Japanese HWR

Steven B. Poggel
steven.poggel@gmail.com

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Contents

Chapter 1

Technical Design of the Application

The focus of this chapter is on the general architectural choices made during the development of the system. In this chapter, the technical design aspects of the application are described. The general system architecture is layed out in section 1.1. It contains the global view on the software architecture in section 1.1.1, the data flow in within the system in section 1.1.2 and describes the design of the individual modules in section 1.1.3. Section 1.2 describes the technical set-up and framework choices. However, the handwriting recognition engine is described in detail in a separate section (see chapter **??**).

1.1 System Architecture

The system architecture of the Kanji Coach follows the requirements of an e-learning environment dealing with the specific difficulties for learners of the Japanese script (see chapter **??**) and those of an on-line handwriting recognition. Techniques of handwriting recognition are reviewed in chapter **??**. The general requirements of an e-learning application are presented in chapter **??**. The resulting specific conceptual design choices have been layed out in chapter **??**.

1.1.1 Global Architecture

The global architecture of the application follows the Model-View-Controller (MVC) design pattern. This paradigm is used as a general model, however, it is not implemented the strict way proposed by (Krasner and Pope 1988). Figure (1.1) shows the general set-up of the MVC design pattern after (Krasner and Pope 1988). xxx: Also figure (1.2) - decide how it should be done and use the appropriate gfx. xxx!

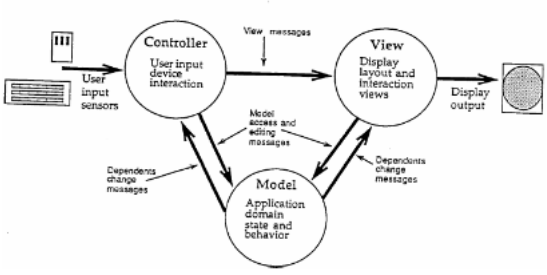

Figure 1.1: The Model-View-Controller paradigm

A global overview of the system architecture can be seen in figure (1.3).

1.1.2 System Data Flow

The system data flow is shown in figure (1.4).

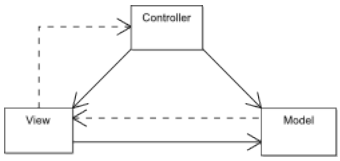

Figure 1.2: The Model-View-Controller paradigm AGAIN!

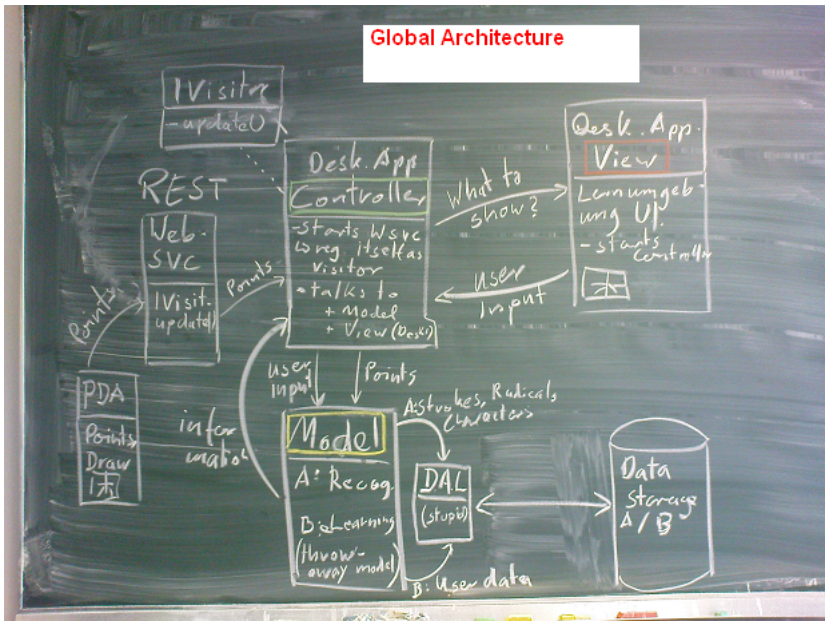

Figure 1.3: The global architecture of the software system

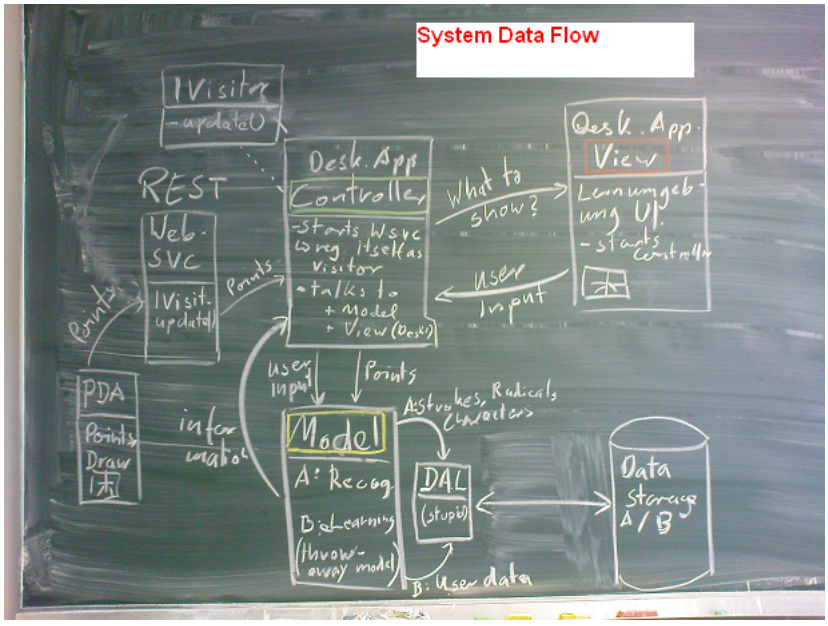

Figure 1.4: The data flow within the software system

1.1.2.1 Communication

1.1.2.2 Recognition Data Flow

1.1.2.3 Learning Data Flow

1.1.3 Software Modules

1.1.3.1 Mobile GUI

1.1.3.2 Desktop GUI

1.1.3.3 Web Service

1.1.3.4 Recognition Module

1.1.3.5 Learning Module

1.2 Framework and Devices

1.2.1 Operating System

1.2.2 Framework

.NET vs. Java etc.

1.2.3 Desktop Computer

1.2.4 Pen Input Device

1.2.4.1 Stylus Input

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References

Krasner, G. E. and S. T. Pope (1988). A cookbook for using the model-view controller user interface paradigm in smalltalk-80. *J. Object Oriented Program. 1*(3), 26--49.