

MICHIGAN STATE

U N I V E R S I T Y

10/10: Capstone Overview

The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering
Michigan State University

Spring 2017



*From Students...
...to Professionals*

Capstone Overview

➤ Course Logistics

- Client Projects
- Course Logistics (Continued)



CSE 498, Collaborative Design

- “The Capstone Experience”
- Instructors
 - Dr. Wayne Dyksen (“Dr. D.”)
 - Spencer Ottarson
- Class Meetings
TTh, 3:00-4:20pm, 1145 EB
- Syllabus
- Web Site
 - capstone.cse.msu.edu
 - Check it often.
- Email



Course Goals

[1 of 3]

- Give You Experience In
 - Real World
 - Corporate Setting
- Start Your Transition
 - From Student...
 - ...To Professional

Course Goals

[2 of 3]

- Teams of Students
- Build Significant Software System
 - Design
 - Develop
 - Debug
 - Document
 - Deliver
- For Corporate Clients
- In 15 (Short) Weeks



Course Goals

[3 of 3]

- Build a Significant Software System
- Work in a Team Environment
- Learn New Tools and Environments
- Build and Administer Systems
- Develop Your Communication Skills
- Develop Interview Talking Points
- Learn to Do Stuff on Your Own
- Etc...



Project Deliverables

- Project Plan Document & Presentation
- Alpha Presentation
- Beta Presentation
- Project Software & Documentation
- Project Video
- Design Day

See [Major Milestones](#).



All-Hands Meetings

Presentations By

- Dr. D.
- Spencer
- Teams
 - Status Reports
 - Formal Presentations
 - Project Plan
 - Alpha
 - Beta
 - Project Videos
- Guest Speaker(s)



All-Hands Meeting Agendas

- 01/10: Capstone Overview
- 01/12: Project Plan
- 01/17: Risks and Prototypes
- 01/19: Team Status Report Presentations
- 01/24: Schedule and Teamwork
- 01/26: Team Status Reports
- 01/31: Team Project Plan Presentations
- 02/02: Team Project Plan Presentations
- 02/07: Team Project Plan Presentations
- 02/09: Team Project Plan Presentations
- 02/14: Resume Writing and Interviewing
- 02/16: Creating and Giving Presentations
- 02/21: Team Alpha Presentations
- 02/23: Team Alpha Presentations
- 02/28: Team Alpha Presentations
- 03/02: Team Alpha Presentations
- 03/07: (Spring Break, No Meeting)
- 03/09: (Spring Break, No Meeting)
- 03/14: Team Status Reports
- 03/16: Team Status Reports
- 03/21: Design Day and the Project Videos
- 03/23: Camtasia Demo
- 03/28: Intellectual Property
- 03/30: Ethics and Professionalism
- 04/04: Team Beta Presentations
- 04/06: Team Beta Presentations
- 04/11: Team Beta Presentations
- 04/13: Team Beta Presentations
- 04/18: Status Reports
- 04/20: Status Reports
- 04/25: Project Videos
- 04/27: Project Videos and All Deliverables
- 04/27: Design Day Setup
- 04/28: Design Day
- 05/04: Project Videos



Urban Science Capstone Lab

- 3352 EB
- Door Lock
 - Electronic Keypad
 - Code = #####
 - Do Not Give Out to Other Students
- Systems
 - Up to Four per Team
 - Two 27" iMacs
 - One Dell Rack-Mounted Server (Optional)
 - One Mac Book Pro (Optional)
 - Team 100% Responsible
 - Building
 - Maintaining
 - Securing
 - Backing Up
- Books
- WiFi
 - SSID: CSE498, CSE498 5MHz
 - Key: ???????
- Conference Area
 - Team Meetings
 - Client Conference Calls
 - Google [Conference Calendar](#)
- Appliances
 - Water Cooler/Heater
Nota Bene: The water cooler is not connected to a drain. Do not pour things into it, like rinsing out your water container.
 - Whirlpool Refrigerator
 - Cold Water From Bottled Water
 - Ice From Bottled Water
 - Microwave
 - Keurig Coffee Maker
- Lockable Storage
 - One Drawer Per Team
 - Assigned and Labeled
 - Obtain Keys from CSE Office



Scheduled Lab Times

- No Formal Lab Sessions
- “Credit” for Scheduled Weekly Meetings
 - Team Meetings
 - Client Conference Calls
 - Triage Meetings with Spencer
- Meeting Times TBA With
 - Team
 - Client
 - Spencer
- Students must be available to meet.



Capstone Overview

✓ Course Logistics

➤ Client Projects

• Course Logistics (Continued)



Team / Project Generalities

[1 of 3]

- Clients
 - Vary in Size and Type
 - Client contacts/mentors are “volunteers.”
- Team Contact Person
 - Picked By Team
 - Main Point of Contact for Client

Team / Project Generalities

[2 of 3]

- Project Types
 - All Significant Software Development
 - Vary in Specifics
- Project Level of Difficulty
 - Hard Enough
 - But Not too Hard
- Deliverable
 - To the Client
 - By the Due Date



Team / Project Generalities

[3 of 3]

- Challenges
 - Very Short, Unforgiving Time Line
 - Client Contact
 - Team Dynamics
 - Project Plan (in Three Weeks)
 - Entirely New...
 - Languages
 - Environments
 - API's
 - SDK's
 - Processes
 - Protocols
 - Etc.
 - Project Management
 - Etc...



Project Specifics

- Vary
 - Type
 - Current State of Specificity
- Challenge
 - Connect with Client
 - “Nail Down” the Project
 - Hard Enough
 - Not too Hard
 - Avoid Feature Creep
 - Course Feature, Not Bug



Intellectual Property and Non-Disclosure Agreements

- Intellectual Property Agreement
 - You agree to assign ownership of intellectual property that may be created as a result of your project to your client.
 - Copyrightable Program Code
 - Patentable “Ideas”
 - Most clients will require an IP agreement.
- Non-Disclosure Agreement
 - You agree not to disclose client confidential information.
 - Most clients will require an NDA.
- To date...
 - Most code has not gone directly into production.
 - No patents have resulted.
- Use agreements provided by MSU.
- Always Contact Dr. D. Before Signing Anything



Project Teams

- Team Amazon
- Team Auto-Owners
- Team GE
- Team GM
- Team Humana
- Team Meijer
- Team Michigan State
- Team Microsoft
- Team Mozilla
- Team MSUFCU
- Team Rook
- Team Spectrum Health
- Team TechSmith
- Team TWO MEN AND A TRUCK
- Team Union Pacific
- Team Urban Science
- Team Whirlpool
- Team Yello



Team Amazon

Project Overview

ACRA: Amazon Customer Review Analyzer

- Functionalities
 - Improve Amazon Customer Shopping Experience
 - Enable More Informed Purchase Decisions
 - Provide Automatic Analysis of Product Reviews
- Features
 - Analyze and Categorize Product Reviews On
 - Product Quality
 - Shipping and Handling
 - Third-Party Seller
 - Identify and Discard Irrelevant Reviews
 - Review Similar Products
 - Aggregate and Display Results
- Technologies
 - Google Android Tablets and Phones / Java
 - Apple iPads and iPhones (iOS) / Swift
 - Amazon Product Advertising API
 - Amazon Web Services
 - Storage Solution
 - Machine Learning
 - Lambda
 - Natural Language Processing
 - RESTful Web Services



Seattle, Washington
Detroit, Michigan



Team Auto-Owners

Project Overview

Location-Based Services Mobile App

- Functionalities
 - Connect Auto-Owners Associates While Out in the Community
 - Enable Innovative Customer Interactions
 - Provide Mobile Access to Customer Information
- Features
 - Support Role-Based Authentication and Authorization
 - Handle Location Based on Address or GPS
 - Enable Claims Submission
 - Visualize Mapping of Customers Nearby
 - Policyholders
 - Claims
 - Proposals
 - Provide Administrative Web Portal
- Technologies
 - Google Android Tablets and Phones / Java
 - Apple iPads and iPhones (iOS) / Swift
 - Google Maps
 - CSS / HTML / JavaScript / PHP
 - Database Technologies

Coverage Type	Description	Amount
Cov D	Other structure	\$250,000.00
Cov E	Loss of rents	\$150,000.00
Cov A	Dwelling or condominium	\$200,000.00
Cov H	Loss of rents	\$7,500.00

Subject To Forms	Deductibles
1001-02, 1001-01	All Perils: \$1,500.00
1001-03, 1002-02	Hurricane Only: \$10,000.00
1002-03, 1002-01	

Auto-Owners
INSURANCE

LIFE • HOME • CAR • BUSINESS

Lansing, Michigan



Team GE

Project Overview

PETT: Predix Enabled Toy Train

- Functionalities
 - Visualize GE's Digital Industrial Strategy and Transformation
 - Demonstrate GE's Cloud-Based Predix Platform
 - Run N-Scale DCC Enabled Trains Autonomously
- Features
 - Run Multiple Trains Independently
 - Monitor Non-Train Based Events
 - Railroad Crossings
 - Items Falling on Tracks
 - Control Color of GE Logo Lights
 - Utilize GE's Predix Platform
 - Create Predictive and Prescriptive Analytics
 - Keep System Running Issue Free
 - Provide Interactive Educational Display
- Technologies
 - Digital Command Control for Model Railroads
 - Sensor Enablement and Automation
 - Raspberry Pi's, Arduinos, Intel Edison
 - GE's Predix Platform
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - RESTful Web Services



Detroit, Michigan



Team GM

Project Overview

Employee Transportation Experience App

- Functionalities
 - Show Employee Where to Park on GM Campus
 - Determine Parking Space Characteristics
 - Garage
 - Metered
 - Badged
 - Display Available Shuttle Services
- Features
 - Interacts with Android Auto and Apple CarPlay
 - Leverages Geofencing
 - Provides Automatic Parking Management
 - Calls or Cancels a Lyft
 - Gives Directions to Buildings
 - Shows Shuttle Schedules
- Technologies
 - Android Auto
 - Apple CarPlay
 - Lyft API integration
 - Natural Language Processing
 - Google Maps API



Detroit, Michigan
Warren, Michigan

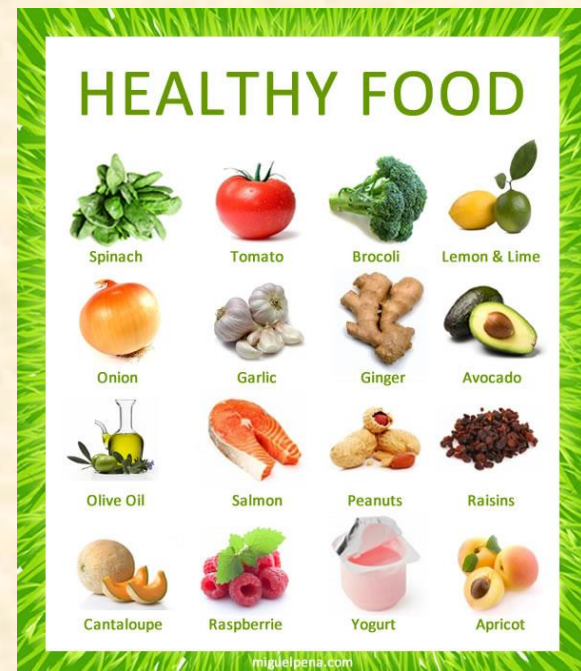


Team Humana

Project Overview

Humana Kids

- Functionalities
 - Reduce Obesity in Kids
 - Teach Kids and Parents About Nutrition
 - Encourage Healthy Behavior in Kids
- Features
 - Usable by 6 – 12 Year Olds
 - Implement as Android Launcher
 - Handle Various Interactions
 - Surveys for Parents and Kids
 - Tips for Parents
 - Quizzes for Kids
 - Include Coins and Badges as Awards
 - Utilize Natural Language Processing and Machine Learning
 - Provide Web App for Parents
- Technologies
 - Google Android Tablets and Phones / Java
 - Android Studio
 - Natural Language Processing
 - Machine Learning
 - Web Application Frameworks (Django, Ruby)



Humana

Louisville, Kentucky

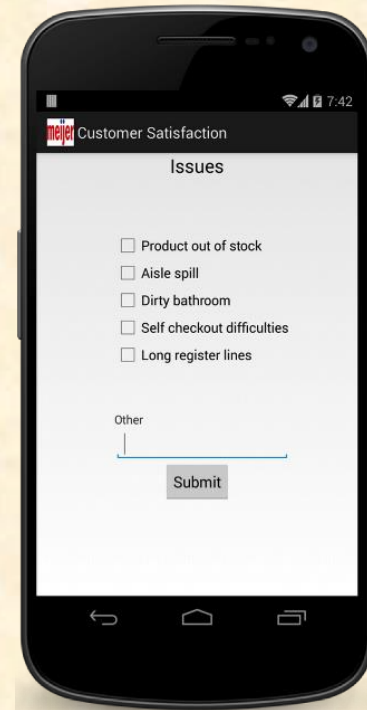


Team Meijer

Project Overview

MyMeijer: Crowdsourcing Shopping

- Functionalities
 - Improve In-Store Shopping Experience Immediately
 - Feedback from Customers
 - Response by Store Team Members
 - Provide Companion Mobile Apps
 - Reward Users for Participation
- Features
 - Link with mPerks Account
 - Support Various Feedback
 - Item Out-of-Stock by Scanning UPC
 - Concern with Cleanliness via Location Tracking
 - Request for Assistance
 - Provide Web App for Corporate Scoreboard
- Technologies
 - Xamarin Mobile App Development
 - Bluebird Mobile Device Development
 - Microsoft .NET Framework
 - Microsoft Visual Studio Team Server
 - Microsoft Azure Services
 - C#, ASP.NET MVC, ASP.NET Web API, HTML 5, .NET 5
 - Hockey App for Deployment
 - Meijer Web Services
 - SQL Server / Mongo Database
 - App Insights for Analytics



meijer[®]

Grand Rapids, Michigan

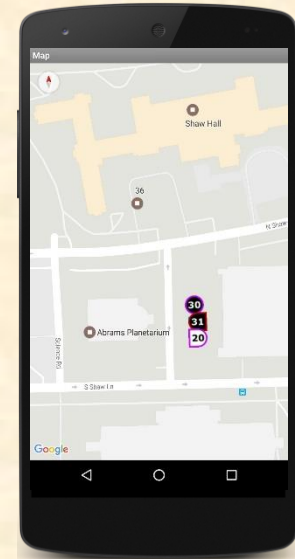
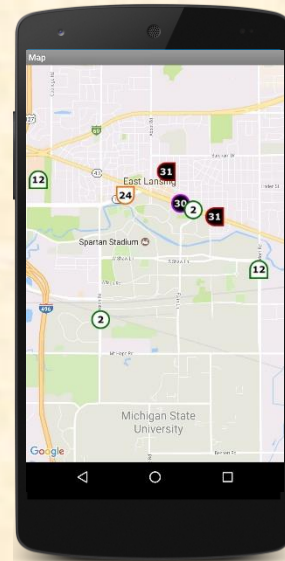


Team Michigan State University

Project Overview

CATALyst: Mapping CATA Routes and Buses in Real-Time

- Functionalities
 - Map CATA Bus Routes
 - Show Location of Buses in Real-Time
- Features
 - View Map of All Available Routes
 - See Current Location of All Buses
 - Predict Bus Arrival Time
 - Filter by Route Number and/or Destination
 - Display Bus Stops Nearest the User
 - Enable Users to Upload Personal Schedules
- Technologies
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - Global Positioning Systems
 - RESTful Web Services



Information Technology Services
East Lansing, Michigan

Team Microsoft

Project Overview

Intune Company Portal Helper Bot

- Functionalities
 - Provide Automated Help for Intune Users
 - Walk Through Common Scenarios
 - Use Natural Language Processing Bot
- Features
 - Gather Text, Audio and Video Input from User
 - Convert Natural Language to Search Terms
 - Create Bot to Determine the Problem
 - Present Resources for Problem Resolution
 - Use Microsoft Bot Framework
 - Support Android, iOS and Windows Devices
- Technologies
 - Google Android Tablets and Phones / Java
 - Apple iPads and iPhones (iOS) / Swift
 - Microsoft Windows / C#
 - Microsoft Bot Framework
 - Natural Language Processing
 - RESTful Web Services

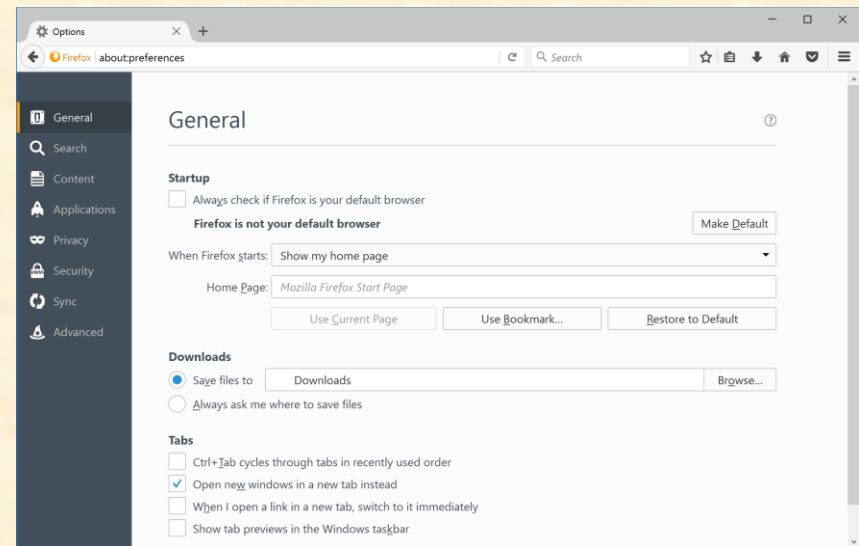


Team Mozilla

Project Overview

Improvements to Firefox's about:preferences

- Functionalities
 - Improve Firefox's about:preferences
 - Make about:preferences Easier to Use
 - Ensure Changes Have Appropriate Impact
- Features
 - Implement User Experience Specifications
 - Make More Internally Consistent
 - Reorganize about:preferences Sections
 - Enable Measurement of Effects of Changes
 - Add Search Capability
- Technologies
 - XUL
 - XHTML
 - JavaScript / EcmaScript 2016 & 2017
 - CSS
 - IRC
 - Bugzilla
 - Mercurial



Mountain View, California



Team MSUFCU

Project Overview

Banking with Amazon's Alexa and Apple's Siri

- Functionalities
 - Expand Digital Banking Offerings
 - Build Amazon Alexa Service
 - Develop Apple Watch App
- Features
 - Handle Voice Input
 - Amazon Alexa
 - Apple Siri
 - Support Amazon Echo and Apple Watch
 - Provide Access to Various Information
 - User Accounts (Balances, Recent Transactions, ...)
 - MSUFCU Branches (Locations, Hours, ...)
 - MSUFCU Products (Mortgage Rates, Auto Loan Rates, ...)
 - Create Middleware Layer
 - MSUFCU Databases
 - Alexa and Siri
 - Build Administrative Web Portal
- Technologies
 - Amazon Echo
 - Amazon Skills Kit
 - Apple iPads and iPhones (iOS) / Swift
 - Apple WatchOS
 - CSS / HTML / JavaScript / PHP
 - MySQL



East Lansing, Michigan



Team Rook

Project Overview

Force Integration Tool with Alert Correlation

- Functionalities
 - Monitor, Detect and Eliminate Security Threats
 - Ingest Security Alerts into Rook's Force Platform
- Features
 - Normalize Disparate Inputs to JSON
 - Firewalls
 - Intrusion Detection Systems
 - Endpoint Detection and Response Systems
 - Store Credentials and Contexts Securely
 - Correlate Alerts During Ingestion
 - Leverage Machine Learning
 - Pre-screen for Additional Human Analysis
 - Provide Administrative Web App
 - Configure API Connectors
 - Schedule Resources
 - Query API Endpoint to Request Alerts
- Technologies
 - CSS / HTML / JavaScript / React / Redux
 - Python / Python Django
 - Ubuntu Linux
 - MySQL / DynamoDB / Elasticsearch
 - RESTful Web Services
 - Machine Learning



Team Spectrum Health

Project Overview

Resident Physician Tracking

- Functionalities
 - Assist Resident Physicians Becoming Doctors
 - Enable Residents to Track Their Shift Times
- Features
 - Create Native Mobile Apps for Residents
 - Send Notifications When Approaching Time Limits
 - Allow for Automatic and Manual Input of Times
 - Ensure Adheres to Federal Time Limit Mandates
 - Provide Administrative Portal for Resident Coordinator
 - Support Both Google Android and Apple iOS
- Technologies
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - CSS3 / HTML5 / Angular 2 / TypeScript
 - Microsoft .NET Core / C#
 - Microsoft Framework Core
 - Microsoft SQL Server
 - GitHub



SPECTRUM HEALTH 

Grand Rapids, Michigan

Team TechSmith

Project Overview

Teacher's Virtual Toolbelt

- Functionalities
 - Improve the Teaching of Classical Mechanics
 - Use Augmented Reality with Microsoft's HoloLens
- Features
 - Create HoloLens App and Website and Web Service
 - Stream HoloLens Experience to Website
 - Support Hand Gestures and Voice Commands
 - Enable Lesson Planning and Delivery Using Website
 - Provide Various Holograms
 - 2D/3D Shapes Like Arrows, Lines Squares and Circles
 - Text
 - Reference Materials Like Wikipedia Articles
 - Implement Data Store as Web Service
- Technologies
 - Microsoft HoloLens App Development
 - Unity Game Engine
 - Microsoft Azure Cloud Computing
 - ASP.NET MVC
 - CSS / HTML / JavaScript / PHP

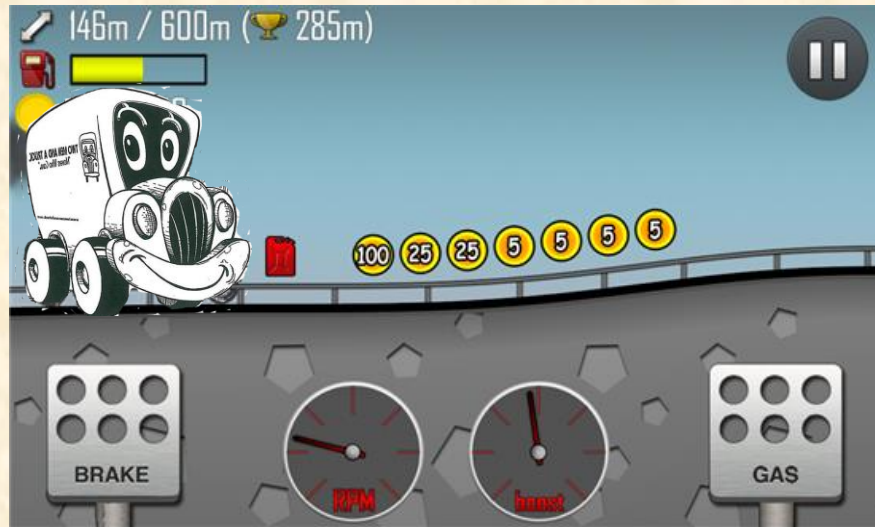


Team TWO MEN AND A TRUCK

Project Overview

Mobile Mini Movers Who Care

- Functionalities
 - Entertain Kids During a Move
 - Provide Moving/Racing Game
- Features
 - Design Fun Moving/Racing Game
 - Like Hill-Climb Racing and Bad Piggy's
 - Start with Flatbed Truck Loaded with Boxes
 - Boxes May Fall Off
 - ❖ Stops and Starts
 - ❖ Bumps
 - ❖ Hills
 - Goal: Finish Race Quickly without Losing Boxes
 - Include Various Components
 - 2-Dimensional
 - Side Scrolling
 - Multiple Levels
 - Physics Based
 - Use Unity Game Engine
 - Support Both Google Android and Apple iOS
- Technologies
 - Mobile Game Design
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - Unity Game Engine / C#



Team Union Pacific

Project Overview

Learning New Train Routes

- Functionalities
 - Familiarize Conductors and Engineers with New Routes
 - Use Augmented Reality (Rather Than “Actual Reality”)
 - Save Railroads Millions of Dollars
- Features
 - Combine Indexed Locomotive Video with Track Data
 - Create AR-Like Overlay of Routes for Mobile Devices
 - Include Various Overlay Data
 - Track Labels
 - Switch Information
 - Gradients
 - Compass Directions
 - Speed Limits
 - Target Apple iOS, Google Android and Microsoft Windows
- Technologies
 - Apple iPads and iPhones (iOS) / Swift or Objective-C
 - Google Android Tablets and Phones / Java
 - Microsoft Windows / C#
 - Unity Game Engine
 - OpenCV
 - WebGL



BUILDING AMERICA®

Omaha, Nebraska
Okemos, Michigan



Team Urban Science

Project Overview

Real Time Ad Campaign Management

- Functionalities
 - Optimize Dealership Marketing Campaigns in Real Time
 - Make Modification Recommendations
 - Enable Tactical Decisions and Actions
- Features
 - Analyze Real-Time In-Flight Digital Marketing Data
 - Consumer Engagement
 - Demographic Inclusion
 - Delivery Effectiveness
 - Overall Performance
 - Return on Investment
 - Leverage Machine Learning to Recommend Actions
 - Enable Changes to Active Campaign Variables
- Technologies
 - Microsoft .NET Core 1.0
 - Docker
 - Machine Learning
 - Real Time Recommendation Engine
 - Microsoft Cognitive Services
 - Neo4J



URBAN SCIENCE.

Detroit, Michigan

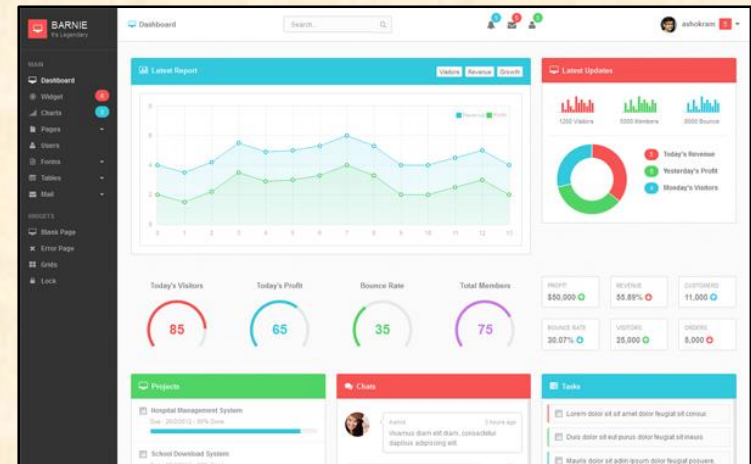


Team Whirlpool

Project Overview

Commercial Laundry Dashboard

- Functionalities
 - Enable Commercial Laundry Teams to Monitor Equipment
 - Show How Whirlpool Products are Functioning
 - Send Alerts for Equipment Issues
- Features
 - Provide Dynamic and Intuitive Interface
 - Login via Whirlpool Google Accounts
 - Implement Backend using Google App Engine
 - Create Responsive Frontend for Cross-Platform Use
 - Support Apple iOS, Google Android and Web Browsers
- Technologies
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - CSS / HTML / JavaScript / PHP
 - Google App Engine
 - Apache Cordova
 - RESTful Web Services



Benton Harbor, Michigan



Team Yello

Project Overview

YelloVision: Career Fair Augmented Reality Experience

- Functionalities
 - Improve Career Fair Experience for Recruiters and Candidates
 - Preview Information about Companies and Open Positions
 - Search by Company Logo Using Phone Camera
- Features
 - Design like Pokeman Go for Career Fairs
 - Identify Companies by Logo Image
 - Display Various Information
 - Company Name
 - Majors Desired
 - Locations
 - “More Details”
 - Pan Information by Moving Phone
 - Support both iPhones and Android Phones
- Technologies
 - Apple iPads and iPhones (iOS)
 - Swift or Objective-C / Apple Xcode
 - Google Android Tablets and Phones
 - Java / Android Studio



yello
Chicago, Illinois



First Assignments

- Read the Syllabus.
- Check out the Lab (3352 EB).
 - See if you can find it.
 - See if you can get in.
- Check out the Web Site.
- Research your Project.
 - Client
 - Technologies



What's Next?

- Teams
 - Assignments by Email Tonight
 - Meet Initially by Tomorrow Afternoon
 - Lab Machine Assignments in Lab
 - Start Researching Technologies
 - Start Configuring Lab Machines
 - Team Photos
 - Thursday, 01/12, After All-Hands Meeting
 - Dress Casual (But Appropriate)
 - Schedule for it.
- Client
 - Contact by Email by Tomorrow COB (Close of Business)
 - Conference Call or On-Site Meeting by Friday
 - Review Project Proposal



Capstone Overview

✓ Course Logistics

✓ Client Projects

➤ **Course Logistics (Continued)**

Urban Science Capstone Lab Machines

- Up to Four per Team
 - Two 27" iMacs
 - One Dell Rack-Mounted Server (Optional)
 - Connect to Outside World
 - Keep Secure
 - One Mac Book Pro (Optional)
- Operating Systems on iMacs and MBPs
 - Run OS X Sierra
 - Install VMware Fusion (from [here](#))
 - Create Virtual Machines As Needed
 - Windows Vista, 7, 8, 10 (!Windows XP)
 - Linux
 - Don't use Bootcamp



Capstone Lab Miscellany

[1 of 2]

- Security
 - Keep lab doors closed.
 - Do not open doors for strangers
 - Do not give out door key code to others.
 - Do not invite non-capstone students to work in the lab with you.
 - Email Dr. D. if door becomes unlocked.
- Wireless
 - SSID: CSE498
 - Key: ???????
- Coffee
 - Some Provided by Dr. D.
 - Bed, Bath & Beyond (Get 20% Off Coupon)
- Game Playing / Video Watching
 - Not On Monitors Facing Hallway
 - Not If Other Team Members Need Machine



Capstone Lab Miscellany

[2 of 2]

- Do not “maniac” the wires and cables.
- Keep the lab neat and clean.
 - Lived In, Okay.
 - Messy, Not Okay.
- Respect other teams’ spaces.
- Garbage Containers
 - Empty the small one by the coffee maker into a larger one.
 - Put larger ones out in the hall at night if near full.
 - Put back in the lab in the morning if empty.
- Turn the lights out if you’re the last one out.
- Be careful with cabinet drawers; don’t “maniac” them.



Mobile Devices Available

- For Capstone Project Use
- By Team for the Semester
- iOS
 - 5 iPads
 - 1 iTouch
- Android
 - 1 Tablet
 - 1 Phone
- Surface Pro 3



Expectations & Workload

- Extremely High For Both
- Your MSU Career Capstone
- Addition to Your Personal Portfolio
- Experience Viewed Like an Internship
- Interview Talking Points
- Leverage Into a Job Offer



Schedules

- Schedules > All-Hands Meeting

- Schedules > Major Milestones

- 01/19: Status Report Presentations

- 01/31: Project Plan Presentations

- 02/21: Alpha Presentations

- 04/04: Beta Presentations

- 04/25: Project Videos

- 04/27: All Deliverables

- 04/27: Design Day Setup

- 04/28: Design Day

- Attendance is required.
- No excuses are accepted.
- Do not schedule anything including during these times interviews, travel home, etc.
- Will coordinate with your interviews.



Meeting Attendance

- Required
 - All-Hands (Class) Meetings
 - Team Triage Meetings
 - 5% of Final Grade
 - Late == Absent
 - Almost No Excuses Accepted
 - One or Two Excused Possible for Interviews
 - Must Provide Information
 - Date, Company, Recruiter Name & Contact Info
 - In Advance
 - To Both Dr. D. and Spencer
 - Must Attend (No Excuses Accepted)
 - Your Team Presentations
 - All Project Video Viewing
 - Design Day
- Do NOT schedule interviews.
Do NOT schedule ANYTHING.
Do NOT buy plane tickets.



Team Organization

- Up to Each Team
- Organize into Roles
 - Client Contact
 - Program Manager
 - Developer
 - Tester
 - Systems Administrator
 - Etc...
- Everyone must make technical contributions.



Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Address Problems Immediately
 - Within Team
 - With Dr. D. and/or Spencer
- Be Ready to Discuss During Interviews



Grading

[1 of 6]

- Team (70%)
 - Project Plan Document & Presentation 10
 - Alpha Presentation 10
 - Beta Presentation 10
 - Project Video 10
 - Project Software & Documentation 25
 - Design Day 05
 - Total 70
- Individual (30%)
 - Technical Contribution 10
 - Team Contribution 10
 - Team Evaluation 05
 - Meeting Attendance 05
 - Total 30



Grading

[2 of 6]

- Final Grade Sum Of...
 - Individual Total
 - % of Team Total Based on Team Contribution
- Grand Total =
(Individual Total)
+
(Team Total) * (Team Contribution) / 10.0
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.



Grading

[3 of 6]

Effect of Team Contribution					
Technical Contribution	Team Contribution	Team Evaluation	Meeting Attendance	Team Total	Grand Total
10	10	5	5	70	100
10	9	5	5	70	92
10	8	5	5	70	84
10	7	5	5	70	76
10	6	5	5	70	68
10	5	5	5	70	60
10	4	5	5	70	52
10	3	5	5	70	44
10	2	5	5	70	36
10	1	5	5	70	28
10	0	5	5	70	20

Nota Bene: Assumes Perfect Score In Every Other Category



Grading

[4 of 6]

Fall 2016 Grade Distribution	
Grade	Number
4.0 – 2.5	54
2.0	3
1.5	2
1.0	4
0.5	0
0.0	1



Unacceptable Excuses for Not Contributing

- They never asked me to do anything.
- They never let me do anything.
- I wrote 1000's of lines of code but they weren't included in the project.
- My features were not included in the project.
- I work 40 hours per week at my job.
- I live 60 minutes from MSU.
- I didn't want to work on this project team.
- I ranked this project 18 out of 18.
- I did a lot of research of stuff we never used.
- Etc...



Grading

[6 of 6]

- We reserve the right to make changes with sufficient notice.
- No special consideration will be given for final grades including but not limited to
 - status in any academic program including CSE,
 - financial aid,
 - rank in the armed forces,
 - job while a student at MSU,
 - job after anticipated graduation from MSU,
 - commute to MSU,
 - graduation,
 - mortgage,
 - wedding,
 - visa status,
 - ability to enroll in CSE498 next semester,
 - or anything else.



Integrity of Scholarship

- MSU's policies will be enforced.
- Individual and team work must be original.
- Violators...
 - ...will be referred to the appropriate deans.
 - ...may receive a grade of F in the course.



Using Resources

- Ok For “Help”
 - People
 - Past Capstone Teams
 - Other Capstone Teams
 - Faculty Members
 - Articles
 - Sample Code
 - Etc...
- Not Ok For “Entire” Project
- If Unsure, Ask Dr. D. and/or Spencer



Using Existing Code

- Ok
 - Examples
 - Prototypes
 - Open Source Code
 - Fragments
 - Libraries
 - Utilities
- Not Ok
 - Vast Amounts of Your Project
 - Not Open Source
- Ask Client in Advance
- Document and Report All Existing Code Used
- Be Careful!
- If Unsure, Ask Dr. D. and/or Spencer and/or Your Client



Design Day

- College of Engineering Event
 - Engineering Building
 - Friday, April 28, 2017
- Displays (Booths) of Design Projects
 - CSE Capstone
 - ECE Capstone
 - ME Capstone
 - Etc...
- Presentations and Awards
 - Panel of Judges
 - CSE Team Project Videos



Travel to Client

- Reimburse for Mileage for Personal Car
- Travel Within Michigan (Outside of Lansing)
 - Benton Harbor
 - Grand Rapids
 - Metro Detroit
- From East Lansing to Client and Back
- One Car Per Team Per Trip
- See Brenda in the CSE office in advance.



VISA

- Verified Individualized Services and Accommodations
- Let us know immediately.
- We will work with you.



Office Hours

- Any Time...
 - Visit: 3149 EB
 - Call: 353-5573
 - Email: (dyksen@cse.msu.edu)
- Make Appointment

Capstone Overview

✓ Course Logistics

✓ Client Projects

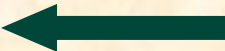
✓ Course Logistics (Continued)

Questions?



What's ahead?

[1 of 3]

- Team Photos
 - Informal: After Meeting Today
 - Formal: After Each Project Plan Presentation
 - Setup
 - Team Machines
 - Dell Server (Ask Spencer)
 - Apple iMacs
 - Team Software
 - Microsoft Office
 - ❖ Word and PowerPoint
 - ❖ Microsoft Windows Version
 - Web Server
 - Code Repository
 - SDK's
 - Etc.
- Required.
Get from Spencer.
- 



What's ahead?

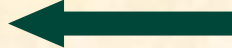
[2 of 3]

- All-Hands Meetings
- ~~01/10: Capstone Overview~~
- 01/12: Project Plan
- 01/17: Risks and Prototypes
- 01/19: Team Status Report Presentations
- 01/24: Schedule and Teamwork
- 01/26: Team Status Reports
- 01/31: Team Project Plan Presentations
- 02/02: Team Project Plan Presentations
- 02/07: Team Project Plan Presentations
- 02/09: Team Project Plan Presentations



What's ahead?

[3 of 3]

- Team Status Report Presentations
 - PowerPoint Template
 - Due 4:00 a.m., Thursday, January 19
 - 1.5 Weeks  Get on it, now!
 - Email to Dr. D.
 - Subject: Team <Company Name>: Status Report
Subject: Team Auto-Owners: Status Report
 - Attachment: team-<company-name>-status-report-presentation.ppt
Attachment: team-urban-science-status-report-presentation.ppt
- Dr. D. Will Combine Into Single PowerPoint
 - To Speed Things Up During Meeting
 - Do NOT Modify Master Slide
 - Must Use Windows Version of Microsoft Office
- Each Team Presents
 - Using Dr. D.'s Laptop
 - At Most 5 Minutes (Rehearse Timing)
 - Single or Multiple Presenters (Your Choice)

