it is reserved for intimate others, such as family and lovers.
•Personal distance (45cm~120cm) : it is used in conversations with friends and in group discussions.
•Social distance (120cm~350cm) : it is reserved for strangers and new acquaintances.
•Public distance (350cm~) : it is used for speeches and lectures in the public or in official occations.

To encourage interaction between parent and child, making toy size up to 120 cm seems appropriate.

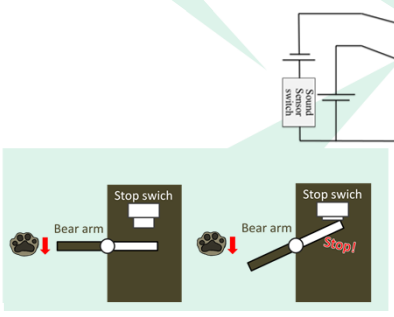
*Edward T.H., 1966. *The Hidden Dimension*.

## Electric circuit

Sound sensor switch: a sound sensor switch reacts to sound and turn on the switch. Child can play the toy without touching it. It prevents toy from child's attack.

Stop switch: a stop switch was installed inside the bear's right arm to prevent the motor from heating. It can switch off the electricity when it is pushed.

Main Switch: Parents will control this main switch.This can prevent malfunctions and continuous hits by children.




## Options

Fish chips are various in their types so that players have several ways to enjoy the toy.
•Parents can teach children the names of various kinds of fishes during play.
•Parents can also set a new rule, for example, children are required to move the bear's arm when only specific type of fish is being slipped from the top of the river.

**Base**: The base on which the bear stands imitated the natural environment in detail. There are moss-grown stones, grass, flow of a river, and trees. A bear catching fishes reminds the players of a food chain.

## Conclusion

"The Catcher in The River" is the toy, which aims to deepen the bond between parent and child, and to educate child through the collaboration while playing together.

Regarding to an appropriate size, we referred to research by Edward Hall on personal space and set the size of the toy 30cm × 45cm.

To solve the problems that we discussed in thinking of conceptual design, a sound sensor switch, stop switches and main switch were used. We also decided detailed design so that the toy has an educational purpose.