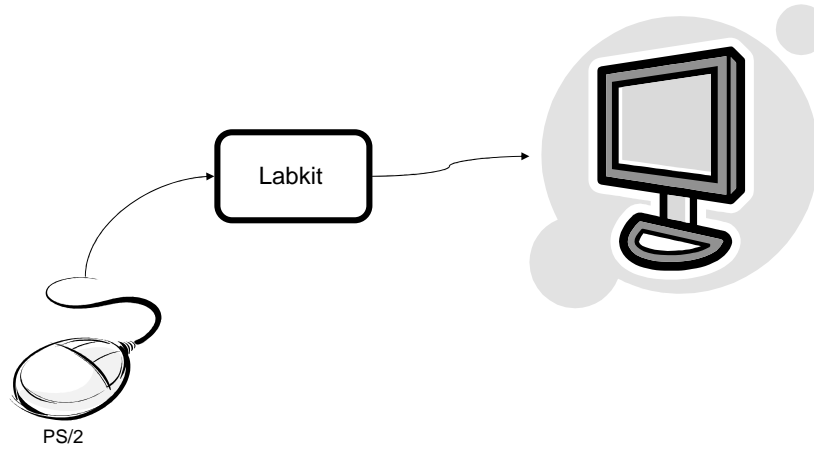

Writing Recognition

Stephanie Hsu
6.111 Final Project Presentation
Fall 2006

Outline

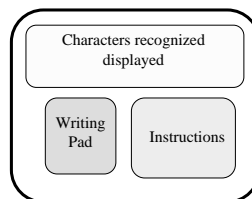
- Overview of project
 - Block Diagrams
 - Mouse input
 - Character recognition
 - Strategy
 - Display
 - Timeline
-

Project Overview

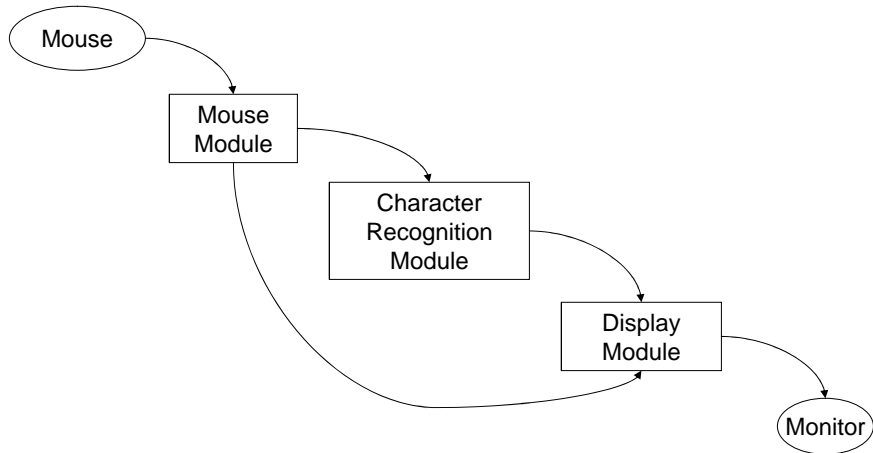


User Interface

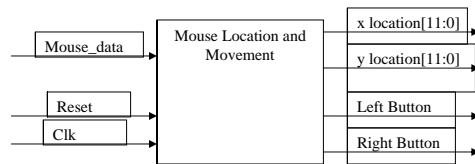
- Mouse
 - Interfaced with labkit through PS/2 connector
 - Mouse cursor displayed on screen
- Image displayed on monitor stored in ZBT RAM
- User writes by clicking and dragging in writing pad.



Module Overview

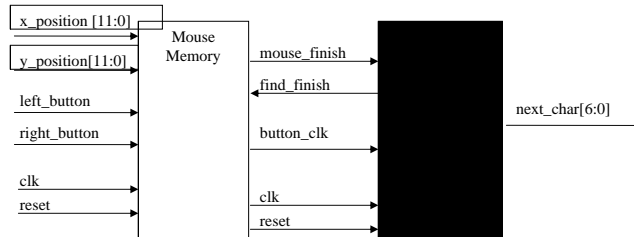


Mouse Module



- Extracts position and button click signals
- Outputs to display and character recognition modules

Character Recognition Module

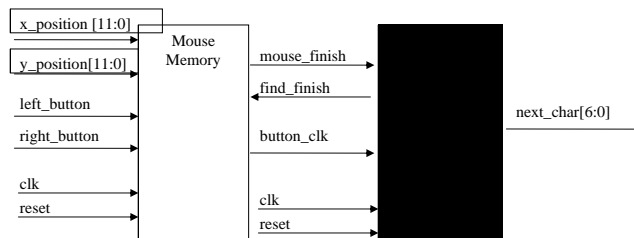


■ Mouse Memory

- Writing pad is divided into 8 blocks
- When user “writes”, the cells that the mouse passes through is stored into a memory buffer (in order)
- Also stores a bit that identifies that a mouse button is being held down

1000	1001
1010	1011
1100	1101
1110	1111

Character Recognition Module



■ Character Lookup

- Analyzes memory buffer from mouse memory
- Outputs encoding for character recognized to display module.

Character Recognition Strategy

- Store (in order) cells that mouse visits when writing
- Analyze using FSM
 - Builds character encoding sent to display module
- User follows template to write characters
- Left button : lower case
Right button: upper case

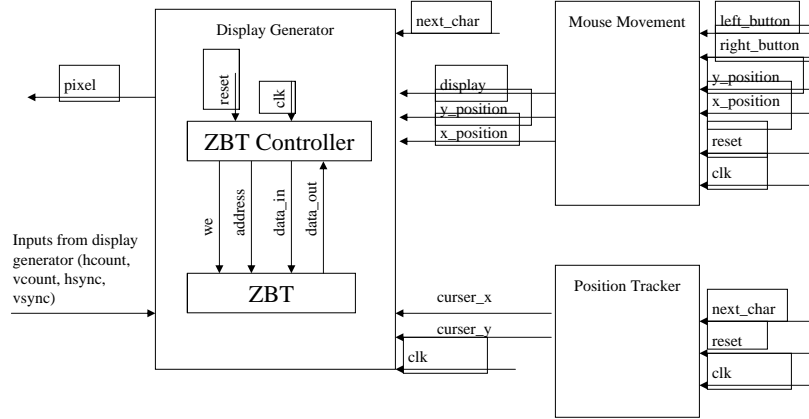
1000	1001
1010	1011
1100	1101
1110	1111

Character Recognition Strategy (FSM)

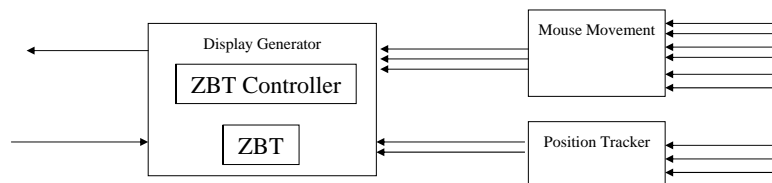
1000	1001
1010	1011
1100	1101
1110	1111

- Identify which half (horizontal) of pad writing starts (1 or 0)
- Identify relationship between current cell and future cells
- Continue with all cells
- Display module uses result to lookup image of character to display.

Display Module



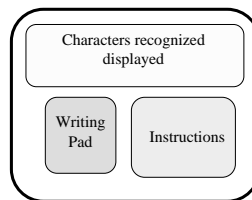
Display Module



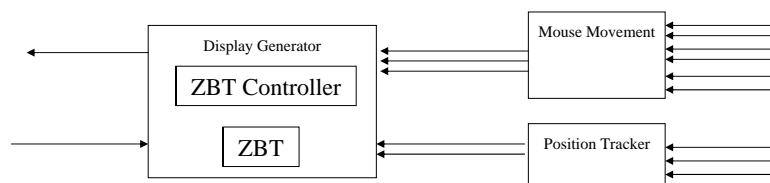
- **Mouse Movement**
 - Mouse cursor
 - Mouse trail when writing
- **Position Tracker**
 - Location of recognized character
- **Display Generator**
 - Controls image stored in ZBT through controller

User Interface

- Mouse
 - Interfaced with labkit through PS/2 connector
 - Mouse cursor displayed on screen
- Image displayed on monitor stored in ZBT RAM
- User writes by clicking and dragging in writing pad.



Display Module



- Mouse Movement
 - Mouse cursor
 - Mouse trail when writing
- Position Tracker
 - Location of recognized character
- Display Generator
 - Controls image stored in ZBT through controller

Timeline

Display Module, Develop Character Recognition Algorithm						11/18
Implement Character Recognition Strategy : FSM, Generate character lookup tables						11/25
Implement Character Recognition Strategy: FSM				Module Interaction issues		12/2
Module Interaction issues			Working project		12/9	
						12/16

Questions?

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