REAL TIME OPERATING SYSTEM PROGRAMMING-II: Windows CE, OSEK and Real time Linux

Lesson-7:
WCE Handling of Inputs from keys, touch screen and mouse

2008

Chapter-10 L07: "Embedded Systems - Architecture, Programming and Design" , Raj Kamal, Publs.: McGraw-Hill, Inc.

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1. Inputs from Keyboard

SetFocus

- SetFocus—to specify the focused Window so that input directs to that Window.

- Windows sends a series of messages for the Window in focus.

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Keyboard

- Keyboard─ used to enter many characters, commands or large text.

- Physical keyboard ─s inconvenient in handheld device.

- Soft keyboard ─ controls and simulates the virtual keyboard on touch screen.

- An application can get the input either from physical keyboard or from soft keyboard.

- An application can simulate key event

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Messages on stylus tap

- Every key or action has an assigned value

- For example, a virtual key value is VK_LBUTTON which passes a value 01 on a stylus tap.

- A virtual key value is VK_RETURN, which passes a value 0D when Enter key presses

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Querying a keyboard key

- SHORT GetKeyState (int iVirtKey)

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2. Inputs from touch screen or mouse

Inputs from touch screen or mouse

- Touch screen for input is equivalent to single button mouse input

- Mouse has a cursor.

- When a mouse is pressed, the window is sent the message WM_LBUTTONDOWN on left button down and release of WM_LBUTTONUP on left button up events

Inputs from touch screen or mouse

- WM_MOUSEMOVE message when the stylus is moved within the same window.
- When stylus is dragged outside the in-focus window, the WM_MOUSEMOVE messages stop.
- If SetCapture procedure is called than, WM_MOUSEMOVE messages continue.
- ReleaseCapture stops sending the messages of WM_MOUSEMOVE

Get Mouse Move Points

- GetMouseMovePoints sends the messages for each point traced by stylus on the screen from a start to end.

- GetMouseMovePoints integrated with handwriting recognizer application can be used handwriting on the PocketPC to write the text or commands or messages

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Button Clicks

- WM_LBUTTONDBLCLK message is sent on double tap of stylus.

- For each message the parameters lParameter = two 16-bit screen tap horizontal and vertical position values x and y, and

- wParameter = 16-bits for the flags corresponding to which key shift or control held down or not.

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Right button click

- Right button click of mouse is simulated using stylus when ALT key is held down while tapping

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Summary

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We learnt

- Message pass from OS to Windows on input actions using keyboard or or touch screen

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End of Lesson-7 of chapter 10 on
WCE Handling of Inputs from keys, touch screen and mouse