

[NTT HOME](#) > [NTT Press Releases](#) > [2014](#) > Text Input via a Touch Screen for Visually Impaired People

NTT Press Releases

August 21,2014

Text Input via a Touch Screen for Visually Impaired People

-- Enabling character input without looking at the Touch Screen --

Nippon Telegraph & Telephone Corp. (NTT Head Office: Chiyoda-ku, Tokyo; President and CEO: Hiroo Unoura) has developed a new gesture recognition software (Move&Flick) that allows users to input Japanese characters including Kanji without looking at their smartphone.

Conventional text input on a smartphone with a touch screen demands that the user find the key that corresponds to the desired hiragana, or alphanumeric character and touch the key precisely. This burden is excessive for the visually impaired people who have difficulty identifying and pushing the precise key.

Basic operations in Move&Flick are shown below.

(STEP1)

Touch an arbitrary position around the center of the screen with a single finger.

(STEP2)

Without lifting the finger from the screen, move it in any of eight directions (up, right-up, right, right-down, down, left-down, left, left-up) over a prescribed amount to select a consonant.

(STEP3)

Without lifting the finger from the screen, move it in any of eight directions again to select a vowel after STEP2.

(STEP4)

Lift the finger from the screen if target character is reached. This imposes a much lower burden to find the target key.

Also, the user can execute commands like Kana-kanji conversion, delete etc. by moving a single finger in any of eight directions twice from a central but arbitrary position along either side of the screen. This allows easy access to various operations such as converting kana to Kanji and modifying characters.

In the process of developing this software, its design was refined through feedback from about 30 visually impaired persons including employees of NTT Claruty. (NTT Claruty Corp. hires visually impaired people: <https://www.ntt-claruty.co.jp/index.html>)

Movie: URL: <https://www.youtube.com/watch?v=uDLEIApyPBI>

Future Plan

NTT plans to study how to create applications that include the developed software. In addition, NTT in conjunction with NTT Claruty Corp. and software development companies will continue to improve the usability of smartphones for visually impaired people.

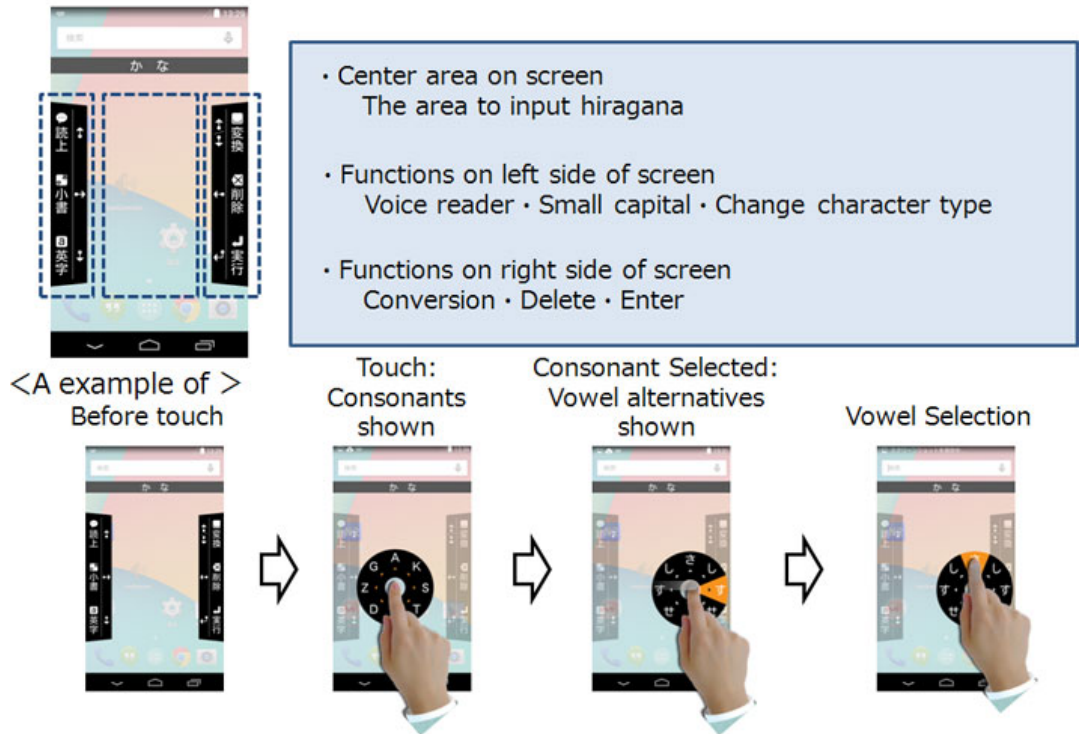
1: Background

NTT has worked to create a new user interface and improve the interface through usability evaluations with the goals of expanding the range of customers and giving them new, more efficient, user interfaces. We have developed Move&Flick on our experiences gained during past R&D on user interfaces.

A part of this research is supported by the Ministry of Internal Affairs and Communications in Japan Government.

2: Operation Flow

<Command Assignment>



3: Technical Features

Move&Flick installs two functions to detect finger movement directions precisely.

① Detection of Direction Change Point

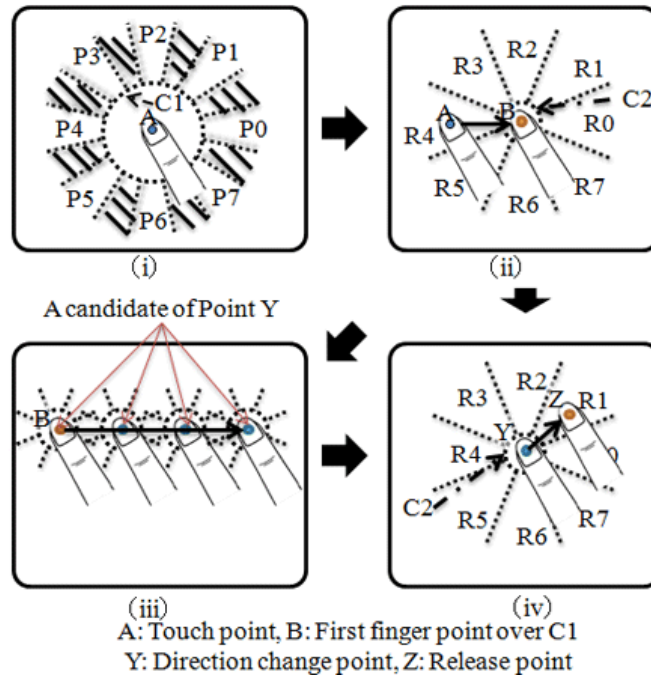
Move&Flick has an algorithm to detect the change point between the first movement direction and the second movement direction precisely.

② Detection of finger movement direction using radial areas with dead zones

The dead zones drive the voice feedback used to help the visually impaired learn the method and acquire the eight finger directions with a high degree of accuracy. In addition, the dead zones minimize errors when the users are familiar with Move&Flick operation and make more casual but rapid finger motions.

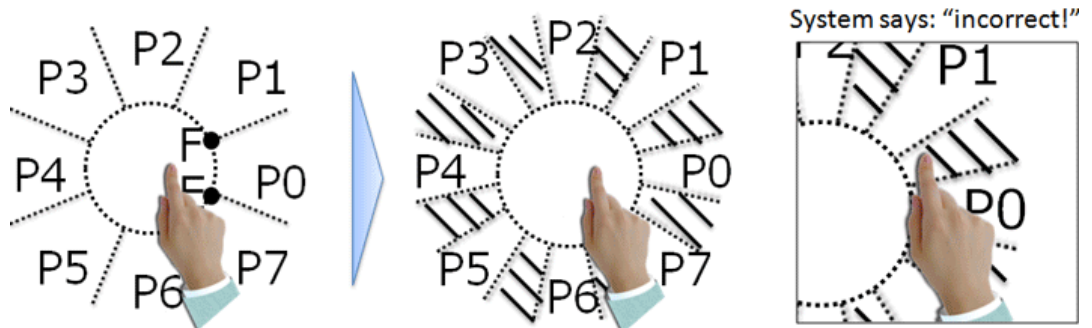
① Detecting Direction Change Point

The algorithm can detect second finger movement direction precisely even if distance of finger movement is different.



② Detection of finger movement direction using radial areas with dead zones

- The dead zones allow voice feedback to be used to help the visually impaired learn the method and acquire the eight finger directions with a high degree of accuracy
- The dead zones minimize errors when the user is familiar with the operation and makes more rapid finger motions.



Press Contact

■ Nippon Telegraph and Telephone Corporation
Service Innovation Laboratories
E-mail: randd@lab.ntt.co.jp



Innovative R&D by NTT -
[NTT Has Instituted a Logo to Represent R&D Activities.](#)

Information is current as of the date of issue of the individual press release.
Please be advised that information may be outdated after that point.

[NTT Press Releases Index](#)

NTT Press Releases

[▶ Latest Press Releases](#)

[▼ Back Number](#)

[▶ Japanese is here](#)

Search Among NTT Press Releases

January ▼ 1997 ▼ -

November ▼ 2021 ▼

[▲ Page Top](#)

[▶ Recent updates](#) [▶ Site Map](#) [▶ Copyright](#) [▶ Privacy Policy](#) [▶ Contact](#)

Copyright © 2021 Nippon Telegraph and Telephone Corporation