A Preliminary Report on Using a Low-Cost Humanoid Robot to Serve Drinks

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Motivation

Let robots give services to people in everyday life is a long dream of human beings, and humanoid robots have some advantages in domestic services. As a pioneer for exploring this goal, Honda's Asimo can serve drinks, making him one step closer to become a possible assistant to humans in the future. Now it is worthwhile trying to make low-cost humanoid robots able to do something that could only be done by high-cost robots like Asimo.

For this purpose, we employ the Nao robot, which is much cheaper, as a hardware platform. The preliminary results are promising.

Description

The demonstration starts with an inessential but warmhearted prelude. A Nao robot wakes up the host and tells him some information got from the Internet. For this purpose, the robot is connected with the Internet through wifi, and gets control over electrical appliances in the room through LAN.

Then the demonstration enters its substantial part---serving a drink to the host. After receiving the request from the host, the robot goes to the table, grasps and lifts up the tray, and brings it to the host (see Figure 1 and/or the video). The coffee needs to be prepared and placed on the tray in advance.

We used the academic version of Nao robot in the experiments, which is equipped with a pair of 1 DOF hands [1]. The robot spent about five minutes to complete the fetching task, with more than 80% success rate.

Video

The video can be downloded at http://wrighteagle.org/en/demos/index.php, where there are other demos on related topics such as “Punt Kicks by Nao robot” and “Acquiring from Spoken Dialog and Reasoning with Causal Knowledge by Service Robot KeJia”.

Reference

[1] http://www.aldebaran-robotics.com/en/node/1166

Figure 1 Serve a drink