

Baby Type Robot “YOTARO”

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1. Concept

Everyone had experienced meet a baby in the train or elevator and unconsciously smiles, waves hands or tries to outstare him. The kindness feeling to babies is inherent in human’s natural emotion. When we interact with a baby, while they still not have capacity to do things by themselves, we will need to do anything and everything to them. The human’s baby is the most conspicuous example about human’s instincts where everybody takes care and be tender to him.

YOTARO is a robot that can make possible the virtual contact with baby. (Fig. 1) The experience booth is represented by kid’s room interior and set up baby bed, the users stand beside bed and plays with YOTARO. (Fig. 2)



Fig.1 YOTARO

2. Experience

The experience starts when user wakes up sleeping YOTARO. YOTARO wakes up merely touching its face. After that, when we input actions touching its stomach, shaking rattle, patting and touching its face; YOTARO returns reactions such as expressions and skin color changes, snivels and sneezes, emits sounds, and moves hands and legs. In this process, user tries various actions to make YOTARO happy and feeling good. Moreover, pseudo experience of take care a baby is improved when wipes the snivel.

YOTARO wakes up in a bad humor and its reaction is inconstant, however its humor gradually gets better and laugh voice is heard. The users can enjoy the achievement of their actions to make YOTARO happy. Although, while users enjoying the situation, reactions getting bad slowly. YOTARO does not react pleased with actions had done until now, unlike it responses almost crying. These situations occur when baby coming tired, this stage imitates baby being fretful, based on this condition the users could understand how to take care. When it being fretful every action that we do, probably make its more fretful, a short while doing nothing, it sleeps again. Simplified image of structure are presented. (Fig. 3)



Fig.2 Experience Booth

3. System

YOTARO has these six constituents below.

- Baby’s peculiar transition of condition;
- Will unconsciously touch its ruddy and soft skin;
- Little high body’s temperature, particular in babies;
- Help to wipe snivel;
- Rattle as example of communication using tools;
- Movements those stimulate to touch a partner.

These six constituents correspond to the experience of interaction when we meet a baby.

On the back side of face part a near-infrared camera is installed, detecting user’s hands position by infrared ray reflection, and reacting in skin’s color changes (imitating the human’s skin when pressure is applied and changing its color).

Moreover, the expressions change when specifics points are touched.

The water system is installed in the face part of YOTARO, and water from pump circulates without blocking the projector’s light. The heater warms the water of the tank, to reproduce the temperature of a baby, and then snivel is put out by on/off control of the pump. The holes of the nose, they work as valves through the silicon by 0,6mm of diameter size, and the warm water sink out only when pressure is applied. The sensors are built-in the rattle and stomach, and the reaction returns in arms and legs movements. More natural movements have been realized by incorporation of 1/F fluctuation. Natural movements and the sense of touch were reproduced by covering the body with thickness blanket. The YOTARO’s feelings changes occur based on the frequency of reactions of the sensor. In the beginning, it dozes when wakes up and the condition of its reaction is slow. It becomes in a good mood, and the reactions will become active. It gradually becomes fretful by any actions, the feelings are reset when it fall in sleep.

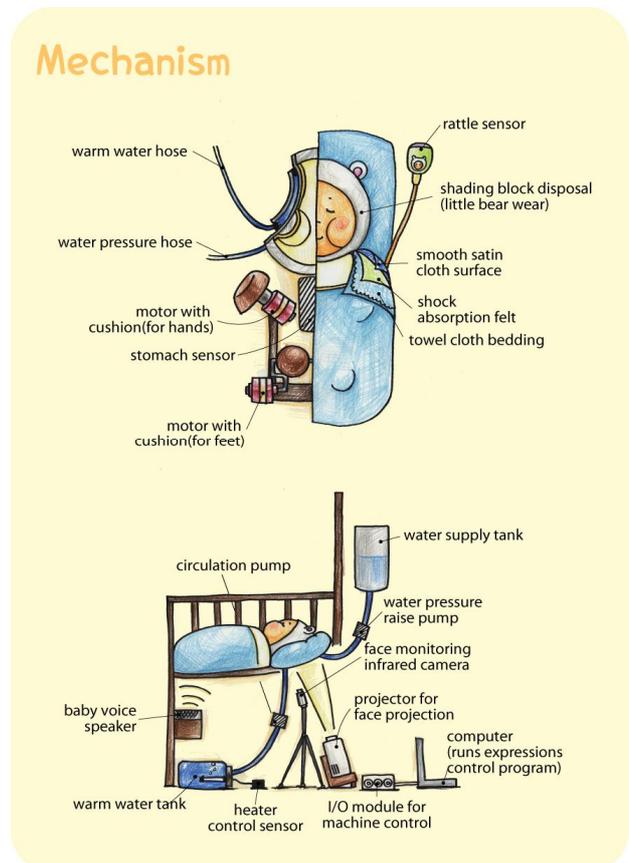


Fig.3 General and simplified structure images