A Tutorial on Tablet PC

Simon Fraser University
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Agenda

- Tablet PC Overview
- Tablet PC Development
- Tablet PC Resources
Tablet PC Overview
What is Tablet PC?

- Geared for pen-enabled, handwriting-enabled, and speech-enabled applications
- A highly mobile computer that enables new usage scenarios
- A powerful platform enabling a new generation of business applications
Features Overview - Software

Windows XP Tablet PC Edition 2005 adds the following features to Windows XP Professional:

- Pen input
- Ink controls
- Gesture recognition engine and APIs
- Handwriting and speech recognition engines
- Some useful applications, such as Windows Journal, Sticky Notes
- ...
Features Overview - Hardware

All Tablet PC devices will include the following hardware attributes:

- Electromagnetic digitizer and pen
- Optimized power states
- Screen rotation support
- Free of old hardware
- Hardware buttons for logging on to Windows and doing additional tasks
- Support for surprise undocking
- …
Why We Need a Tablet PC?

- Mobility (sitting, standing, walking...)
- Ink now, recognize later
- Can’t type for beans or in cramped spaces
- Drawing / sketching
- Take notes electronically

Microsoft Windows XP Tablet PC Home Page

- Top 10 benefits
- Case studies
How to Use a Tablet PC?

demo
Tablet PC Development
Development Environment

Hardware
- A Tablet PC
- Or any other computer, having Microsoft Windows 2000 SP4 or higher (but handwriting and speech recognition cannot be tested and debugged)

Software
- Tablet PC SDK 1.7 (the latest version)
- Microsoft Visual Studio
  - Programming languages can be **Visual C# (recommended)**, C++, VB6, VB.Net
- Microsoft SQL Server 2005 (for the course project)
Tablet PC SDK 1.7

It comes with
- Context Tagging Tool
- Microsoft Tablet PC Platform SDK Documentation
- Samples and Source Code

Suggestion
- Before jumping into the implementation, please read the above three documentations carefully
- Most of the coding problems can find solutions from them
Tablet PC Platform Overview

- Ink Collection (Input)
- Ink Data and Management
- Ink Recognition
Ink Collection (Input)

- Digitizer Basics
  - Very High Resolution
  - Very High Throughput
  - Packet Properties
    - X, Y
    - Pressure, Angle, Rotation, etc.

- Using the API to collect Ink
  - InkCollector
  - InkOverlay
  - RealTimeStylus (New in SDK version 1.7)
Ink Data And Management

- Ink is a data type
- Ink looks good
  - Bezier smoothed
  - Anti-aliased
- Rich, Extensible API
- Copy to / paste from the clipboard
- Multiple persistence formats
Ink Recognition

Interpret pen movements and/or strokes as:
- Text (handwriting)
- Gestures
- Shapes and symbols – Limited object recognition in API

Current language support
- US English, International English, Japanese, German, French, Simplified and Traditional Chinese as well as Korean, Spanish and Italian

Additional language support with Lonestar
- More Asian Languages

Synchronous and asynchronous recognition

Data structure of recognize result and alternates

Extensibility architecture
Object Model Overview

InkCollector
InkOverlay

Ink

Strokes

Renderer

Tablet

Recognizers

Recognizer

RecognizerContext

Stroke

DrawingAttributes
Key Objects

- **Ink Collection**
  - InkCollector
  - InkOverlay
  - Ink collection events

- **Ink Data Management**
  - Ink
  - Strokes
  - Stroke
  - DrawingAttributes
  - Renderer
  - Ink data management events

- **Ink Recognition**
  - RecognizerContext
  - RecognitionResult
Referencing the SDK

The Tablet PC SDK has to be referenced from Microsoft Visual Studio

- This provides access to the managed object model and controls

To add a reference to the Windows XP Tablet PC Edition Development Kit 1.7 in Visual Studio .NET

- Open your Visual Studio .NET project.
- On the Project menu, click Add Reference.
- On the .NET tab in the Add Reference dialog box, on the components list, select Microsoft Tablet PC API, version 1.7.xxxx.x.
- Click Select, and then click OK.
How to Develop for a Tablet PC?
Tablet PC Resources
Resources

- **Within Tablet PC SDK 1.7**
  - Microsoft Tablet PC Platform SDK Documentation
  - Samples and Source Code

- **MSDN Tablet PC Developer Center**

- **MSDN Library**

- **Windows Tablet PC Home Page**
  - [http://www.microsoft.com/windowsxp/tabletpc/default.mspx](http://www.microsoft.com/windowsxp/tabletpc/default.mspx)

- **Tablet PC Team Blog**

- **Books in the library**

- **Google the World Wide Web**
Thank You!