Implementation of Educational Game Using Multiple Touch

Soon-kak Kwon, Jin-woo Kang, Jae-woo Jang
Dept. of Computer Software Engineering, Dongeui University

Abstract: In this paper, we implement an educational game for multi-touch to increase the effectiveness of terminals provided touchpad. By touching the falling alphabets randomly, the game can list in alphabetical order and complete a word, then user can learn English language from concurrency.

I.   INTRODUCTION

With the development of the smart-phone, the market of the touch screen has been expanding [1]. The touch screen gave an intuitive and fast information processing capabilities, it has made a number of applications. Game belongs to one of the applications utilizing the touch feature. Game utilizing the touch function makes users possible realistic sensation unlike the games using conventional keyboard or the mouse. We develop English learning game using multi-touch [2,3] in this paper.

One of currently developed Applications for English learning games is that the game starts then a word in English will be displayed on the top center of the screen and the meanings appear on the screen randomly. This game is to touch exact meaning fitting the word. Another English education game is that English word is presented in the center of the screen and a number of meanings including the answer meaning will float over the mole heads. The game can help user learn English with a hammer to hit the moles that corresponds to the meaning of the English word.

We can confirm that the game is available for English Learners from current trend of English learning games market. However, it can be seen that commonly English word is given, the released games only have been developed to focus for finding the meaning of the word. We implement the game to complete a fitting word in English by touching the alphabet one after another. English word that corresponds the special language by mean is found from touch game in this paper. This paper can effect to memorize English words more accurately due to combinational completion of the English alphabets in a given special language in order to match the word means, unlike conventional game to fit word meaning only.

II.   IMPLEMANTAION OF EDUCATIONAL GAME USING MULTIPLE TOUCH

English has become essential part in modern education. Students conduct extracurricular tutoring from an early age to study English. Most students have a passive attitude to study English while some few students are interesting and study English actively. In order to solve this problem, we implement an educational game with concurrency in easily accessibility by using a multi-touch interface for the English studying children.

Fig. 1 shows the event flowchart of English learning game. The game starts then alphabets are created and presented randomly to the game background. User touches alphabets by order to complete a word. It is determined whether the touched alphabet in English is on the proper order or not. If the judgment has been completed and then another word is suggested by the same manner.
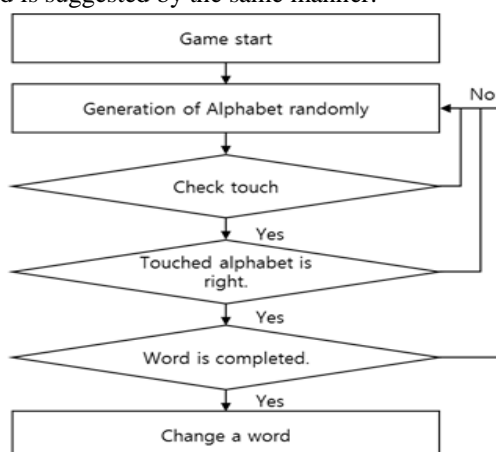

Fig. 1: Flow chart for proposed method

Fig. 2 shows the class diagram of English learning game. By using the MVC pattern and separating of Model / View / Control, the system has a stable maintainability. The game includes elements by additional parts to the 'Model' directly communicated with the 'Control' without change of the existing code if the game elements are necessary to be added.
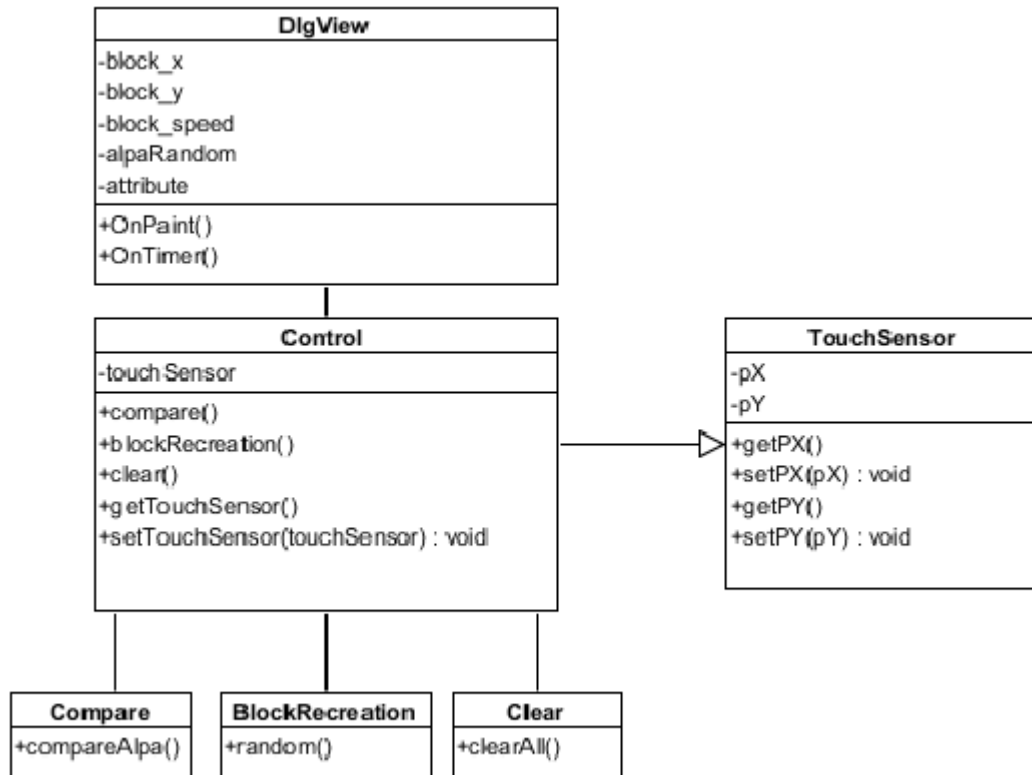

Fig. 2: Class diagram

Fig. 3 is a prototype of the implemented game directly, using the flow chart of Fig. 1. A Korean word is presented in Fig. 3(a) and 'A' alphabet is touched as the first letter of the equivalent English word. Fig. 3(b) shows that a result window is displayed to present the touched alphabet-'A'. Fig. 3(c) indicates that the alphabet 'E', the last of the 'apple', is touched. Fig. 3(d) shows that another word, 'car' is applied after completion of the 'apple'.
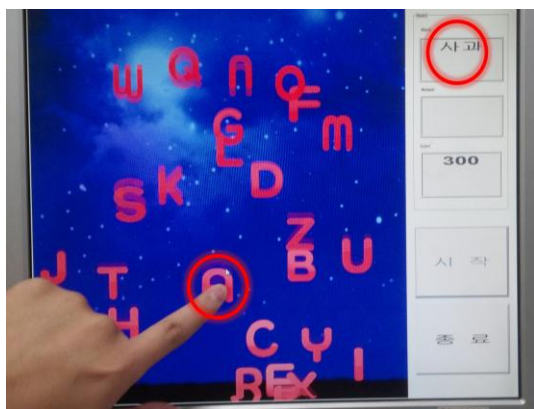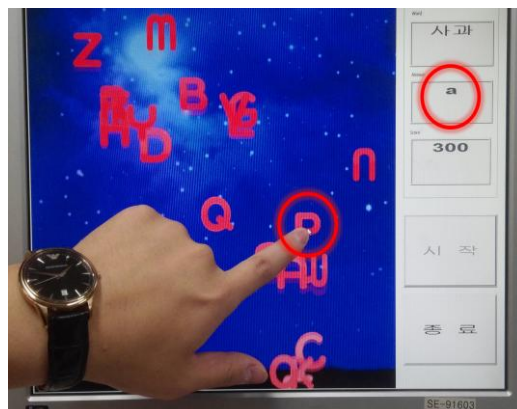
(a) 'A' Alphabet touch   (b) 'P' Alphabet touch
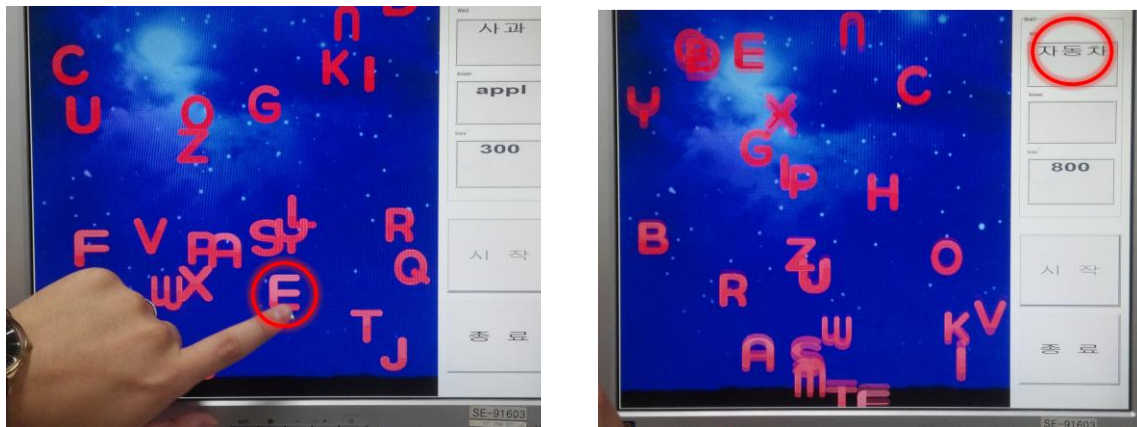
(c) 'E' Alphabet touch   (d) Change of the word after a completion

Fig. 3: Implementation of educational game using multiple touch

III.   CONCLUSION

In this paper, we propose the English word matching game by using the touch recognition and multi-touch. Application target is for children usually with the lower efficiency by passively learning English. This system can get a high efficiency in the use of physical elements, including of human visual, auditory, and, tactile senses.

As in this paper, there is a need to develop an educational game with convenient interface, without boring learning. This can help children to be more active and fun learnings. If the learning is active then the accomplishment of learning itself will increase.

IV.   ACKNOWLEDGMENT

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