Much more than a friendly face!

NEC’s Research Robot PaPeRo

Ismaning, Germany, February 2006 It might look like just a friendly face, but NEC’s Partner-Type Personal Robot, PaPeRo, is crammed full of the most-advanced image and speech processing, intelligence and sensor technologies, which have all been developed at NEC’s world class research laboratories.

Standing 38-cm tall, PaPeRo not only serves as a communication interface, but also as a partner in one’s home who can help around the house or even play with the kids.

Since the development of the first PaPeRo model in 2001, NEC’s researchers have been focusing on "human-robot interaction," toward improvement of technologies vital to user-friendly employment in home environments, aimed at the creation of new values.

For example, PaPeRo is able to recognise and distinguish the faces of people nearby, verbally communicate with them individually, and give them news or pass on short recorded messages. PaPeRos with more sophisticated human-robot interaction capabilities were developed in 2003 and 2005, With PaPeRo2005, interaction is more enjoyable thanks to the character recognition, gesture detection and pendulum swing detection capabilities enabled by two CCD cameras.

The most recent version of PaPeRo, Childcare PaPeRo, can even send images by mobile phone to people or family far away, as well as play games and sing along with others. This new version is installed with noise canceller technology, allowing improved and stabilized voice recognition in noisy environments. PaPeRo can also listen to what several people say at the same time and discern what each person has said through voice recognition processing and wireless microphones that are attached to each person.

This most advanced PaPeRo has a 512-MB memory and a 40-GB hard disk. Its CPU is a Pentium processor that works with the latest recognition technology. Recent additions to PaPeRo include a USB port, PC card slot and external power supply. Its
many network components allow PaPeRo to communicate with other PaPeRos, PCs and PDAs.

What's more, the little robot can even operate and control electric household appliances. After all, the intention is that PaPeRo will in the future, among other things, be able to help people with restricted mobility to complete simple household tasks.

NEC also uses the robot as a platform for its latest technologies. Thanks to the PaPeRo research project, NEC engineers can test and improve new technologies that will ultimately be used in a wide variety of other NEC products. For example, face and voice recognition are also used for security systems. Moreover, noise and echo cancellation can be used in the telecommunications sector to improve the quality of conversations at times when someone is talking on the phone in a very noisy environment.

In short, PaPeRo is much, much more than a friendly face! Nevertheless, we think that it is still really cute! For more information, please visit our PaPeRo website: http://www.incx.nec.co.jp/robot/

* Please see the attached material for information regarding PaPeRo’s technologies.

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