Developing a Mobile Web Application for the SALT Center

Presenters
Mary Beth Foster, Educational Technology Coordinator
ISTA Students (Information Science Technology & the Arts)
Alex Wainwright, Graduated Spring ‘14
Bryan LaFrese, Senior
Evan Greer, Senior
Jeremy Jalnos, Senior
SALT Center Support services for students with learning & attention challenges

- Tutoring
- Strategic Learning Specialist
- Workshops
- Psychological Services
- Educational Technology
Reservation System

Computer Lab with 18 Desktop stations containing software such as…

- Dragon Naturally Speaking
- Kurzweil
- Inspiration
- Photoshop
- Illustrator
- Dreamweaver
- Solid Works
- Eclipse
Educational Technology

- Computer lab
- Laptop Lounge
- Tech Consulting Assistance with...
  - Navigating online learning platforms
  - Learning new programs
  - Exploring new apps
  - Training in assistive tech

Growth of the Idea to build a mobile web application
Initial Idea

I think we should make an app!

Check out this crazy idea I’ve drawn up!
Floating Ideas

- Development Component for Student Interns
- Portal
- Community Space
- Needs of Students
- Study App ideas
- Senior Capstone for ISTA
Notes from 10/7/13 meeting with Clayton Morrison, Faculty Mentor

App product goals:

Calendar app
- UA important deadlines
- SALT events
- SALT workshops
- Group reviews

News/announcements screen

Plan 1

Set up a plan of proposed phases
Consult with campus resources
Do Research

Research Needs:
- Object C
- IOS development
- Check out Safari books
- Html CSS
- Java Script
- php
Presentation: “Beyond Responsive: JavaScript Recipes for App-Like Behavior in Websites” by Thomas Bourgeois

JavaScript leveraged with JQuery or Modernizr
Initial Steps

Exploratory Meeting with SASG
Discuss project plans/ideas

Technical Requirements
Functionality
Challenges & Limitations
Learning Curve
Security
Project Continuance

Development Space
Technical Guidance
Determination to go with Drupal
Proposed Ideas at this Time

Fall Launch 2014

- Phase I – Ticketing system for making reservations in computer lab (pilot tests April 2014)
- Phase II – Time Management tool (pilot tests April 2014)
  - Calendar Tool (first part of larger tool called planner)
  - Important UA & SALT dates
  - UA Access schedule import
- Phase III – News announcement screen
- Phase IV – Common Links Listing (Tutor trac, D2L, Blackboard, etc.)

Spring Launch 2015

- Phase V - Task lists – (part of planner)
- Phase VI – Goal Setting Tool (part of planner)
- Phase VII – Study Tool I
<table>
<thead>
<tr>
<th>Function</th>
<th>Behaviors/features</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>• Netid login&lt;br&gt;• Restrict to students&lt;br&gt;• Stay logged in</td>
<td></td>
</tr>
<tr>
<td>Calendar</td>
<td>• UA access schedule import&lt;br&gt;• Import UA &amp; SALT dates/deadlines&lt;br&gt;• Variable views (day, month, etc.)</td>
<td>Could a calendar tool that’s already created be used in collaboration? Possibly gmail with catmail calendar…</td>
</tr>
<tr>
<td>Ticketing System</td>
<td>• List of options including appts &amp; reservations&lt;br&gt;• Notifications&lt;br&gt;• Import to calendar options&lt;br&gt;• Cancellations &amp; change options</td>
<td></td>
</tr>
<tr>
<td>News screen</td>
<td>• News feed&lt;br&gt;• Sort by date&lt;br&gt;• searchable</td>
<td></td>
</tr>
<tr>
<td>Links</td>
<td>• Website links to course websites and others</td>
<td></td>
</tr>
</tbody>
</table>
GOALS

• to provide an engagement opportunity for students to develop professional experience and technical skills while earning credit for an internship or capstone project

• to develop a mobile web application as a tool for students enrolled in the SALT Center
Focus on Engagement

- Skills students identified for development
- Attainable Goals and Timelines
- Flexibility
Main Focus: Reservation System

- Develop a mobile website application with app-like features & behavior
- Conduct student research project on interactivity and usage behaviors
The Team  
May 8, 2014  
SISTA Showcase

- Jeremy Jalnos – Project Mgr. & Developer
- Sam Forman – Scrum Master, Lead Developer
- Bryan LaFrese – Drupal Developer/User Experience
- Alex Wainwright – Front End Developer
- Evan Greer – Design/layout, Content Developer

Four Student Shadows
Key Players

- SISTA Faculty
  Clayton Morrison, Assoc. Professor
  Suzanne Westbrook, Interim Director

- SASG Leadership Support
  Thomas Bourgeois, Former SASG Director,
  Currently UITS Executive Director, Campus IT Operations
  Deborah Thompson, Current SASG Director

- SASG Consultants
  Eugene Lyman, Website Designer/Developer, Senior
  Elia Nazarenko, Information Technology Support Analyst
  Rebecca Macaulay, Applications Systems Analyst/Developer, Senior
Campus Assistance

- OIA Consultants:
  Garry Forger, Officer, Development-Grants Management
  Joseph Boudreaux, Information Technology Support Analyst, Senior (retired)
  Gary Carstensen, Application Systems Analyst/Developer, Principal

- UITS Administrative Computing:
  Brett Bendickson, Architect, Development
Team Work – SCRUM Style

SCRUM - a responsive framework for managing Agile Software development built upon the following key principles:

- Requirements frequently change & churn
- Understanding that problems cannot be fully defined initially, that unpredicted problems will arise
- Speedy responses and communication essential to meeting changing & emerging requirements
- Decision making brought to the level of operation
SCRUM Flow

Sprints

- Product demo
- Present demo of prototype to team and get give feedback.
- Sprint planning
- Select what work is to be done.
- Identify team deliverables to have completed by end of sprint.
- Break down deliverables and Assign different responsibility’s to each role.
- Determine length of sprint (7 to 30 days but typically 2 weeks)
- Set up by weekly stand-up/ Scrum meetings
- Open discussion
Deliverables (recorded in first Sprint, Jan. 2014)

- By end of week one development environment (most likely using Drupal)
- By end of week 2 set up working terminal in lab to use as development station
- By end of week 3 have first sprint planning meeting
- By end of week 3 basic web page up
- By end of week 5 begin user testing
- By week 6 turn development station into demo station
- Meet with leadership every two to three weeks for sprint planning
- Have Daily standup with conference call if needed
- Keep a list of bugs we encounter
- We need three use case scenarios to be working against
  - What is the process for making reservations, using computers, etc.
    - Ex: From the time they sit down till the time they close the app and stand up what is the user doing on our product.
Tech Specs

Linux, Apache, MySQL, PHP

LAMP
- Back end, dynamic websites

Javascript
- Module modification and adding own functionality

HTML/CSS
- Website design, layout

DRUSH
- Shell interface for admin of Drupal

Drupal
- Open source software, content management framework for back end of websites

CAS
- Central Authentication Service, Single sign-on protocol

Drupal Modules applied: Calendar module, Merci Reservation system, Javascript Injector, CSS injector, Google Analytics
Implementation

- Built test site on demo server
- Received development server from Student Affairs Systems Group
- Installed Drush
- Installed Drupal on the development server
- Used VPN to access development server
- Researched/implemented appropriate modules for functionality
- Used CSS Injector to tweak layout
- Used JS Injector to customize functionality
- Tested User Interface with Valid Experimentation design
Back End

LAMP Architecture
- Linux - OS
- Apache - Web
- MySQL - DB
- PHP - Script

Browser / Firefox

REQUEST

RESPONSE

INTERNET

OS Server | GNU/Linux

Web Server / Apache

CGI Language / PHP

DB Server / MySQL
Goal: to determine the easiest user interface for students to navigate and reserve resources

Installed and tested four modules:
- Reservations
- Agreservations
- Merci Reservations
- Click to Schedule

Results

The Z layout produced a lower Lostness Score when reserving a computer, proving to be more optimal than the F layout.
Screen Recording of App
Still to be Done (Meeting notes, recorded May 2014)

Design: Layout needs to be customized to UA/SALT branding

Technical: UI – modified/hacked but there were Drupal backends that would require parts of Merci Module to be modified…. To do or not to do?

Import UA schedule calendar - Notifications thru sms or email--- iCal built in w/ Merci calendar/auto Synced student schedules with the event calendar

Import Enrollment group for SALT via SASG asst.

Create bookmark icon for mobile: need to build a simple app to install that includes a redirect to the app webpage, will resemble and behave like an app

Transmit knowledge of project to shadows or other future students
To stay with Mobile web app model or to shift to iOS or Android type? Which will be best for students’ resumes and professional experience? Which type will be easiest for students to access and navigate?

<table>
<thead>
<tr>
<th>Pros – (in favor of current model, Mobile web app)</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation already built</td>
<td>Drupal not taught in tech majors</td>
</tr>
<tr>
<td>SASG expertise, assistance</td>
<td>More faculty expertise in other languages</td>
</tr>
<tr>
<td>Cross - Platform</td>
<td>Needs 2 or 3 builds: iOS, Android, Windows</td>
</tr>
</tbody>
</table>
Big Take-Aways

- Developing in a team with varying technical skills and creating tangible results
- Meeting with IT professionals
- Working within large institutional policies and procedures
- Understanding the development life cycle
Incredible Experience

- Campus Partners
- Student App Developers
- Student Shadows
- Technical Skills
- Leadership Skills
- Professional Experience

Guidance
Development
Opportunity
Skill Development

- Technical
- Research
  - Investigative
  - UI Experience - Study
- Professional
  - Agile Management
  - Communication
  - Team Collaboration
  - Decision Making
  - Problem Solving
Opportunities

Responses heard in interviews,
After Graduation Plans & Directions
THANK YOU FOR ATTENDING!

Q & A Time

Connect with the SALT Center

salt.arizona.edu

facebook.com/uasaltcenter
twitter.com/uasaltctr
instagram.com/saltcenter