

PROTOTYPING@APPARATUS

March 2006

At Apparatus we use rapid prototypes to visualize user experience for enterprise applications, websites and portals. Read further to understand the process.

VISUALIZING

At Apparatus, we strongly believe that User Interface Prototyping should be an integral part of any user experience development process. Prototyping helps to establish a common platform to integrate the efforts of the three project stakeholders - the business team, technology team and usability team through a singular, tangible and definitive deliverable. We have been doing different types of user interface prototypes since last six years and we think prototyping is the most effective medium to evaluate a user interface in the every stage of product development. Prototypes also help to avoid expensive repairs during the later stages in any IT initiative.

WHAT IS A USER INTERFACE PROTOTYPE?

User Interface Prototype is a sample or trial-working model of the intended user interface of any software program, created in order to validate/ evaluate the appropriateness of the interface with respect to its functionality, usability, and usefulness, developed during the early stages of the development.

WHY PROTOTYPE

We at Apparatus, create various types of prototypes during every stage of product development lifecycle in order to validate different aspects of the proposed UI design. Early throwaway prototypes (also known as low fidelity prototypes) developed during the requirement definition stage helps to validate functional specifications with the business. Detailed clickable prototypes (Medium Fidelity Prototypes) developed during UI definition stage helps to evaluate the effectiveness and appropriateness of the screens from a functional and usability perspective. Extensive Digital prototypes (also known as high fidelity prototypes) developed with the detailed brand experience and user interaction helps business to demonstrate their value proposition to the stakeholders, senior management or investors.

Iterative prototyping methodology provides us many advantages over the traditional product development lifecycle.

- Identify usability issues and functionality gaps in the early requirement stages of the project itself providing flexibility for much iteration before the development starts.
- Prototype of the entire application developed prior to the beginning of the technology lifecycle provides stakeholders an in-depth view of the application along with the interaction and navigational flow in the much earlier stages of the product development
- Business Manager and Decision makers are able to make well informed decisions of the requirements based on a Visual Interactive prototype compared to a long and descriptive System Requirement Specification or Usecase document
- The prototype acts as a tangible and iterative deliverable for business as well as technology throughout the requirement definition stage
- Once base lined the digital prototype can be used as a single reference document for the business and technology throughout the development lifecycle
- Technology decisions for Architecture and Design can be based on the features and functionalities specified within the prototype
- An interactive prototype can be put to usability tests to identify key usability problems in the early stages of development itself
- Above all the process is cheaper to iterate in the early stages of requirement definition than towards the end of development lifecycle.
- A prototype helps to minimize the effort wastage since it helps to iterate the requirements repeatedly before writing a single line of code!

STAGES OF PROTOTYPING:

User Interface prototyping progresses through definite stages of refinement; it normally starts with static representation of the screens as wireframes and ends with an extensive interactive prototype which are generally technology integration ready.

Wireframes: Wireframes are static representation of the typical screen types of the application, which illustrates the screen structure, information design and navigational elements within a screen. These screens may be implemented through simple paper sketches or using graphic design tools

Information Architecture Walkthrough: IA walkthrough is a set of screens representing the application with complete information structure and correlation between pages. IA walkthrough may also integrate some visual design elements within it, to simulate the look and feel of the final application. However, normally IA walkthrough is used for demo purposes and may not be technology integration ready.

Blind prototype: These prototypes represent navigation scheme and interaction devices of the application at a high-level. This helps the client to validate the structure, navigation and interaction devices of the application

Deep slice prototype: It represents task flows of a selected part of the application in detail along with proposed interaction and workflow details.

Digital Prototype: Digital Prototype is the full set of screens representing the application with complete information structure and correlation between pages with intended interactivity simulated. These screens are normally technology integration ready and are hence reusable for the development purposes.

TYPES OF PROTOTYPING

Early throwaway prototypes (Low Fidelity Prototypes): We create early throwaway prototypes largely to validate our understanding of the complex functional specifications/ workflows and discuss any visible gaps with the business stakeholders.

Paper Prototypes: We create paper sketches of the typical user interfaces for the critical task flows as wireframes and present the screens to the business/ technology team members to validate our understanding

Wireframe screens: We create further detailed wireframes in Graphic design tool such as Illustrator or Photoshop from Adobe to streamline the sketches with more details and screen corrections as placeholder pockets.

Wireframes Walkthrough: Many times we further create clickable prototypes of such wireframe images stitched together using WYSIWYG tools such as Dreamweaver to illustrate the business workflow and user task flows

Quick Functional Prototypes: We develop quick and simple functional UI prototypes to evaluate specific modules or even sub modules of functionalities. These prototypes help the Business, Technology and Usability to validate feasibility of any functionality in question.

Detailed clickable prototypes (Medium Fidelity Prototypes):

We develop detailed clickable prototypes to demonstrate the Information Architecture of any proposed software. We create two different kinds of detailed clickable prototypes; Plain HTML based

prototype for simple browser based applications and highly interactive DHTML prototypes for non-browser based applications.

Plain HTML prototypes: Applications that are browser based and involve simple screen interactions are prototyped using plain HTML. We create these prototypes either using WYSIWYG tools such as Dreamweaver or by hand coding. These prototypes can be used for technical proof of concepts with minimal cleanup of the code. We create plain HTML prototypes as both Blind prototypes and Deep-slice prototype.

Highly interactive DHTML prototypes: We create these prototypes usually for applications that have Smart client based UI using Flash, Java Swing, and Win forms etc. front-end technology or uses highly interactive browser based interface elements as in web 2.0 and Infragistics components. These prototypes are difficult to simulate using plain HTML and hence we stitch illustrated images created in Graphic design tool such as Illustrator or Photoshop within a WYSIWYG tools such as Dreamweaver using DHTML layers.

These prototypes are highly interactive and are able to communicate intricate user interactions that are possible within new age user interfaces. However, these prototypes are expensive to create and are not easy to iterate.

Flash based prototypes: We create Flash based prototypes especially for applications that use complex Flash based screen interactions that are not easy to simulate through any other type of prototype. Flash prototypes are ideal for rich internet applications for both simulating the rich interactions as well as testing the technical feasibility. Flash prototypes are also expensive to create but are highly interactive and the flash prototype elements are reusable for integration.

Digital prototypes (High Fidelity Prototypes):

These are prototypes, which simulate the entire application with final user interaction, brand elements and complete look and feel. Digital prototypes developed with the detailed brand experience and user interaction helps business to demonstrate the product value proposition to the stakeholders, senior management or investors. A digital prototype demonstrate complete functionality of the application and helps the Business Managers, Investors and Decision makers to make well informed decisions of the requirements based on the prototype. In addition, Digital Prototypes are ideal for usability evaluation studies and marketing purposes.

TOOLS USED FOR PROTOTYPING

There are various tools available in the market, which is suitable for prototype development. Prototyping tools should support many capabilities such as rapid

layout and iteration of screens, quick simulation of features and functionalities, advanced screen interactivity, ease of presentation to stakeholders, easy portability with minimal client installations, ability to demonstrate brand and look and feel, and easy to learn and use.

At Apparatus, we use a suite of prototyping tools and methods customized specific to the project requirements. We largely depend on a combination of Graphic design tool such as Illustrator or Photoshop

from Adobe and Visual or text based HTML tool such as FrontPage, Dreamweaver or Home Site. Designers largely depend on Photoshop and Illustrator for wireframe screens and WYSIWYG tools such as Dreamweaver for stitching the images together as a clickable prototype. Front-end technologists using FrontPage or Home Site develop extensive Digital prototypes with DHTML interactions. Macromedia Flash is another tool we use to create Flash based interactive prototypes.