Gesture-based Computing Interfaces

Innovations for the Next Billion Customers, HP Labs India

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HP Labs India is working on better user experiences with touch and pen gestures, which are becoming ubiquitous on personal devices, such as the HP TouchSmart PC, touchpads on notebooks and smartphone touchscreens.

An outgrowth of HP Labs India's development of a gesture-driven keyboard that is easier to use with languages that are not alphabet-based, the gesture research is exploring generic features and classification algorithms for recognizing gestures and characters.

HP Labs India has developed the following gesture interaction concepts:

- FreePad is a novel handwriting-based text input method for small touch surfaces. Users can write a word in cursive or free-hand using a fingertip or stylus and the script is translated into printed text. FreePad could be useful for messages and tagging.
- Gesture-based Command and Control allows users to access applications, URLs, system commands and application demands simply by tracing a gesture with either a finger or stylus. This gesture can be personal, either a familiar character or an arbitrary shape. Highly accurate gesture recognition is achieved over a period of time because the system learns and refines its recognition with each use.
- Gesture-based navigation uses special gestures to more efficiently navigate files, folders, playlists and bookmarks.
- Doodle authentication enables lightweight authentication, which requires minimal system resources, by matching a personal doodle. Doodles are easier to recall and faster to enter than text passwords. Doodles can be used for user identification/screen lock, personalization of a shared device, protecting sensitive information and password management for web applications.

The research on gesture-based interfaces is ongoing. The gesture-driven keyboard is now available in India.

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3/2008