Human-Robot Dynamic Social Interaction
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Progress Report: January 1, 2000—June 30, 2000

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Project Overview

NTT researchers are interested in the question of whether a physical robot produces a more direct emotional coupling with human beings than does a computer generated graphical image of a similar robot. At MIT we are building a robot that has human-like facial expressions and shoulder and neck gestures, and that perceives human motion and facial expressions. This is coupled to an emotional system so that the person and the robot naturally follow normal human communication social dynamics. This robot will be installed at the NTT Communications Science Laboratories in Kyoto where the response of human subjects will be measured and compared to their response a graphical face interface.

Progress Through June 2000

We modified our schedule somewhat over the last six months. The fabrication and debugging of the Kismet 2 control system turned out to take much longer than expected. Previously all our robots relied on many racks of equipment, built in place. In order to be able to deliver a robot to NTT we needed to build a much more rugged and stand alone control system. This required a large number of design changes, but has been successfully completed. However, this extra work pushed back the work on designing the new face system. We therefore decided to temporarily ship the Kismet 2 prototype to NTT, while we work on the face expression system. This will be built on a new Kismet, and exchanged at a later date with the Kismet 2 that NTT will receive in September.

Overall we have during the last six months:

1. We made some more modifications to the Kismet 2 prototype head, to make it more rugged.
2. Completed the construction and debugging of the portable Kismet control system.
3. Built a software library for NTT's use on Kismet 2.

Research Plan for the Next Six Months

During the period from July 2000 to December 2000 we will make the prototype fully operational with all necessary software. This includes the following steps:

1. We will design the facial expression system for Kismet 3.
2. We will fabricate the first prototype of the Kismet 3 facial system.
3. We will redesign Kismet 2, to become Kismet 3, to accept the face system.