

# CIT Brains @Home

Ryuichi Ueda, Yasuo Hayashibara, Shinya Fujie, Yuya Aoki, Hirofumi Inoue,  
Hiroto Matsuzaki, Kazuya Natsusako, Akie Ohno, Yuki Sato, Ryo Shimomura,  
Shotaro Terato, and Kiyoshi Irie

Chiba Institute of Technology,  
2-17-1 Tsudanuma, Narashino, Chiba, Japan

**Abstract.** CIT Brains @Home has been newly set up in November 2016.  
We have built a robot for

## 1 The aim of the team

CIT Brains @Home has been newly set up in November 2016 by the staff and students in Department of Advanced Robotics, Chiba Institute of Technology. The aim of this team is integration of research progresses in our department.

- Description of the hardware and software including a list of integrated
- externally available components (including commercial products, freeware, Open Source, etc.)
- Photo(s) of the robot
- Focus of research/research interests
- Applicability of the robot in the real world

## 2 Robot

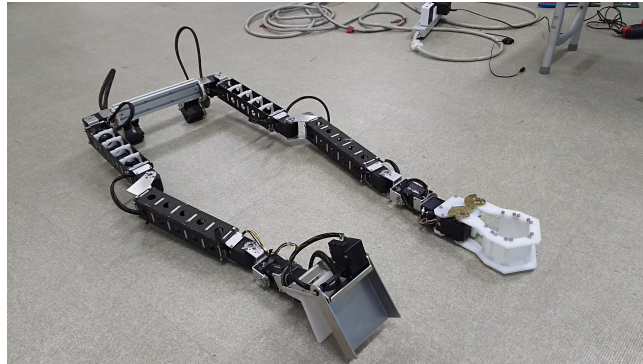
The robot, which has no name, is mainly composed of a commercial mobile robot, two self-produced manipulators.

### 2.1 Hardware

**Mobile robot part** We use i-Cart mini[1] as a mobile robot part with some modifications. In our department, this robot is also used for Tsukuba Challenge, which is an annual competition on outdoor navigation of mobile robots held in Japan.

Though the motors are very silent, they have an ability to make the robot move on public streets. This mobile robot has two drive wheels whose diameter are 155[mm], and one rear caster whose diameter is 100[mm]. Each of the drive wheel is connected to a silent brushless motor.

Under the front bumper, an UTM-30LX-EW Scanning range finder is attached for navigation. A Microsoft Kinect at the top of the robot is used for detecting and following persons.



**Fig. 1.** Manipulators and Hands

**Manipulator part** The robot has two manipulators, which are called arms hereafter. Each arm has

Two kinds of hand are attached to the manipulators respectively.

**Cover of the robot** We have never been prepared.

## 2.2 Software

## 3 Innovative technology and scientific contribution

Our basic idea for home-care robots is that they should try something even if they have certain information what they should do.

## 4 Contribution of open source

We have developed a ROS module for servo motors made by Kondo Kagaku Co., Ltd.

## References

1. T-frog project: Robot Frame i-Card mini. [http://t-frog.com/products/icart\\_mini/](http://t-frog.com/products/icart_mini/) (2013), (visited on 2016-02-09)