Information Systems and the Community

The Information Systems Program actively participates in creating information solutions for community problems. Our program to enhance community-oriented computing delivers high-quality, state-of-the-art information systems to our nonprofit or charitable partner. Each year, through our Information Systems application course, student project teams contribute thousands of hours of software development services to the community.

Faculty

Randy Weinberg, Director
Larry Heimann
Jeria Quesenberry
Raja Sooriamurthi

Staff

Sharon O. Blazevich
Stephen Pajewski
The Client
Dr. Sue-Mei Wu, Associate Teaching Professor, Department of Modern Languages, Carnegie Mellon University.

The Problem
Learning Chinese is often overwhelming, especially reading and writing. Dr. Sue-Mei Wu, author of several widely-used Chinese textbooks, has developed a set of 1200 character animations that eases the learning of writing and reading with demonstrations of how to write each character. Dr. Sue-Mei Wu wishes to have a website that organizes the 1200 character animations in a format that is customized to 3 of her classes offered here at Carnegie Mellon.

The Solution
The team designed and built iPracticeChinese.com, a Chinese Character Acquisition Website where Chinese characters and other lesson materials combine to promote and accelerate Chinese learning. iPracticeChinese.com allows users to read articles about Chinese language, to watch character animation demonstrations (that show stroke order and character radicals), to take quizzes, to hear the sound file of each character, and to search for characters within the lesson set.
The Client
Suguru Ishizaki, Associate Professor of Rhetoric and Communication Design, Department of English, Carnegie Mellon University, Pittsburgh and Dudley Reynolds, Associate Teaching Professor of English and Director of Research in English Language Learning, Carnegie Mellon University, Qatar.

The Problem
Having the ability to analyze changes and differences in students’ written works over time is crucial for language researchers to help improve the level of quality of students’ writings. Having to collect, aggregate, index, store securely, and search through a large database of students’ writings matched to extensive amounts of meta-data (e.g. student major, student first language) is extremely tedious to do manually. Our clients wanted a solution that could address these problems reliably.

The Solution
Our team delivered a two tiered system that catered to both Instructors and Researchers. To provide motivation for instructors to submit their students’ writings, we create an easy to use system on which they could securely store their students’ works, tag selected works and execute searches. For researchers, we create a system from which they could easily make complex searches through an intuitive user interface and customize the output of the query in useful ways. The entire system is based on Amazon’s S3 (Simple Storage Service) which enables us to store all files securely and reliably at an extremely low cost in the “Cloud”.

TEAM 3

Genealogy & History

David Lash       Nelson Mangaali
Aysha Siddique   Nita Sitaram

The Client
Michael Wolfe, director of the International Genealogical and Historical Society Database, had worked with a previous senior project team to create a system for storing individual and family genealogical information and interlinking it with historical events. Our group was charged with building upon this system.

The Project
Our team is providing Mr. Wolfe with a sourcing and citations system, as well as a fully functional authentication system for the IGHSD site. Views will be restricted based on whether the user is a contributor, administrator, or viewer. Contributors and administrators will be able to add citations to an individual's general information, personal notes, as well as family information. This sourcing system will add to the academic and scholarly foundations of the site.

The Solution
Our team used Ruby on Rails and MySQL to build upon the previously constructed IGHSD system. Our solution allows authorized users to add, edit, and delete citations. The IGHSH will provide academics with a way to bring genealogy to life. Individuals aren't just linked in a two dimensional family tree, they're also linked to biographies and other historical events, thus giving academics the opportunity to take full advantage of the site.

TEAM 15

Light of Life

Chris Narburgh       Dexter Rietman
Gautam Vaidyanathan  Kelvin Law
Sachit Gupta

The Client
Light of Life Ministries is an organization that provides homes for the homeless and food for the hungry. They reach out to war veterans who have never found peace, abused women and children whose spirits have been crushed, and families who cannot find affordable homes in a distressed economy. Light of Life seeks to provide immediate assistance and impart life skills to their clients so that they can graduate from homelessness. Studies show that mentoring can meet that need, and thus Light of Life is establishing a formal mentoring program.

The Problem
Brenda Mucci, manager of mentoring at Light of Life, currently keeps track of mentors and client-mentor relationships mentally or on paper. However, this places a heavy burden on her tacit knowledge of the mentors, clients, and their relationships. To help document and solidify these processes for the future, Light of Life requires a computer-based system for registering, tracking, and matching mentors and their clients.

The Solution
Through our project, we aim to create an application to help Light of Life monitor and manage mentors, automating and reorganizing the current mentor management system. With this application, mentors will be able to sign up online, and record their interactions with clients in an easy-to-use web interface that automatically sends them monthly reports, which help her assess client progress, and allow for better statistics in grant proposals. Along with that, our system helps to mitigate slow downs and loss of information when, for instance, Brenda is away.
The Client
Kimberley Hennessey (Services Consultant) Bill Richter (Technical Coordinator). CMU Cluster service operates, maintains and manages all the public clusters on campus with their student staff who act as Cluster Consultants (CCons) and Cluster Managers (CluMen). They handle all software bugs and hardware defects associated with cluster computers and printers, and coordinate the scheduling of the clusters for various courses and groups.

The Problem
The CCons and CluMen currently use a dashboard that was intended to integrate all the information they use into a single page to make their job easier. At this time, the dashboard is a web page that embeds information from other pages or contains links to pages for CCons to reference. The information on the web page is not displayed optimally for use by CCons. As a result, CCons typically have 8-15 tabs open in their browser while on shift, and have to periodically refresh page to keep the page information current. The client requested that we design an application that contains all the existing information in a format that is easy for CCons to use and components can be updated and new components can be added with minimal hassle.

The Solution
The solution involved development of a framework containing a base page and various widgets. Each source of information used in the previous application was consolidated and captured into a widget. Each of these widgets are displayed on the base webpage, but can be moved around the page minimized or restored so users can hide unwanted information. Additionally, the page has an auto refresh feature that ensures all information is current. The user’s personal preferences are stored in a database and are preserved between login sessions (authenticated via WebIso).
The Client
David Kaufer, Professor of English and Rhetoric, Carnegie Mellon University; Ananda Gunawardena, Associate Teaching Professor, of Computer Science, Carnegie Mellon University; and Joanna Wolfe, Associate Professor & Director of Composition, University of Louisville.

The Problem
In Fall 2008, Salon 1.0 was created to enable professors and students to annotate, comment, and interact around documents in a classroom setting. This has been fielded at www.classroomsalon.org. Our clients wanted to build upon the success of Salon 1.0 and bring the system out of the classroom to the internet community at large. The goal was to provide a method to explore how users could participate in a roundtable discussion on the Web situated around common documents, thereby creating a social web of networking, thought, and idea sharing. A related goal was to improve the interface and the user experience of Salon 1.0.

The Solution
In the new system, DocDiscuss, that we developed four goals were realized: (1) A total overhaul of the prior system in order to make it more attractive and usable to a wider audience. This involved a redesigned user interface and restructuring of the backend (2) support for PDF document submissions (3) user-profiles to capture information about the people who comment using DocDiscuss (4) visualizations that are derived on-the-fly from the synergy between user profiles and textual annotations.

TEAM 13
Family Tyes

Haris Krijestorac    Daniel Weis

The Client
Family Tyes, a non-profit organization, coordinate fly fishing events for youth organizations. Through these events, youth not only develop skills related to fly fishing, but learn life lessons such as leadership and diligence.

The Problem
Family Tyes needs a way to track the progress of the youth involved in the program. The two main progress metrics are attendance at Family Tyes fishing events and achievement in the skills and life lessons relevant to the attended events. Family Tyes needs a way to capture this information so that it is informative to the organization itself, and can identify individual youth organizations, youths, or events, that require improvement or attention.

The Solution
We designed and developed an application through which members of the Family Tyes program can track the progress of the youth organizations. To collect data on achievement, youth take self-surveys, called 'checkpoints', in which they assess their own understanding of a particular skill or life lesson. Information on the achievement and attendance of the youth is aggregated and presented in a way that is appropriate for the organization. For achievements, each metric has an associated question in the checkpoints. Only youth that have been exposed to this metric will be presented with its relevant checkpoint question. Based on their answer to the checkpoint question, the youth taking the checkpoint will obtain a Gold, Silver, Bronze, or N/A rating for the achievement metric. Information both on attendances and achievements will be aggregated for each individual, presenting this information to Family Tyes and to its funders will enable both to assess their efforts and identify areas of possible improvement.
**TEAM 12**

**QuickEval**

Lauren Taglieri  
Noah Levin  
Ari Rubinstein

**The Client**
Carnegie Mellon University Information Systems Program.

**The Problem**
Last semester, the IS program wanted to improve upon its current online peer evaluation system, Peer Review. This system was used for the junior and senior-level project courses but the IS department is interested in having a peer evaluation system that can also be used in other IS courses. Although Peer Review solved the problem of using paper-based peer evaluations, it had an error-prone backend that made it difficult for professors to easily view and understand the results of their students’ evaluations. Since identifying students who are either excelling or struggling at working in a group is key for professors, these issues turned out to be the limiting factors of the system.

**The Solution**
Our solution to this problem is QuickEval, a simple online peer evaluation tool. QuickEval has an easy-to-navigate user interface for both students and professors. It puts more power into the professors’ hands for the entire peer evaluation process by allowing them to easily manage their students and classes, send reminders for evaluations, extend evaluation deadlines, and view evaluation results in multiple, easy-to-understand formats. After creating a fully functional evaluation system during 67-373, we focused our attention this semester on enhancing the professors’ overall experience using QuickEval.

**TEAM 6**

**MIWatch.org: News About Mental Illness**

Karen Chen  
Paul Dille  
Hannah Leung  
Chase Midler

**The Client**
MIWatch is an online news source for persons affected by mental illness including, but not limited to patients, family members, service recipients, clinicians, and members of the press. The site, under the executive editorship of Phyllis Vine, provides an easy to navigate interface allowing users to search the archives for information by date, author, and keywords. The end-goal of MIWatch is to be an information hub for all mental health issues.

**The Problem**
People affected by mental illness need the ability to search for available nearby mental help facilities. Communities across the nation have similar such needs. It would be very useful if this information was accessible via a central hub which would serve as a one-stop-shop for all mental illness needs.

**The Solution**
Utilizing the Google API, the team implemented a map of mental help facilities, which allows users to search for locations nearest their address filterable by facility type. Selecting a specific location will allow the user to browse through relevant contacts, services, insurance, and other general information. A user can also enter their address and obtain directions to a facility. These locations are maintained through a locally managed database that is updated by the team, and will later be managed by MIWatch staff.
TEAM 7

Mobile and Immersive Learning for Literacy in Emerging Economies

Alex Kowalski          Gino Mancuso
Andrew Ngan            Daniel Rhim
Kyle Sandrock

The Client
Dr. Matthew Kam, director of the MILLEE Project (Mobile and Immersive Learning for Literacy in Emerging Economies) and Assistant Professor of Computer Science at Carnegie Mellon University.

The Problem
Formal schooling has limited impact on children in developing countries due to child labor and inadequate teacher training. Literacy levels in several underdeveloped regions can be quite low, sometimes under 50%. School-age children cannot attend school regularly when they need to work for the family, and in the few classrooms that exist, teachers are not always fully qualified to teach English. At the same time knowledge of English is necessary to move out of the lower class and acquire high paying jobs in these regions. The MILLEE project has been researching and implementing ways to bring English education to disadvantaged children in developing countries via technology such as mobile phones.

The Solution
Our team developed three games for the Nokia 3110 cell phone to teach children English as a second language. Each game is educational in nature and also engaging for children. They are also extensible so that educators can easily add new content to the games in the future. The games we created, along with a diagnostic tool for evaluating a phone’s capabilities, will be deployed in field tests in India in the coming weeks.

TEAM 11

Where Do I Fit?

Megha Akki          Aya Chaoka
James Hay           Jon Yen Jong Yoon

The Client
Dr. Paul Fischbeck is a Professor of Social and Decision Sciences and Engineering and Public Policy at Carnegie Mellon University, Dr. Chad Schafer is an Assistant Professor of Statistics at Carnegie Mellon University, and Barbara Gengler is a consultant in the area of Business Intelligence. The clients have collected and inferred statistics for America’s distribution of height and weight.

The Problem
Although statistical analysis and inference has been conducted, there has never before been a medium from which to publish such information. There is substantial value in this data to inform the public, decision makers and policy analysts interested in understanding trends in Americans’ height, weight and Body Mass Index.

The Solution
The team developed the first version of a website that will enable users to look at this data. Elissa Fink and Ross Perez from Tableau Software provided us with their Tableau Public and Tableau Desktop products that deliver a smooth user interface and generate highly detailed graphics and models. Ms. Gengler and Professor Schafer have customized and delivered the data so that it remains intuitive. The application is scaled on seven dimensions: Gender, Age, Race, Year, Height, Weight and Body Mass Index. The end user will receive reports and graphs that detail height, weight and body mass index distributions across any single or combination of major dimensions. Users can download raw data for further analysis.
The Best of the Batch Foundation is an organization founded by Charlie Batch of the Pittsburgh Steelers. This foundation was created to help underprivileged children by offering after school sports and activities. They hold an annual event called In the Pocket which allows people to donate money in order to play against Pittsburgh Steelers in games of pool, ping-pong, and poker. Our client is Latasha Wilson, the Executive Director of the Best of the Batch Foundation.

The Problem
Our client faces the stress of trying to schedule the event and keep track of who played in a strict three hour time span. As people pre-register they would be entered into a queue for each individual game table so that the players would know when their turn came up. During the course of the event, some tables would become backed up and other players would need to be moved from table to table in order to accommodate all games before the evening concludes.

The Solution
Our team created a system that would alleviate these stressful tasks by registering all players and putting them into one single queue for each game rather than table. Once a free table opened up, the system would simply “pop” the top person from the queue and then place them in the game. We also created a scoreboard that displayed all of the queues and the latest highlights that were going on at different tables.

Blackberry Studio

The Client
Mike Silverstein and Eric Graf, Blackberry Studio

The Problem
Blackberry Studio did not have a web presence of any sort. Our client’s objective was to have a portfolio and promotional site for the studio. Desired features consisted of introducing the studio and its events, sharing artists’ accomplishments in rich media, promoting social networking among a wider audience, and conveying brand image through attractive design.

The Solution
The team delivered a website through a Content Management System which has a user-friendly interface for sharing multimedia content. Developed features consist of an audio player, gallery, calendar, and mailing list. The look of the site was carefully designed based on client preferences. For effective maintenance of the site, we have provided an administrative handbook for future reference.
Team 8

**AnimalHero**

Cory Finnimore
Varun Srinivasan
Chaman Saron
Jisu Kim

**The Client**
Laurel Herman, founder of AnimalHero

**The Problem**
AnimalHero aims to promote the welfare of animals across the globe, by building such a community and reaching out to a larger audience. AnimalHero.com is a web portal for people with inspiring stories about animals to come together as a community and share thoughts and experiences.

**The Solution**
The team delivered a blog-based website through Wordpress, a Content Management System, which has a user-friendly interface for sharing multimedia content. The look of the site was carefully designed based on client preferences. For effective maintenance of the site, we provided instructions and user training.

Team 9

**Historic Elizabeth – Community Portal and Calendar**

Fernando Mestanza
Jeremy Cohen
Daniel Schwartz
Kevin Yeh

**The Client**
Joe DeChicchis, President of the Elizabeth Historical Society.

**The Problem**
The client represented two parties: Elizabeth, a town on the southern edge of Allegheny County, as well as the Elizabeth Historical Society. The town of Elizabeth was interested in publicizing its community events within the community, as well to the local residents of neighboring townships. In addition, the small businesses and community organizations in charge of the events needed to provide more visibility to prevent events from having to competing against each other, and to promote collaboration among groups in planning these events.

**The Solution**
The team decided the solution that would best address the town’s needs was a community portal that would allow visitors to quickly view upcoming events of the community. The portal included a public calendar that would allow visitors to see the events of various organizations, event profiles that would provide detailed information about the event, and many social networking interactions such as visitor commenting and photo sharing.