May 14-04: CyRIS

Nathan Clague, Michael Krantz,
Zach Patzwald, Max Philips,
Jake Roman, Micah Stevenson,
David Vriezen

CyRIS

Project Plan:
Problem Statement

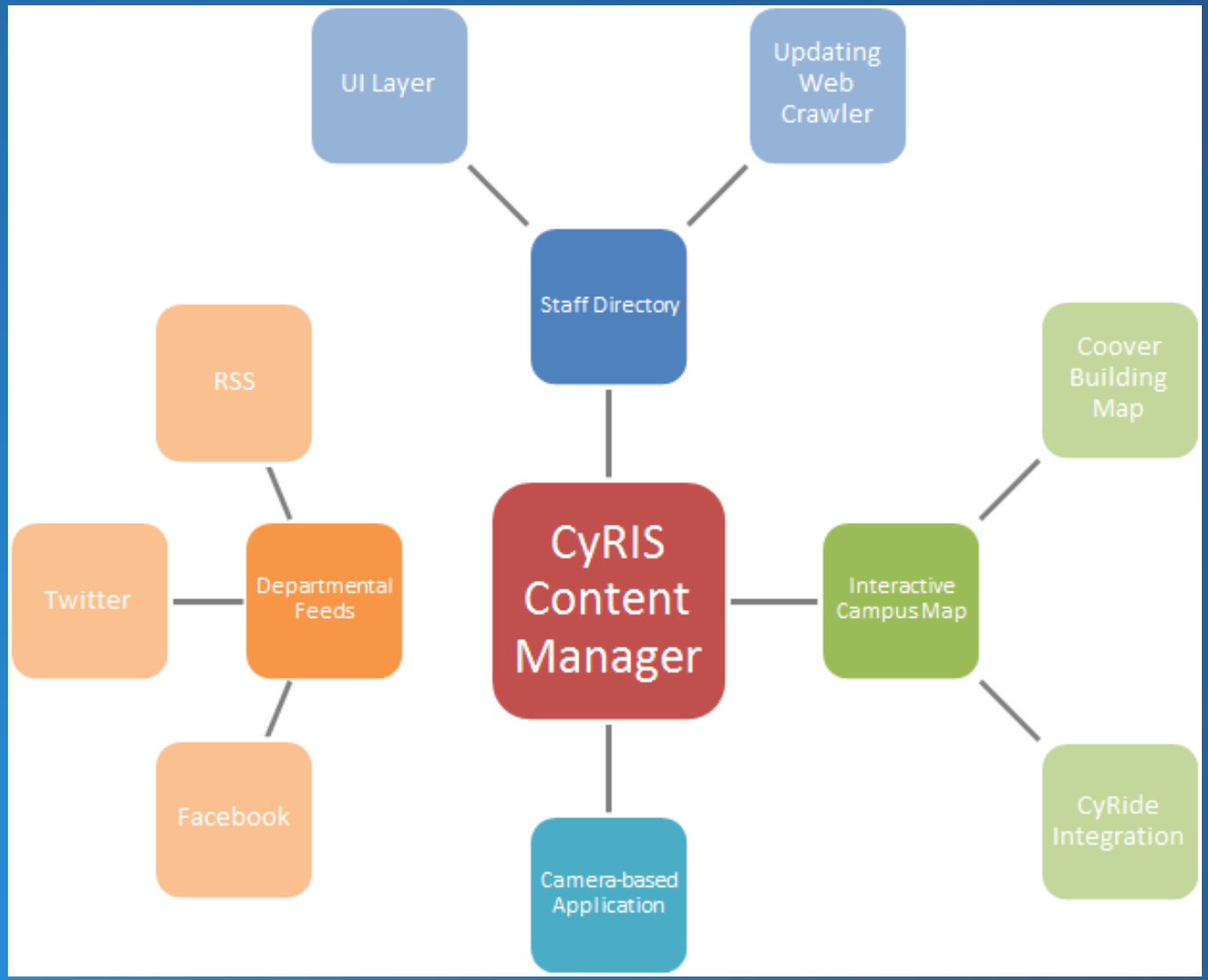
Content on CyRIS is currently:

- Minimally interactive
- Rather Web 1.0
- Unattractive

We want to create content that is:

- Entertaining and amazing
- Responsive and interactive
- Extensible

Project Plan:
Conceptual Sketch



Project Plan: **Requirements**

- Functional requirements
  - Able to spawn multiple child processes
  - Able to receive and send I/O to and from multiple children simultaneously
  - Disable non-secure system functions
  - Allow for control to be returned to the Intuiface presentation
- Non-functional requirements
  - Generate no memory leaks
  - Minimize lag between touch screen inputs and system response

Project Plan:
Technical/Other Considerations

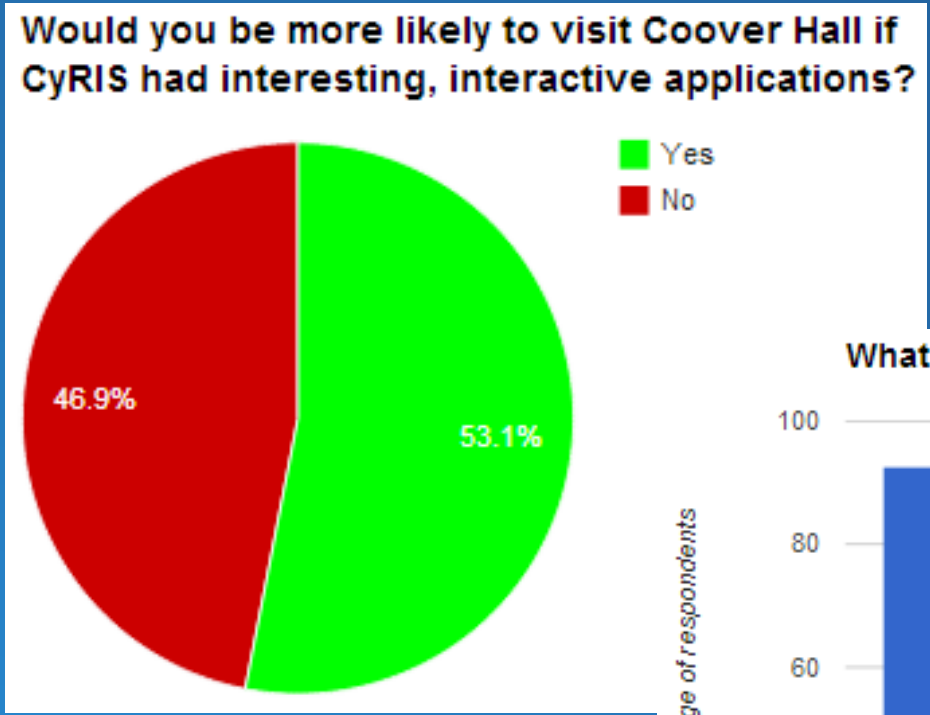
Technical:

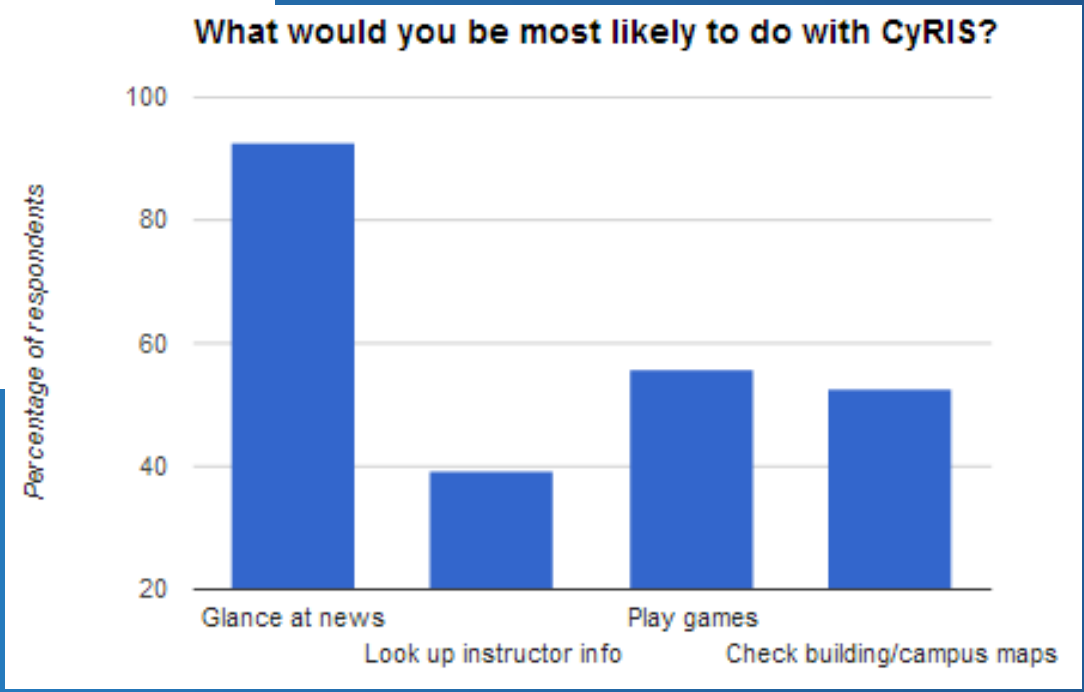
- Multi touch input handling
- Graphical rendering at huge resolutions

Security:

- Must limit users from escaping into the OS (via task bar, start menu)
- Must limit web browsing windows to predefined safe URLs

Project Plan:
Market Survey





Project Plan:
Risks and Mitigations

Risks	Mitigations
Hardware may underperform when running new software	Scale down intensive applications, stress testing
Streaming video may be laggy	Avoid applications where this is an issue
Unable to test our implementation before deployment	Use touch computers in labs, use test environment from CSG

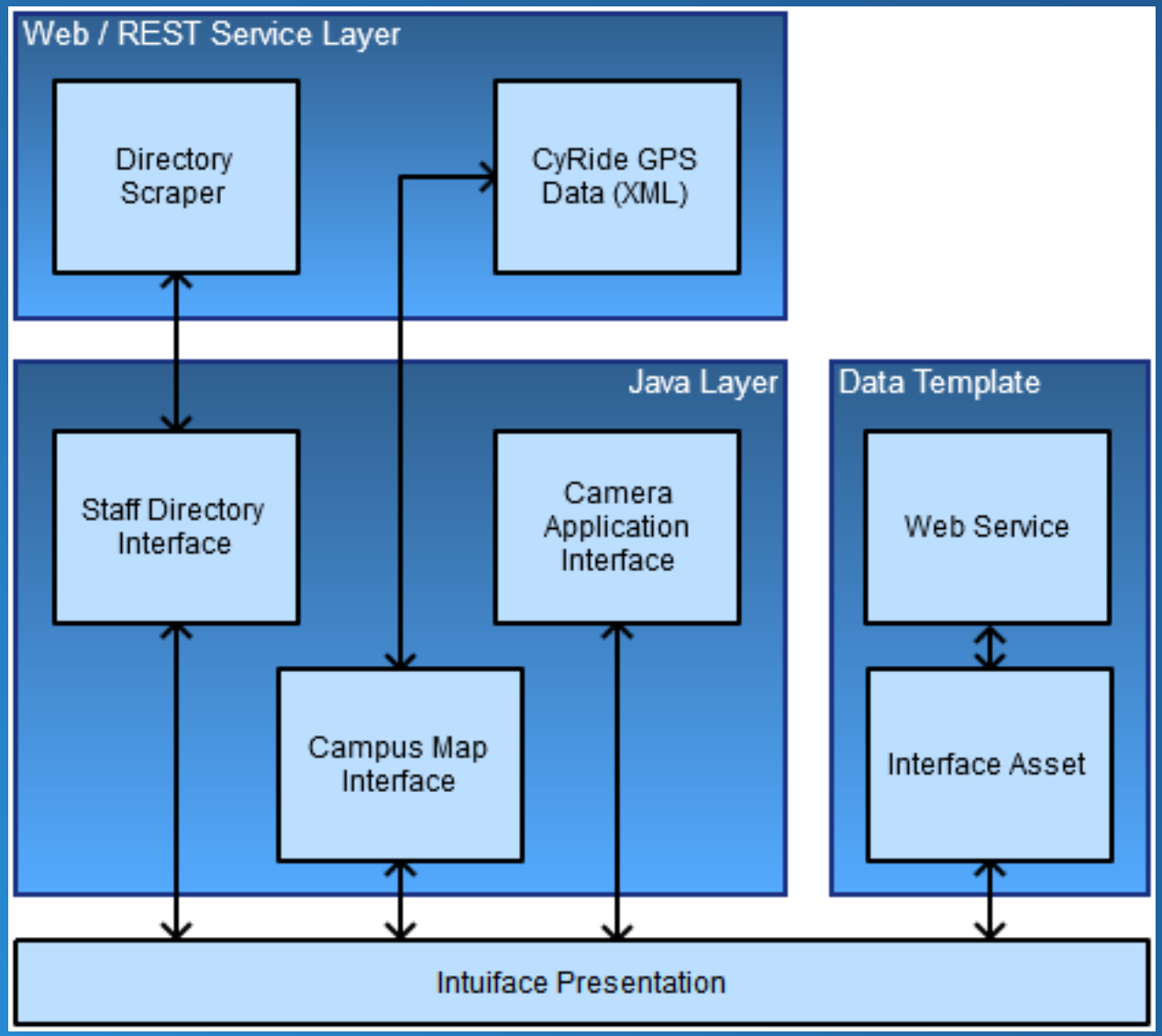
Project Plan:
Resource/Cost Estimate

Intuiface Enterprise Edition License (one year)	$1908
55” PQ Labs touch screen system	$1504
Webcam (optional)	$350
Total	**$3762**

Project Plan:
Milestones and Schedule

- 10/2/2013: initial version of Project Plan
- 10/30/2013: initial version of Design Document
- 11/13/2013: final versions of Project Plan and Design Document published
- 12/11/2013: project demo for client and advisor
- End of first semester: content manager and design for sub applications

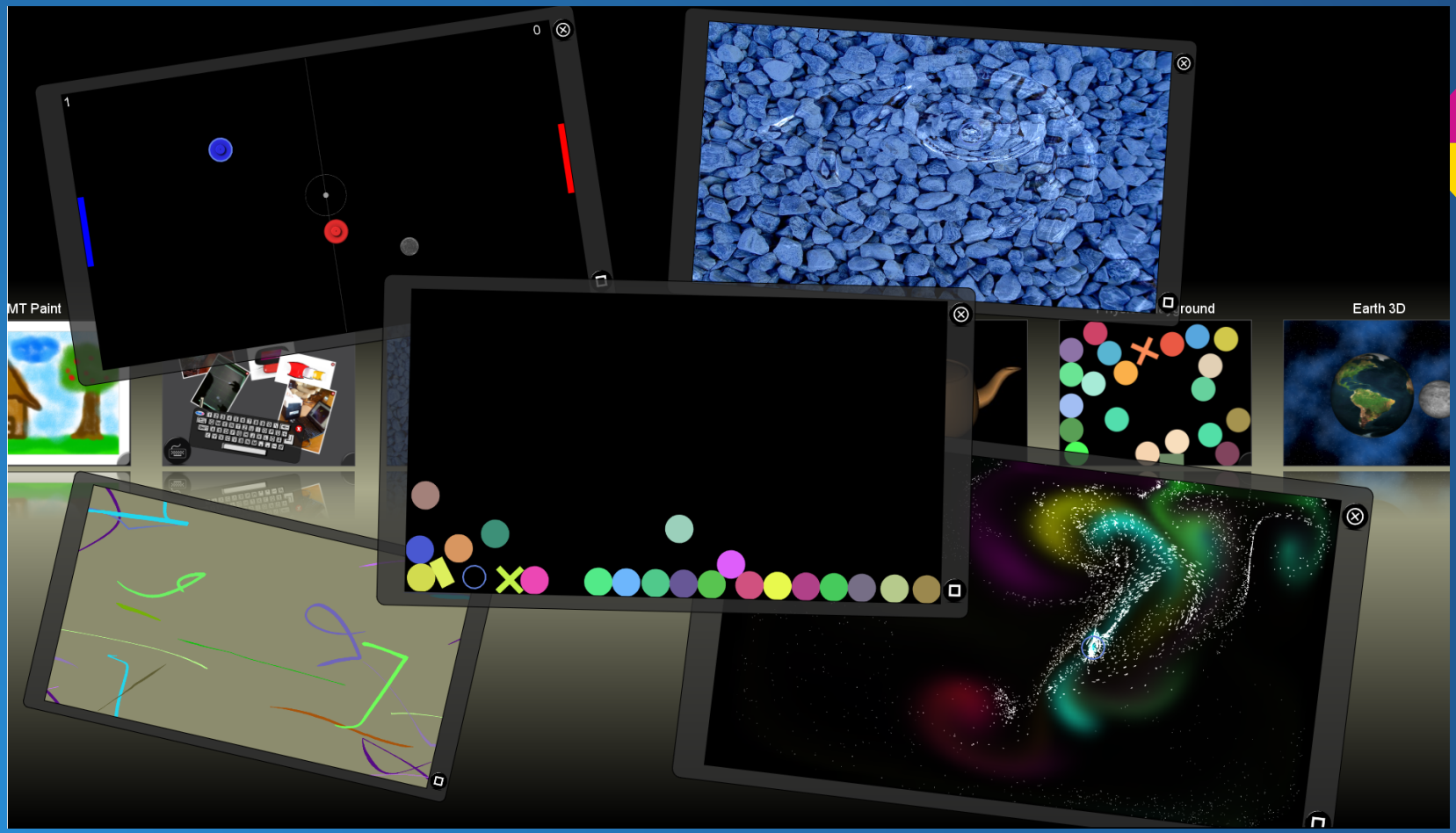
System Design:
Functional Decomposition



Design Document:
Content Manager Design

- Goals
  - Seamless integration with existing content
- Requirements
  - Able to generate applications within itself
  - Maintain concurrent focus across applications
- Decisions
  - Content manager uses full screen display
  - Methods of user interaction
- Technologies
  - Multitouch for Java (MT4J)

Content Manager Implementation



Design Document:
Feeds Design

- Goals
  - Aggregate, sort, and display social media
- Requirements
  - Social media specified by admin
  - Combined in one feed
- Decisions
  - Create web service to use with native interface of Intuiface (Interface Assets)
- Technologies
  - Node.js, Express.js, MongoDB, Facebook Graph API, and Twitter v1.1 REST API

Feeds Implementation

localhost:3000/getLatest


```
{
  "id": 404972746263625700,
  "social": "twitter",
  "logo": "http://localhost:3000/img/Twitter",
  "profilepic": "http://pbs.twimg.com/profile_images/1241236651/Be_Greater_Than_AVATAR_bigger.png",
  "screen_name": "ISU_CoE",
  "status": "ICYMI: An awesome video on the making of a 29-foot tall cardboard LEGO guy (Buster) for Reggie's Sleepout!\n\nhttp://t
  "title": "",
  "picture": "",
  "link": "http://t.co/bAiRWDcTvK",
  "datecreated": "Mon Nov 25 14:00:01 +0000 2013",
  "dateupdated": ""
},
{
  "id": "37114521325_10151723763966326",
  "social": "facebook",
  "logo": "http://localhost:3000/img/Facebook",
  "profilepic": "unknown at this time",
  "screen_name": "Iowa State University - College of Engineering",
  "title": "ISU students helping build future of drones",
  "picture": "http://external.ak.fbcdn.net/safe_image.php?d=AQCNhDC_0tEZC_je&w=130&h=130&url=http%3A%2F%2Fi1.ytimg.com%2Fvi%2F9TdRc
  "link": "https://www.youtube.com/watch?v=9TdRcPc4X8M",
  "datecreated": "2013-12-05T14:44:05+0000",
  "dateupdated": "2013-12-05T14:44:05+0000"
},
{
```


localhost:3000/img/Facebook

localhost:3000/img/madeUpName

File not found

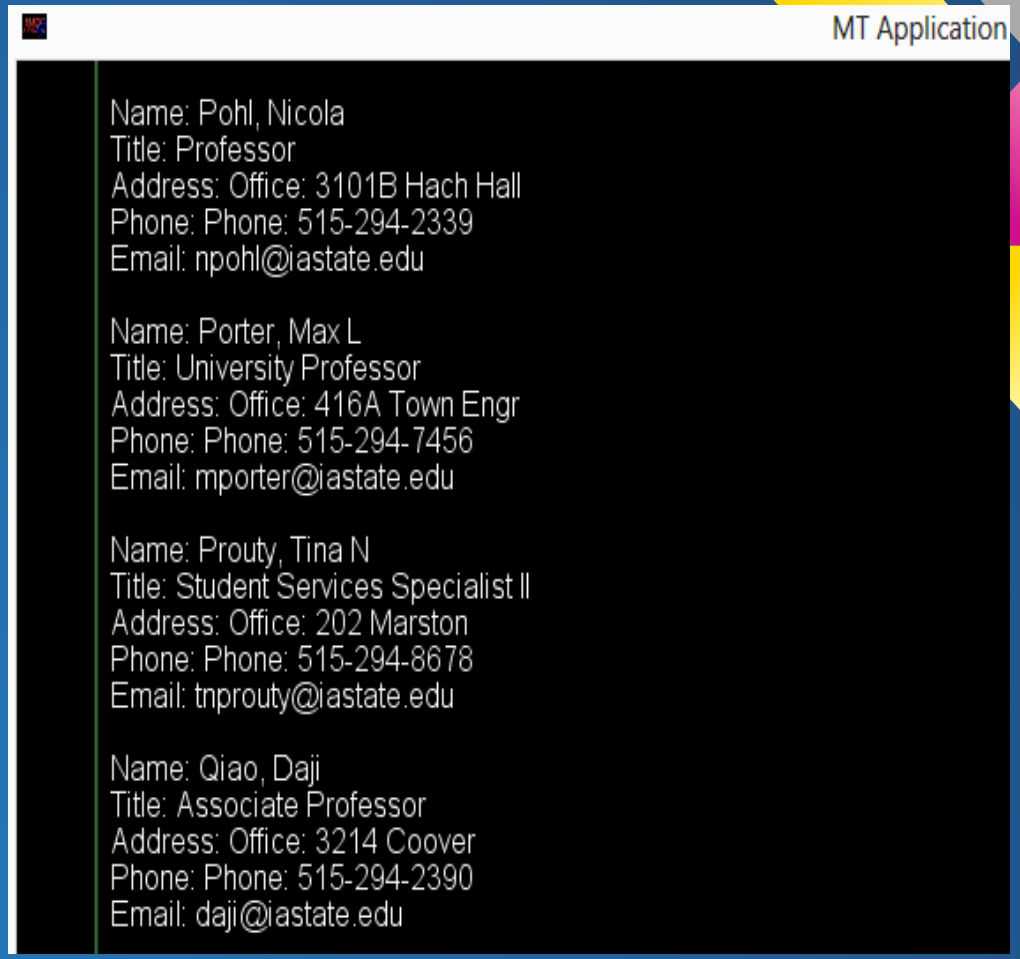
localhost:3000/img/Twitter

Design Document:
Staff Directory Design

- Goals
  - Provide staff information to users
- Requirements
  - Information must be up-to-date
  - Must run on MT4J platform
- Decisions
  - Implement in Java
- Technologies
  - JSoup Library
  - HTML formatting for parser

Staff Directory Implementation

- Current Status:
  - Raw Data on MT4J
- Where to go:
  - Image Rendering
  - Data Formatting
  - Streamlining
  - Add Functionality



Design Document:
Camera Application Design

- Goals
  - Stream video without lag at the maximum resolution
- Requirements
  - Secure - no accessing of arbitrary feeds
- Decisions
  - Use camera feeds already available on campus.
- Technologies
  - MT4J with GStreamer extension

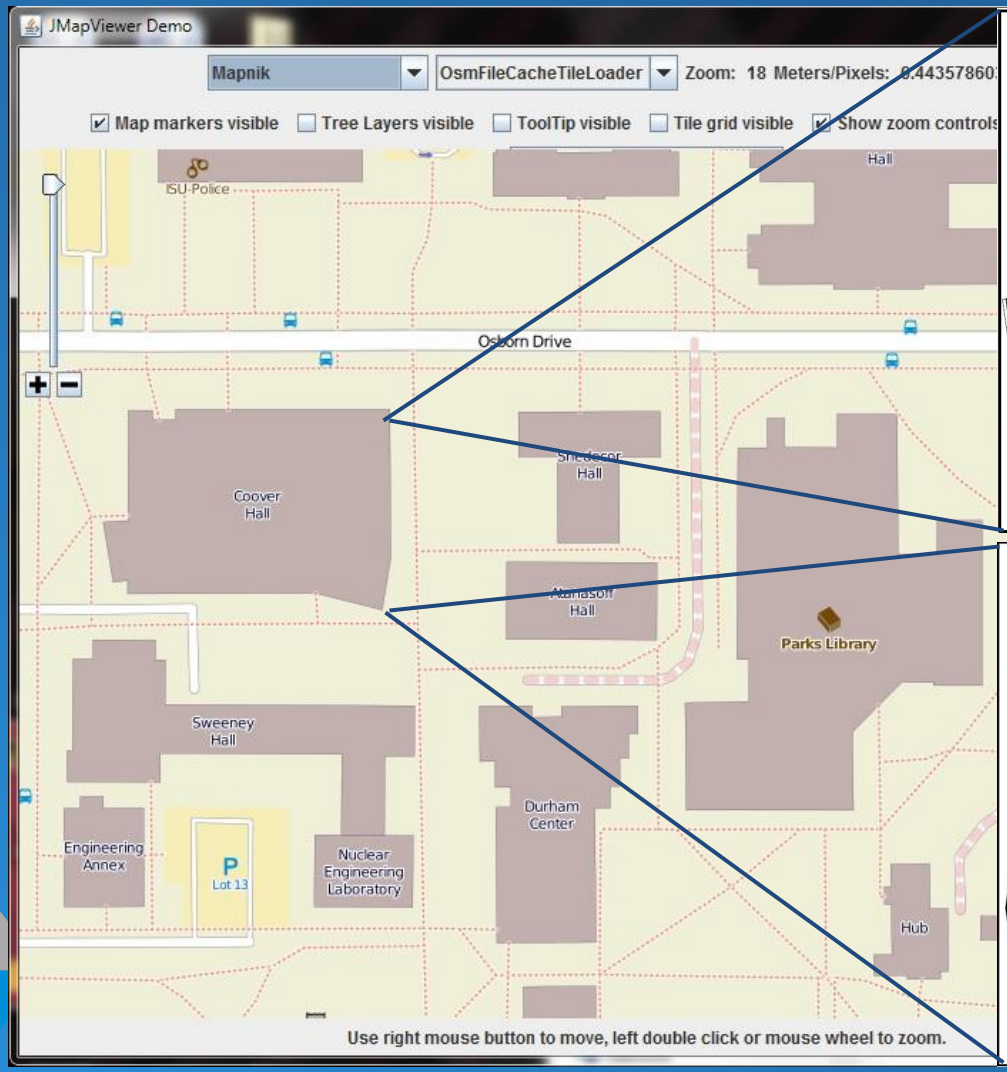
Camera Application Implementation

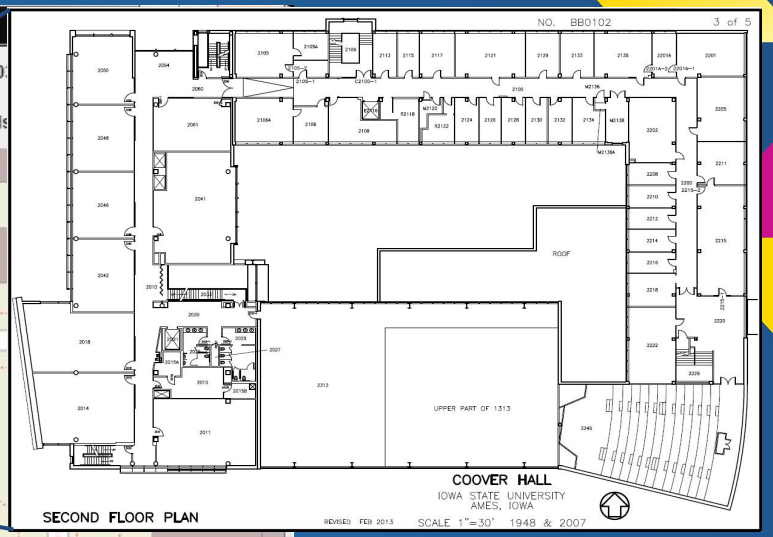
- Current Status:
  - Most feeds accessible
  - Some feeds crash frequently or go down for maintenance
- Where to go
  - Integrate with MT4J and GStreamer
  - Add feeds from own cameras

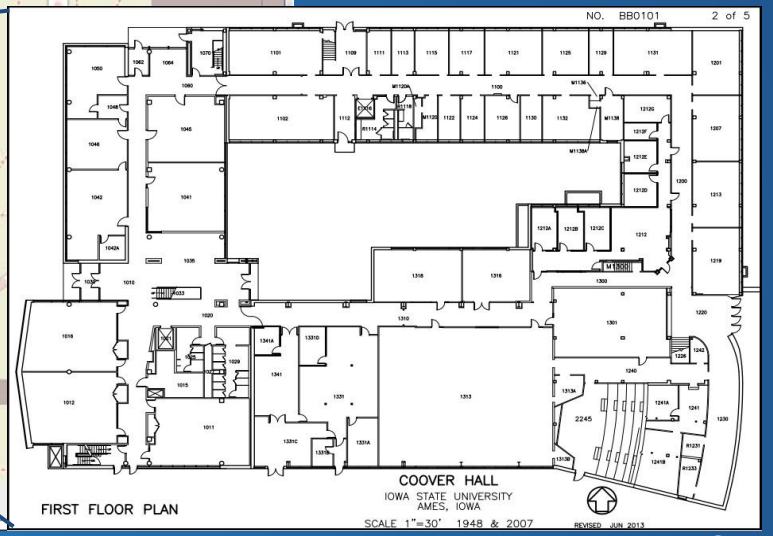
Design Document:
Campus Maps Design

- Goals
  - Provide interactive real-time map experience
- Requirements
  - Remain within NextBus API limitations
- Decisions
  - OpenStreetMap vs. Google Maps
- Technologies
  - OpenStreetMap, JOSM, JMapViewer

Campus Maps Implementation







System Design:
Test Plan

- User-level tests
  - Unit tests to ensure correct output
  - Integration testing for the system
- Performance tests
  - Stress tests for individual apps
  - Stress tests when using multiple apps
- Security tests
  - Vulnerability scan
  - Penetration tests

Conclusion:
Team Member Responsibilities

- Nathan Clague: NextBus API expert
- Michael Krantz: staff directory lead
- Zach Patzwald: content deployment lead
- Max Philips: project coordinator
- Jacob Roman: communications specialist, OpenMaps API expert
- Micah Stevenson: interface asset lead
- David Vriezen: webmaster

Conclusion:
Current Project Status

- Completing first development iteration for sub applications
- 12/6/2013: test environment received
- Ready for integration testing between content manager and UI for launchable applications

Conclusion:
Plan for Next Semester

- Implementation of sub applications
- Testing of sub applications and overall system
- Produce documentation for future extensions of the project

Thank You

Questions?