



Text Entry with TV Remote Possibilities

About this document

The document elucidates a few methods of TV text entry using TV remote and analyzes their pros and cons.

These methods include few known interaction paradigms alongwith a few proposed for the scenario.

TV text input methods

With more interactive TV sets entering consumer homes the idiot box is becoming intelligent fast.

This fast changing transformation has brought to surface many interaction issues.

One such focussed issue is of "Entering Text on TV interfaces".

TV text input has existed since the good old arcade games and multiple interaction paradigms have been tried and tested ever since.

Investigating into these methods the document puts forward their benefits and suitability.

Based on their input methods and onscreen activity the methods can be classified into the following types:

1. Onscreen full keyboard: Arrow input.

These methods have the complete keyboard on screen and is operated by arrow keys on the TV remote.

2. Onscreen Multi-tap keyboard: Arrow input.

These methods have a visual multi-tap keyboard on screen.

3. Muti-tap input, onscreen Keyboard.

These methods allow text entry via multi-tap functionality of the remote number keys.

4. Only arrow key input with no onscreen Keyboard.

This is an experimental method, where the user can enter the text using purely arrow keys.

5. Dictionary input.

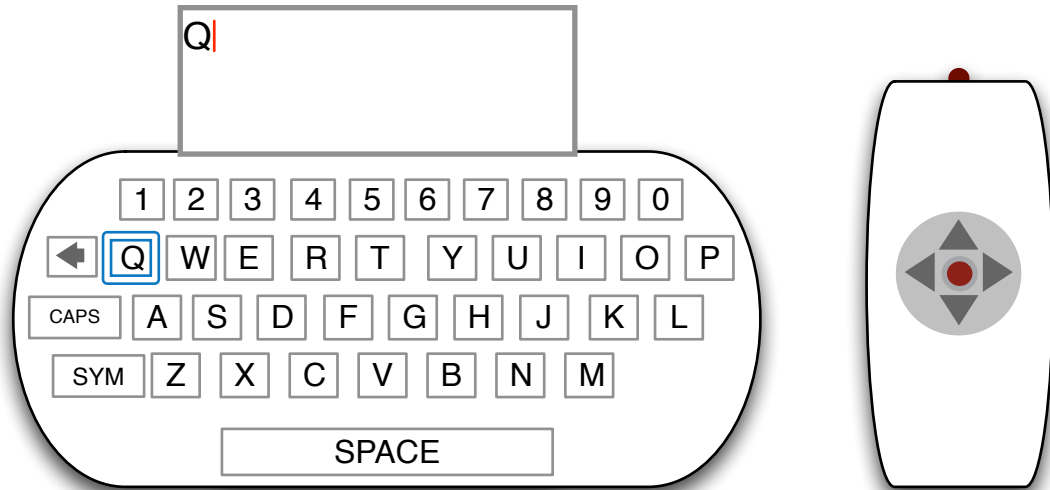
These methods use inbuilt dictionary to provide predictive words to the user, which may reduce the efforts of typing.

1. Onscreen full keyboard: Arrow input.

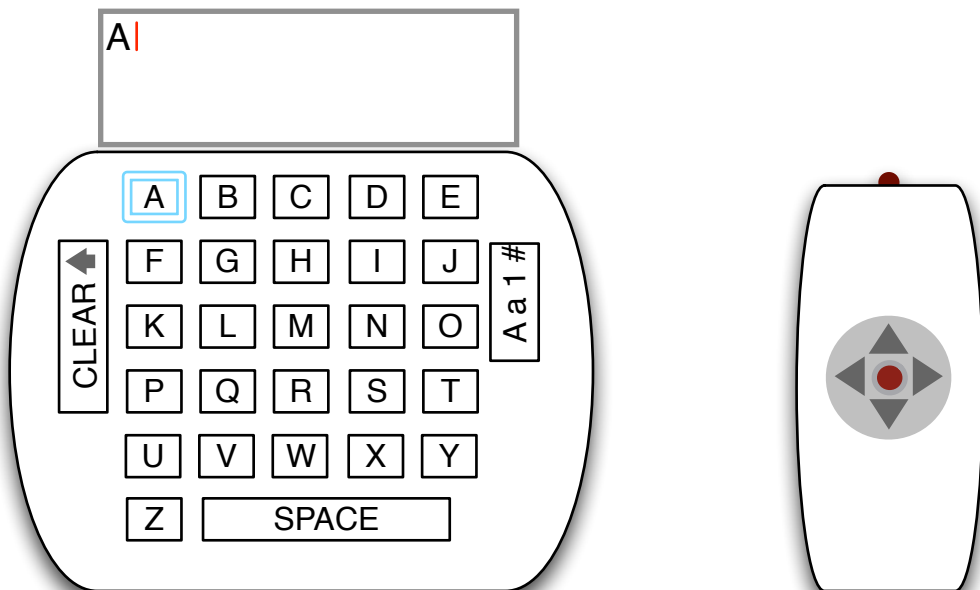
These methods have the complete keyboard on screen and is operated by arrow keys on the TV remote.

The onscreen highlight moves over the keyboard based on the arrow key input. On clicking OK button the current highlighted button is selected.

a. QWERTY Keyboard



b. ABCD Keyboard



1. Onscreen full keyboard: Arrow input.

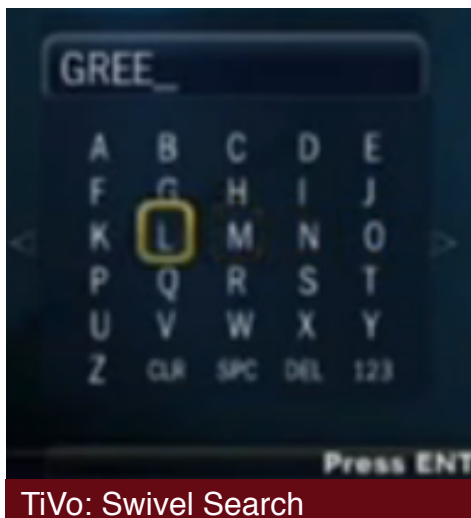
Advantages :

- Easy visual indication of inputting the characters.
- Using the thumb, the users have only 5 buttons to operate.
This may help in quicker input.
- Number keys are not needed to be used.

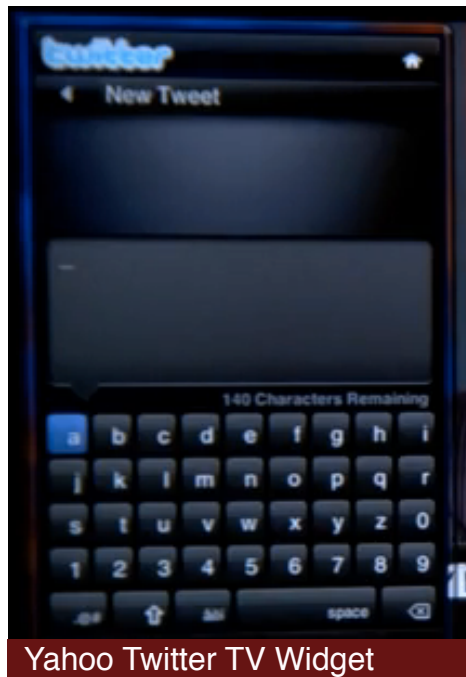
Disadvantages :

- One has to constantly keep a mapping of whats happening onscreen.
- Too much screen space is required to display the complete keypad.

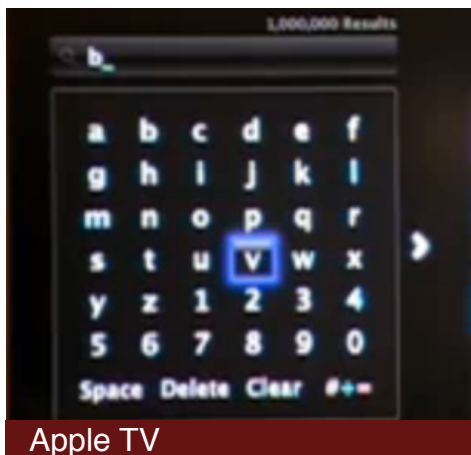
Examples:



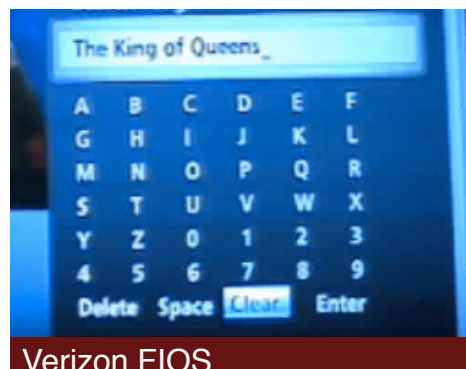
TiVo: Swivel Search



Yahoo Twitter TV Widget



Apple TV

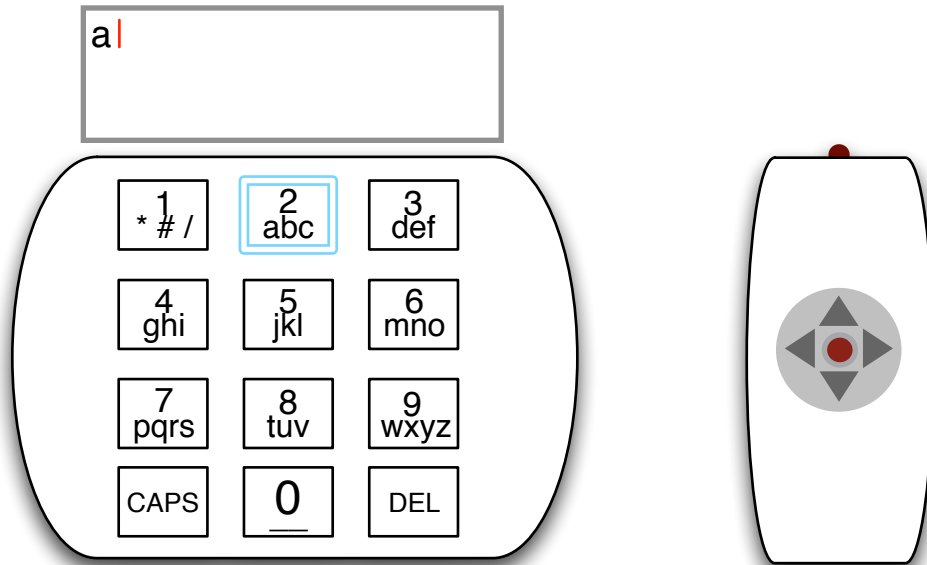


Verizon FIOS

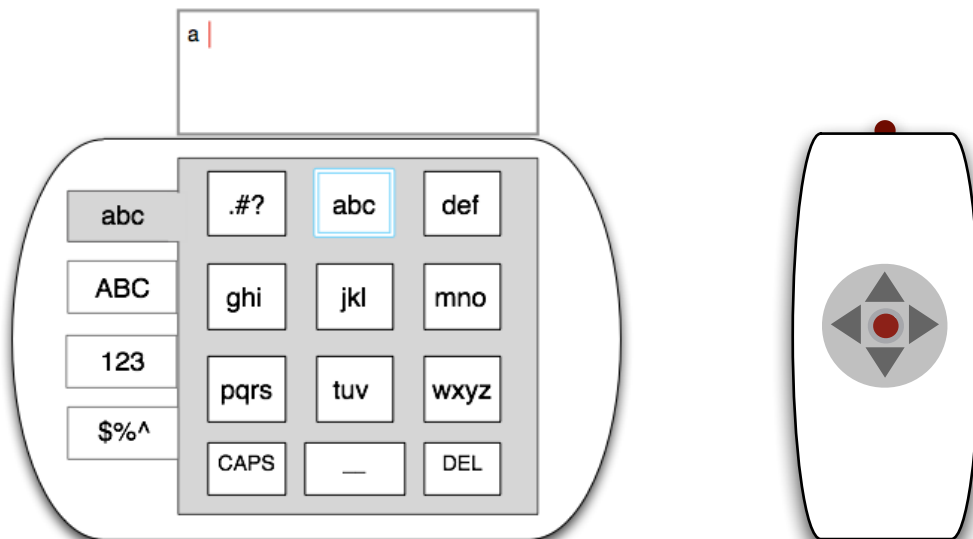
2. Onscreen Multi-tap keyboard: Arrow input

These methods have a visual multi-tap keyboard on screen. Users can use the arrow keys to move highlight over the required character and multi-tap the OK button to get the desired character.

a. General Multi-tap Keyboard



b. Special Multi-tap Keyboard



2. Onscreen Multi-tap keyboard: Arrow input.

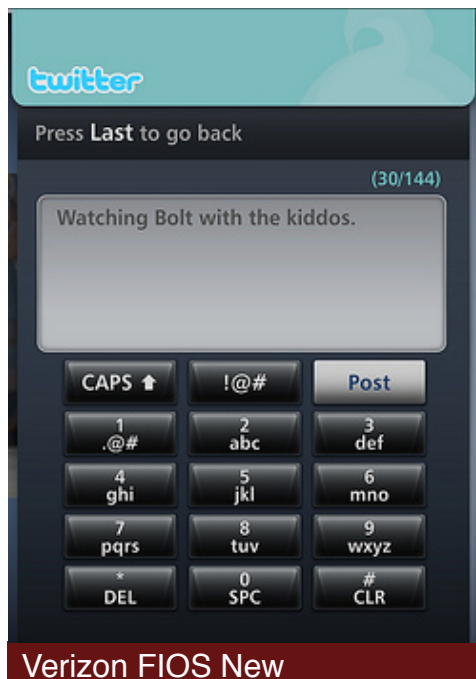
Advantages :

- Saves Onscreen Space hence can be easily overlaid above applications.
- Number keys are not needed to be used.

Disadvantages :

- May confuse the user with its visual multi-tap display but arrow usage for input.

Examples:



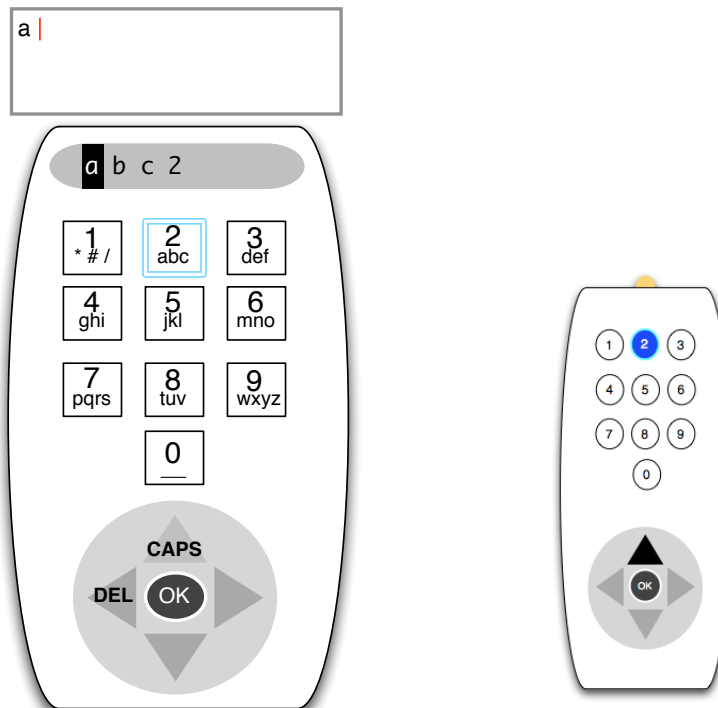
3. Multi-tap input, onscreen keyboard.

These methods allow text entry via multi-tap functionality of the remote number keys.

When the user clicks on any of the number key the characters associated with the key is displayed in a cyclic manner. On clicking OK button the character is confirmed.

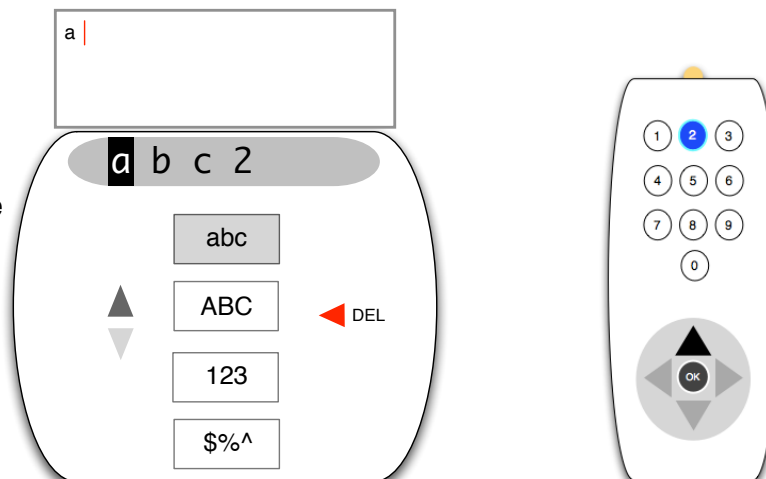
The variations include display of multi-tap keyboard, display of mode change, display of subsequent characters etc.

a. Onscreen Multitap keyboard



b. Onscreen Mode changer

The user can use number keys in multi-tap manner to enter text. And the up and down arrow keys to choose case numbers or symbols. Use back arrow for delete.



3. Multi-tap input, onscreen keyboard.

Advantages :

- Since the input is multi-tap it may coincide with the mental model of a mobile metaphor.
- With an onscreen keyboard it can aid the input method of multi-tap.

Disadvantages :

- Mode change to capital, small or symbols becomes more difficult since remote does not have the * and # buttons generally.
- Use of arrow keys for 5 way navigation becomes an issue, since the arrow keys need to be used for mode changing.

Examples:



Windows Media Center

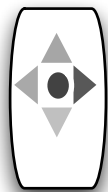
4. Only arrow key input with no onscreen keyboard.

This is an experimental method, where the user can enter the text using purely arrow keys. This input method allows user to select one of the start characters using the right and left key. And the associated characters using the up and down keys.

In order to select the selected character the user can click on the OK button.



a d g j m p t w



Initially user sees "a" in the text box on pressing down arrow key with a set of options below the character. On pressing down arrow key he can select one of the given options. On pressing OK the character is confirmed.



a d g j m p t w



On clicking the right arrow the focus goes on the next character in list. On pressing down arrow key he can select one of the given options. On pressing OK the character is confirmed.

Advantages :

- The method uses only arrow keys but at the same time gives the capability of multi-tap like input.
- The user doesn't need to look at two different positions on the screen at the same time as the options are displayed on the text editor only.

Disadvantages :

- Adaptability or Accessibility unknown since new method.
- User needs to constantly look at the screen as he types.
- Current state needs to be communicated clearly.
- Confusion at the starting state to communicate the input method.

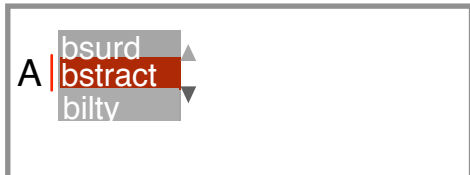
Examples

Sony's Play station portable has something similar, but no visual examples available.

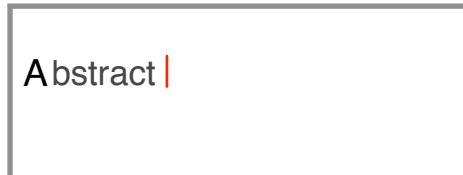
5. Dictionary input

These methods use inbuilt dictionary to provide predictive words to the user, which may reduce the efforts of typing.

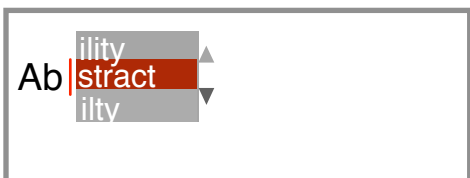
a. Suggestive words with multi-tap input



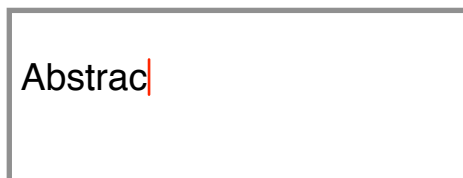
i. On starting with multi-tap input using number keys, user gets suggestive options as a part of list.



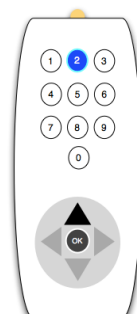
ii. Using the up and down key the user the user can browse from the options available. On pressing OK the word will be selected.



iii. Or the user can continue typing the text using Multi-tap input.



iv. Once OK is pressed the user can use back arrow button to delete one character at a time. User can also do spatial navigation in this mode.



Advantages :

- Quick options displayed, may help faster typing.
- input method remains multi-tap.
- The input method is more focussed on completing the sentence as against completing the words.

Disadvantages :

- Multiple options for a particular combination needs lot of scrolling.
- Options for deleting characters seems ambiguous.

5. Dictionary input

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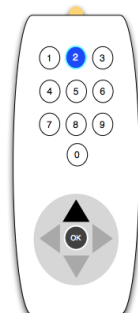
b. T9 input using multi-tap

Carts |

i. User can enter text using single tap on each of the number keys until the word is completed.

Abstrac |

ii. On completion the word will be displayed onscreen, this can then be okayed by clicking on space (0) on the remote keypad.

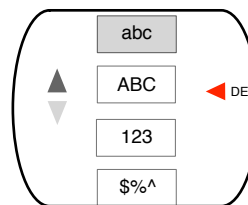


Clois? |

> to spell the word < to clear

iii. When user enters a combination that cannot be recognized by T9, user can use right arrow key to spell the word in normal multi-tap mode. Or back arrow key to delete character wise. A visual indication of the same can be useful.

Clois? |



iv. The user can also change to capital - case mode or non dictionary mode using up arrow key.

Advantages :

- Fast typing. Extending the benefits of T9.

Disadvantages :

- Wrong spelling change option needs a separate screen or an overlay.
- Changing to T9 mode needs to be visually displayed.
- T9 can't deal with words not in its dictionary.
- Visually T9 presents improper info until the right word appears or the word is completed.
- Numeric input in T9 involved continuous press of a button, dunno if TV remote input currently supports that feature.