A computer science technician at Carnegie Mellon University in Pittsburgh watches TV monitors while a computer translates language in transmissions from Japan and Germany.

Computer system translates words in around-the-world chat

TOKYO — "Moshi-moshi," said a Japanese researcher, speaking into a microphone.

Eight seconds later, a computer in Pittsburgh gargled the translation: "Hello."

Thus did people and computers in Japan, Germany and the United States begin a trans-oceanic chat Thursday, the first international test of a system that transforms spoken words from one language into another without need of an interpreter.

The $128 million computer has taken seven years to develop. It now understands about 1,500 words in Japanese, English and German, said researchers at Kyoto's Advanced Telecommunications Research Institute.

On Thursday, Japanese researchers conversed for about 15 minutes with colleagues at Carnegie Mellon University in Pittsburgh, then with electronics giant Siemens AG in Munich, Germany.

The sentences were first recognized and translated by a computer into written text, which was sent by modem over a telephone line. A voice synthesizer on the other end then "spoke" the translated words.

"It was a success," said Shigeki Sagayama, head of speech processing for Advanced Telecommunications. "It recognized and translated all of the conversation."

Researchers had agreed ahead of time to talk about an imaginary conference, and likely phrases had been pre-programmed into the computer, such as "This is the conference office. May I help you?" and "I'd like to apply to attend the conference."

For the foreseeable future, Sagayama said, automatic translation systems will be limited to particular kinds of conversations since errors increase dramatically as topics and vocabulary grow.

"For a subject like this, we can translate about 90 percent of common expressions. That's quite a lot," he said.

"The system might be used by car-rental agencies or hotels for reservations when multilingual staff isn't available and the range of conversation isn't too broad," he said.

The program allows some variation in phrasing, but it can't understand unusual forms of speech.

Sales of the new system are unlikely for another 10 years because of the high costs — the current system uses four powerful computers — and because of the challenge of understanding ungrammatical "natural" speech, Sagayama said.

His lab, established in 1986, is sponsored by the Japanese government and private companies.