var nodemailer = require("node
var Designstudio = function ()

Jeffrey S. Raikes School of Computer Science and Management

this.index = function (req,
params) {var self = this;
geddy.model.Project.all({}, {}
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Design Studio

2013 - 2014 Project Report

var len = data.length;
var arr = new Array();
var count = 1;
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var projects = data;

University of Nebraska–Lincoln

A Model for Success

Innovation is reshaping Lincoln. This can be seen in a very real way in the historic Haymarket. Buildings that a century ago warehoused the commodities of the day are now storehouses of innovation filled with new technology startups that have an ever-increasing demand for talent. Our graduating students have the opportunity to find jobs here that once could only be found in Silicon Valley. Just a few blocks away, University of Nebraska researchers are continuing to engage with business across Nebraska and the nation to bring to market cutting edge solutions to wicked problems. Activity is everywhere, innovative minds are doing amazing work, and the students, faculty, and staff of Design Studio are delighted to be at the forefront of the action.

Whether it is working with a student startup to develop tools that help local merchants better understand their customers or developing robust enterprise workflow for a Fortune 10 company, Design Studio is riding the wave of innovation, pushing the limits of what is possible when industry connects with academia. This year, 67 of the brightest minds on campus have been working with industry partners to:

- Improve the way patients navigate hospitals to help them more easily locate needed services and care providers
- Develop solutions for local merchants to better connect with and understand their customers
- Create mobile tools for property buyers to better manage the process of obtaining a loan
- Streamline the process of requesting pricing for transportation costs
- Gameify learning about new products to better engage insurance agents in promoting new options to their clients
- Invent new ways to effortlessly capture athlete video to deliver important feedback at practice
- Transform the way workflow approvals are accomplished in business environments
- Bring the power of Hudl video to the Mac
- Reduce the number of hours a financial institution spends reconciling payments
- Rethink a successful gaming platform to position it for small-screen play
- Connect auto hobbyists with experts to create a community for supporting projects
- Help researchers studying human trafficking to more easily find relevant data from organizations on the ground in the trafficking hotspots
- Deliver hundreds of gigabytes of photographs with highly-relevant environmental data on mobile devices

It seems hard to believe that in just a few short weeks another year will come to a close and teams in Design Studio will be handing off the innovative products and solutions they have developed over the last year. To say that the students in Design Studio rose to the challenge would be an understatement—they delivered software products that hold their own against those of any seasoned professional development team. As I come to the close of my second year in my role in Design Studio, I continue to be blown away by the remarkable solutions that students in Design Studio are able to conceive of and then execute.

So much of the success that you will read about in this annual report would not have been possible without the support of our industry partners. Partners who sponsor projects, donate employee time to coach teams and mentor students, and support the efforts of the Raikes School to build a better community in Nebraska through innovation and educational excellence. This year we are recognizing in a special way the extraordinary support of two of our partners: Mutual of Omaha is completing its 10th project in Design Studio, and Assurity Life and Casualty is completing its 5th. Organizational partners like these make what happens in Design Studio possible. All of our partners are making a difference every day in the lives of our students and all of us at the Raikes School are deeply grateful for their support.

As the semester draws to a close and students head to summer internships and new careers, we are already thinking about what comes next. The technology industry never stands still, and neither does the Raikes School. Design Studio faculty and staff are continuing to find ways to engage colleagues on campus, promote excellence in research and education, create new opportunities for more students, and leverage the power of academic excellence to help create a better community.

No matter the success we have seen in the past, in the Raikes School we are always looking forward. Rethinking our academic and educational models, devising new and innovative ways to develop the leaders of tomorrow. Ours is a model that just over a decade ago was radical and unproven. Today, it is a model that we may better understand but one that is continuing to evolve. Because of that evolution, what one can observe in Design Studio is the Raikes School model for innovation, for education, and for industry engagement … a model for the future!

Ian J. Cottingham
Associate Director for Design Studio

"I think the Raikes School means to business today the idea of amplifying the power of information technology through the power of human capitol... great people."

Jeff Raikes, Raikes School Corporate Advisory Board

Project: Livin' the Dream

Project Sponsor
Assurity Life Insurance Company is a mutual insurance organization licensed in 49 states and the District of Columbia. At the end of 2013, the company reported $2.45 billion in assets.

Design Studio Team
Janelle Rickstrew (Second Year), Caitlin Bales (Second Year), Lynnea Bush (First Year), Mitchell Markin (First Year), Tyler Zubke (First Year)

The Challenge
When most people think of life insurance, they rarely think "fun." But Assurity aims to change that perception with its "Livin' the Dream" game application for its distributors (sales brokers).

The Design Studio team was challenged to create an iOS game application that educates distributors about Assurity products in a fun and competitive atmosphere. Distributors can sell products from a variety of vendors, so it's key for Assurity to educate brokers on its products, heighten brand awareness and foster some good, old-fashioned competition among distributors at the same time.

The "Livin' the Dream" application consists of five games that engage users with "bucket list" activities, such as sky diving, deep-sea fishing and zip-lining. There is also a testing component that requires users to answer questions about Assurity products throughout the day to continue game play. For Assurity distributors, points earned from the questions and games will count toward their standings in ongoing company contests, which they can track as part of the application.

Assurity's goal was to promote itself to brokers and bolster its reputation as a forward-thinking company. For Assurity, the Design Studio project was an opportunity to forge ahead into a previously uncharted territory—the iOS environment for use on iPhones and iPads.

It was a new frontier for the students on the team, as well. "None of the students had experience with the iOS platform," said Product Manager Janelle Rickstrew. But she praised her team for embracing the challenge by learning how to develop in XCode with the Sprite Kit Framework.

Assurity Senior Business Analyst Britton Bailey agreed team members exceeded expectations for the project and commended the team's professional approach.

"They were dedicated to succeeding with us from the start," he said. "The team not only delivered on schedule but kept ahead of our very aggressive project and timelines."

Development Manager Caitlin Bales welcomed the challenges that arose in Design Studio.

"I have gotten to work with a lot of new technologies and experiment with things I otherwise wouldn't have the opportunity to," she said. "I really enjoyed working with clients and getting to participate in the design iteration process."

Rickstrew was proud of her team's initiative.

"We developed not only one game, but five!" she said. "The ambitions of our client at the beginning of the school year did leave us with a large workload and little experience, but my team learned quickly and worked hard to exceed client expectations."

Project: Conteneo Knowsy

Project Sponsor

Conteneo, a California-based company that created "Knowsy." Knowsy is a patent-pending social game that doubles as a research tool, collecting consumer input on topics and products.

Design Studio Team

James Verhoeff (Second Year), Alex Scheideler (Second Year), Blake Adams (First Year), Daniel Baylog (Second Year), Derek Christensen (Second Year), Keegan Jorgenson (First Year)

The Challenge

Few can resist the pull of "Knowsy," an online gaming sensation that tests users on how well they know their friends, family members and co-workers. The allure of quizzing your friends on their likes and dislikes makes for an irresistible parlor game on your desktop computer.

But behind all the giggles and gasps that come with guessing what's on fellow gamers' minds, there is serious research going on. Under the guise of "play," Knowsy is a stealth consumer research tool that helps companies better understand their customers. Yahoo!, HP and other companies have used Knowsy to gather information on preferences from customers and employees.

Despite its wild popularity, the game is available on a website made only for desktop and tablet computers. That's where the Design Studio team led by James Verhoeff comes in. The team was assigned to redesign the desktop and tablet game for use on a smartphone. The goal was to give smartphone users the same feel and functionality of the Knowsy application they love, while expanding Conteneo's range of compatible devices and customers.

The Design Studio team also built a framework for user-generated content that will create opportunities for Conteneo to broaden the use of its platform. For example, companies will collect better data by allowing players to submit items in the middle of the game. Customers, too, will benefit from customizing their Knowsy to play with friends.

Team member Keegan Jorgensen enjoyed the multi-tasking that resulted from producing the app.

"My jobs varied greatly between releases," he said. "I learned new skills, such as writing and testing business models, conceptual and coded data modeling, and varieties of user testing."

Working on a team project with a fast turnaround was icing on the cake for Jorgensen.

"Working with friends on a real project was my favorite part of Design Studio," he said. "The fact that this app will be in the hands of customers a few months after our completion is pretty cool."

As product manager, Verhoeff played his own, real-life game of "knowsy," as he learned about his teammates' preferences and work styles.

"Team dynamics are critical to a project's success," he said. "Culture and vision are important to motivating the team ... Vision needs to be shared … Without these team dynamics, even a great project with highly skilled team members will not get as far as a team with incredible team dynamics. Design Studio helped me understand how development teams work, which is incredibly valuable as I move forward as an entrepreneur."

Project: Hudl Individual Sports Practice Assistant

Project Sponsor

Hudl, a Lincoln-based start-up company founded by three Raikes School graduates. Hudl provides fast-paced and flexible video solutions to help athletes and teams improve performance and game play.

Design Studio Team

Brian Grieb (Second Year), John Hotovy (Second Year), Steve Dosskey (First Year), Dan Drews (First Year), Jesse Epperson (First Year), Andrew Filippini (First Year)

The Challenge

Lincoln-based tech startup Hudl has already built a national reputation among the 15,000 college and high schools that use its innovative video playback software to prep for "The Big Game." More than 300,000 coaches and 1 million athletes login to Hudl each fall to improve team performance in football and basketball.

Hudl's not a company that is content with the status quo, though, so the firm partnered with a team of Design Studio students to devise an application that benefits athletes and coaches in more individualized sports.

Hudl gave free rein to the Design Studio team to choose a sport and develop a way to add value to practice. The team settled on diving and the ever-evolving project took shape as an iPad application for coaches. The iPad is placed on a tripod facing the board and automatically records each dive—using advanced video analysis and motion sensing—without wasted video between dives and without someone starting and stopping the camera.

This simple function records every dive and frees up coaches from mundane videotaping to instruct athletes during practice. The application also includes a suite of tools that includes slow-motion, frame-by-frame analysis and drawing tools to manipulate the recorded clips. Although this particular project focused on diving, some of the application's functions can add value to other sports where technique is key, e.g. pole vaulting.
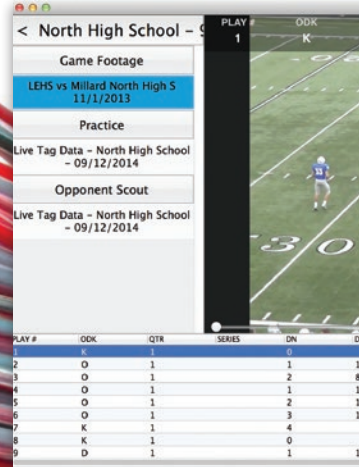
Hudl Project Manager Andrew Brinkman couldn't be more pleased with the research of the "top-notch" Design Studio team.

"We're really intrigued by the possibility of a 'set it and forget it' video solution for individual sports practice, and the team is on a great path toward delivering that vision," Brinkman said. "The team is full of incredibly talented developers, and they're also very well organized. … They've really taken the initiative in user interviews and user testing of their app."

Product Manager Brian Grieb is grateful for the real-world experience that Design Studio provided, and he particularly enjoyed the client and the subject matter.

"We had a great client, and it was unique to experience the culture of the company and have the opportunity to feel like we were employees," he said. "The most exciting part was the opportunity to attend multiple sport practices and do research and user testing as a team. … I know I speak for the team when I say we were all excited and thankful for the opportunity."

Project: Hudl Mac OS X Video Application

Project Sponsor

Hudl, a Lincoln-based start-up company founded by three Raikes School graduates. Hudl provides fast-paced and flexible video solutions to help athletes and teams improve performance and game play.

Design Studio Team

Nathan Allgood (Second Year), Danny Eberly (Second Year), Chase Blazek (First Year), Brandon Collins (First Year), Andrea Uher (First Year)

The Challenge

Hudl wanted to capitalize on its success in video playback software for coaches and teams by going the extra mile with an application for Mac operating systems. Besides a tablet computer, there wasn't a convenient way for coaches to view video offline.

The Design Studio team's goal was to create an "intuitive, engaging and buttery smooth" process for coaches to watch videos with or without an Internet connection, said Danny Eberly, project development manager.

Mission accomplished—with a bonus. "Due to the excellent frameworks already built into the Mac environment, our app will give Hudl users an improved ability to analyze and watch footage of their sports teams," said team member Chase Blazek.

The Design Studio project presented learning opportunities in coding, Mac application development, and priorities, Blazek said.

"We discovered early on in the year that we wouldn't have enough time to complete all the features we had initially set out to do. As such, we needed to prioritize certain features, tasks and bug fixes," he said.

That meant team members had to communicate and compromise with one another and the client to define the application's focus. Refining the essentials with team members and the client contributed to "a product that the customer is going to be happy to use," said Blazek.

The project was win-win for both the Design Studio team and Hudl, said Faculty Advisor Jeremy Suing.

"The students actually had to build and manage the relationships with these customers, manage product feedback and learn the processes and skills required to make a 'production-ready' product," he said. "For the client, the students provided customers with a solution that fits better into their lifestyle and needs."

Project: HDR Wayfinding

Project Sponsor

HDR, a global employee-owned firm that provides architecture, engineering, consulting, construction and related services. HDR has worked on projects in all the states and 60 foreign countries.

Design Studio Team

David Stephens (Second Year), Patrick Jackman (Second Year), Spencer Farley (First Year), Spencer Landis (First Year), Joe Lunde (First Year), Kate Rilett (First Year), Michael Jensen (Intern)

The Challenge

Everyone knows what it's like to be "lost" in a large building … Roaming long hallways, retracing routes through corridors … milling through crowds to get to some location without really knowing where you are. Directories, signs and building maps help, but they're far from foolproof.

Designing more hospital space than any firm in the world, Omaha-based HDR understands the need for a guidance system that ensures patients and visitors can easily find their way in hospital settings. This modern concept of indoor navigation has a name inspired by those who crossed the seas centuries ago—"wayfinding."

In architecture, wayfinding, in part, refers to architectural and design elements that aid orientation and navigation in large facilities. It's an age-old problem with implications on the bottom line. Every year, hospitals spend hundreds of thousands of dollars to help lost patients and visitors. HDR wanted to develop concepts for a user-friendly device that could guide people who are unfamiliar with an environment to get to their chosen destination.

Led by senior David Stephens, the Design Studio team was asked to create hospital-navigation prototypes that improve the patient experience. Wayfinding is a complicated concept, and creating a family of wall- and ceiling-mounted wayfinding devices, driven by patient identity for easy use in a hospital is not easily solved in a school year.
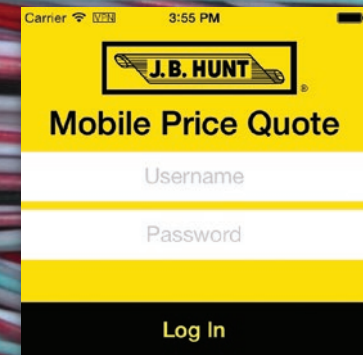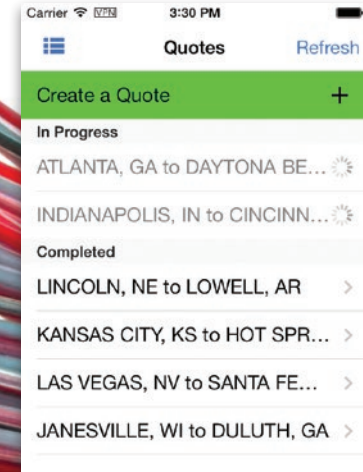
None of the team had worked on an open-ended, hardware-oriented design team before, so the project—the first of its kind for the Raikes School—focused on testing concepts and models to determine what might work, and, just as important what won't.

The Design Studio team's research is valuable on many levels, said Stephens. "In the short term, the ideas from our Design Studio team can be presented by HDR designers to its management and clients as examples of the company's commitment to innovation."

Team member Spencer Landis agreed. "While we may not find the perfect solution, we will have provided HDR with a lot of important work and research to help the company get closer to a better wayfinding solution," he said. "This project could be extremely useful if we are successful."

Stephens credited the project's knack for fostering professional and personal creativity in team members. "It has been so rewarding to watch our team bond and to watch everyone grow as designers," he said. "Besides that, it has taught me more about hospital navigation than anyone has a right to know, which will likely influence my thinking in all sorts of interesting ways in the future."

Project: J.B. Hunt Mobile Price Quote

Project Sponsor
J.B Hunt is a Fortune 500 company and one of the largest transportation logistics companies in North America. It is headquartered in Lowell, Arkansas.

Design Studio Team
Taylor Smith (Second Year), Davis Goodin (First Year), Kaleb Anderson (First Year), Alex Koehler (First Year), Mathew Reny (First Year)

The Challenge
As a North American leader in transportation logistics and trucking, J.B. Hunt wanted to move its sales quote system into the fast lane. The company has previously used a centralized Request For Pricing (RFP) model that required sales people to wait for data from the home office before issuing a bid to the customer.

The company challenged the Design Studio team led by Taylor Smith to create a mobile application to pull shipping rates on demand via employee iPhones and iPads. The iOS app would benefit some 350 sales people and 75 pricing managers in the field, who need to respond quickly to customer inquiries.

J.B. Hunt estimates the mobile application will increase revenue by $2.4 million a year in sales and improve customer relationships. The app also will increase internal efficiency when pricing managers and directors discuss rates. Pricing staff will receive information about rates and shipping lanes based on conversations that were previously unavailable to them.

Faculty Adviser Ashu Guru said the team immersed itself in the industry to understand the workflow processes of issuing quotes and the research paid off with a solution to increase customer satisfaction and efficiency.

"The team learned the intricacies of the system that is involved in creating price quotes," he said. "This gave the team an opportunity to rapidly adapt in a complex environment and design and deliver a solution to fit (J.B. Hunt's) needs."

Smith enjoyed working with a client that gave her team a "long leash" to be creative in devising solutions. "The creative freedom was very exciting," she said. She also enjoyed the experimentation that came with iOS development, which was new to all members of the team. "While learning a new language can be daunting, the challenge was exciting for her and her teammates," she said.

"I've been lucky to have the opportunity to take on the role of product manager for my team, which has given me experience in working and communicating with clients, task management responsibilities, and overall leadership of a project," she said. "Seeing all of our hard work from previous classes come into action has definitely been the most valuable aspect of Design Studio."

Team Development Manager Davis Goodin echoed Smith's sentiments. He valued the development challenges, teamwork and real-world applications of the Design Studio experience.

"My favorite part of the project is that for us, (the development practices) have worked," he said. "And we're building an app that I can be proud of."

Mary Burke, J.B. Hunt logistics engineer, is also pleased with the team's work.

"The students were very creative and attentive to details," she said. "They came up with several good suggestions for the application and did an excellent job of communicating throughout the project."

Project: Microsoft Dynamics Workflow Approvals

Project Sponsor
Microsoft, an American multinational company headquartered in Redmond, Washington. It is the world's largest software maker measured by revenues.

Design Studio Team
Andrew Gaspar (Second Year), Keaton Greve (Second Year), Claire Carlson (First Year), Nicholas Niday (First Year), Noah Swartz (First Year), Derek Tiggelaar (Second Year)

The Challenge
As the market leader in office software, Microsoft has built its reputation on serving the needs of countless managers and supervisors. In the dynamic world of technology, the company is always looking for new and improved ways to make work—and life—easier for its users.

Enter Microsoft Dynamics GP Workflow Approvals, an application for Windows 8 that enables users to manage workflow requests for a company. Workflow management systems ensure that all the processes and procedures to accomplish a task are completed in the correct order. It's the high-tech way to manage a virtual "assembly line" of processes that occur daily in the business world, e.g. approving requisitions, timecards or vacation requests.

Microsoft Dynamics GP gives small and mid-sized businesses control over finances, resources and decision-defining information, while giving employees everything needed to perform their best.
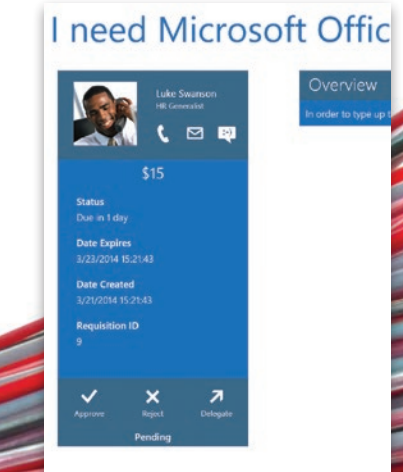
The Design Studio team, led by Andrew Gaspar, created a mobile application for tablets to manage Dynamics GP Workflow Approvals so managers can respond quickly to outstanding requests for company resources. The convenience of accessing workflow information instantaneously means managers, or "authorizers" can approve, deny or delegate requests from anywhere at any time.

Gaspar liked the practical implications and benefits of creating the Workflow Approvals app.

"I enjoyed working with clients to solve real problems that they face in their business or their product line," he said. "What excites me is that feeling of contributing value to a company while still in school and the experience that comes with it."
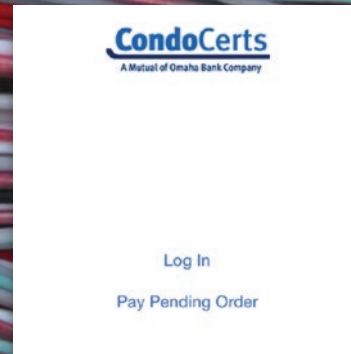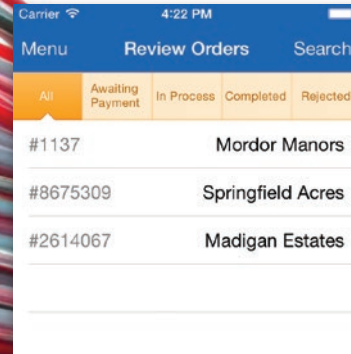
Development Manager Keaton Greve said it was difficult to design a high-functioning, visually appealing and user-friendly interface, but the experience was worth it.

"It was challenging to design an interface that worked well and made sense to customers," he said. "But with the popularity of smartphones and tablets, designing a Windows 8 app is a very modern skill that will be useful in my career."

Project: CondoCerts Mobile App

Project Sponsor

CondoCerts, a Mutual of Omaha Bank Company, is a leading Web-based data and document delivery system in the community association industry. CondoCerts provides software solutions to management companies and community associations for property sales across the country.

Design Studio Team

Trang Do (Second Year), David Dropinski (First Year), Sarah Fanning (First Year), Tom McClenahan (First Year), Travis Schreier (Second Year), Caleb Zatorski (Intern)

The Challenge

It takes a village … to manage a village. As anyone who has belonged to one of the 300,000 homeowners' associations in America knows, there are lots of people who need access to lots of information – FAST. Lenders, mortgage bankers, title companies, real estate agents, homeowners and potential home-buyers need round-the-clock access to documents and data to close a deal, manage property or refinance a loan.

CondoCerts, a Mutual of Omaha Bank Company, has been a leader in supplying this data for years, but the company needed a mobile application to fast-track the data to folks in the field and keep ahead of the competition. Enter the Design Studio team led by Product Manager Trang Do, who oversaw the revision of CondoCert's Web application for an iOS environment for use on iPads and iPhones.

The CondoCerts mobile app marked Mutual of Omaha Bank's first official venture into the iOS mobile platform, said Do. With it, the Mutual of Omaha Bank will have the "first to market" solution in the industry.

"(The mobile app) simplifies the process of checking the status of your document order and enables users to access their purchased documents on the go," said Do, who has enjoyed her second year in Design Studio.

"I've had the opportunity to see what it's like to have a developer role on the team, as well as a manager role, both of which have granted me invaluable skills and experience," she said. The most significant challenge for her team, she said, was communication with the client. "We really had to step up to set the standard of communication we needed to make this project a success."

Faculty Adviser Ashu Guru called the CondoCerts mobile application a "unique opportunity" to enhance students' "understanding of design and functionality" in a multi-layer application between a customer's mobile device and a Web-based server. The project also gave students invaluable experience with several project management and collaboration tools that they will likely use as they graduate and move into professional roles in industry.

Project: Nelnet Cross-Platform Reconciliation

Project Sponsor

Nelnet Business Solutions, a provider of financial services products for more than 6,000 educational institutions in the United States. Most products support payment processing and reconciliation for schools in both the K-12 and higher education markets.

Design Studio Team

Adam Prusa (Second Year), Mitch Snyder (Second Year), Stosh Getzfrid (Second Year), Kevin Mahlin (First Year), Andrew Tarr (First Year)

The Challenge

As the leading provider of financial services products for educational institutions, Nelnet Business Solutions is always looking for a better way to do things. With a 30-year history as an industry leader, Nelnet's services and processes have evolved to meet the needs of a huge and ever-evolving list of clients.

Every month, Nelnet's accounting team spends hours reconciling payments that clients have collected using Nelnet's QuikPAY product. QuikPAY has been customized for individual client needs over the years, which resulted in a time-consuming process for the Nelnet accountants tasked with monthly and/or daily reconciliations. The current reconciliation process is functional, but labor-intensive, slow and subject to human error.

So the Raikes School Design Studio team was challenged to create a solution that consolidated a complicated mix of individual client systems and platforms to streamline QuikPAY reconciliations for

the accounting team. The team, led by Adam Prusa, needed to consolidate information from 20 sources to simplify the monthly reconciliation of data.

The team originally considered building a website from scratch, but decided instead to adapt a commercial product—PowerPivot in Excel.
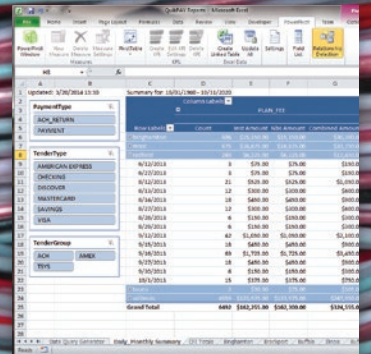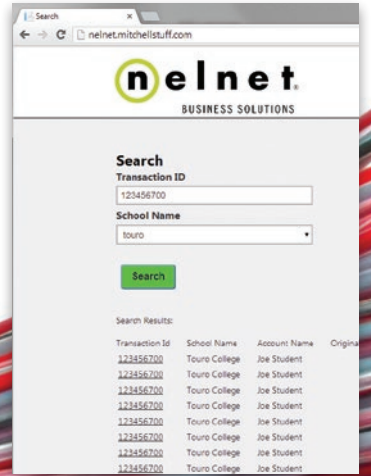
The project will significantly reduce the time it takes to reconcile the books and safeguard against opportunities for error, Prusa said. Bonus: Making all that financial information more accessible will likely be useful to Nelnet for future data-mining opportunities.

A process that formerly took 1 to 2 hours a day and another 8 to 10 hours at the end of the month now takes fewer than 10 hours in total each month to refresh the data to determine whether further action is warranted. Team Development Manager Mitchell Snyder estimated the process would save the accounting staff around 500 hours annually.
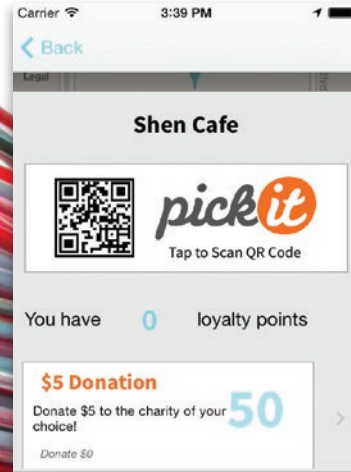
The experience offered valuable lessons in understanding client needs and problem-solving, Snyder said.

"Sometimes it's best to take a step back and evaluate the reasons for taking the approach you've chosen. Sometimes, the simpler, more direct route provides a much better outcome," he said, "even if it means less coding."

Prusa agreed. "It's important to be open to change."

Project: Pickit Merchant Portal and Loyalty Program

Project Sponsor
Pickit, a student start-up company that aims to raise money for Lincoln-area nonprofits with a merchant loyalty shopping app. Three of the four student entrepreneurs behind the company are Raikes School seniors.

Design Studio Team
Jeffrey Moran (Second Year), Josh Cox (Second Year), Asher Chester (First Year), Zach Christensen (Second Year), Jedd Patterson (First Year), Nate Watley (Second Year), Veronica Telega (Intern)

The Challenge
A forgotten coupon was all it took. That little hassle spawned the "Big Idea" for two Raikes School seniors in 2012.

Then-sophomores James Verhoeff and Zach Christensen were tired of leaving coupons in cars and sifting through wallets stuffed with loyalty cards to save a few cents on fast food. They thought the world of discount marketing was archaic, so they hatched a plan to create a mobile application for customers to get discounts at participating merchants.

But why stop there? What if the new purchasing system also enabled buyers to give back to their communities with donations to favorite nonprofits every time they used the app?

This multipurpose altruistic app – called Pickit – digitizes the couponing world with a pay-per-redemption system that makes every purchase a vote to support an area nonprofit.

The start-up is new, and it needed help to build a foundation on which to grow the business. Verhoeff and Christensen enlisted the talent of fellow Design Studio students to help build Pickit's infrastructure with a merchant portal and loyalty program for shoppers.

The multi-function portal is critical to Pickit's success, said Product Manager Jeffrey Moran. With the portal, merchants can register to participate; edit and create deals; sort and filter redemptions; analyze customer data; and pay bills to area nonprofits online.

"Due to Pickit's status as a new company, the work that we do will directly impact Pickit's bottom line and forward momentum," Moran said.

The second component of the project required the team to improve the customer satisfaction by extending the Pickit experience to provide more rewards and encourage more purchases.

The dual opportunity presented management and organizational challenges that Moran and his team embraced.

"Design Studio is very fast-paced, and there are a lot of moving parts. Each team member contributes a large amount of code and thought, so it's important that we all move in the same direction to maximize the benefit of what we deliver," he said.

Witnessing other Design Studio projects evolve was also beneficial.

"Being able to see a variety of projects develop over time with changing requirements, client relationships and team strengths has been of great value to me. I learned from all the teams, not just my own."

Project: Speedway PocketMechanic App

Project Sponsor
Speedway Motors, a Lincoln-based company that is the world's largest manufacturer, distributor and retailer of street rod and racing products.

Design Studio Team
Sara Benning (Second Year), Justin Pflueger (Second Year), Michael Draftz (First Year), Jake Heidelk (First Year), Jake Schmitt (First Year)

The Challenge
As America's oldest speed shop, Speedway Motors has been a trusted source of support and expert advice for custom car builders since 1952. Although Speedway's exceptional customer service never went out of style, the way it has been delivered needed a tune-up.

Speedway Motors already hosts a telephone "help desk" for car enthusiasts, but the company wanted to improve efficiency and service with the aid of technology. The Design Studio team was challenged to create Android and iOS apps to connect custom car builders to Speedway technicians and their knowledge base.

The app enables users to search a library of helpful articles and review questions from other users. If the existing knowledge base doesn't have the answer, the user can submit the question (along with photos and background data) to Speedway experts and other community members for insight.

Armed with better information from the app, Speedway techs can better address customer questions and direct them to a products link page for parts, if necessary. The app also means Speedway will pull ahead of its competitors in the mobile market.

Product Manager Sara Benning said the project built team members' skills in several areas: managing client expectations, professional interaction, user testing, and building an app with multiple mobile technologies.

Team member Jake Heidelk enjoyed his team and the creative process involved with building the app.
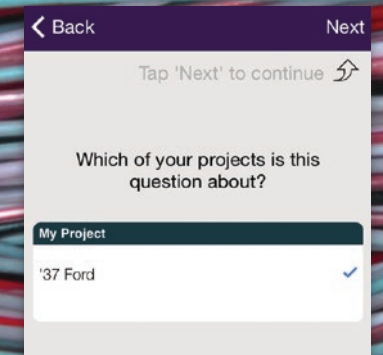
"It is very apparent that what I'm working on will provide some real value to Speedway," he said. "Gaining experience with mobile development has been an extremely valuable aspect of Design Studio, especially given the 'hotness' of mobile programming today."

The project entailed building apps for both Android and iOS platforms, which were herculean tasks, said Benning.

"Learning new technologies, especially Android, proved to be difficult," she said. "It was also challenging to build two different apps concurrently, which fragmented our team and reduced resources a sub-team had available when they needed extra help on a feature."

But the team overcame these issues—with a good sense of humor intact.

"In the end, we triumphed," Benning said. "And we are now the smartest people in the room."

Project: UNL Anti-Human Trafficking Knowledge Database

Project Sponsor
University of Nebraska–Lincoln

Design Studio Team
Aubrey Thompson (Second Year), Jordan Degner (Second Year), Sam Adams (First Year), Cameron Crockrom (First Year), Paul Poulsen (First Year), Brian Yee (First Year), Marcus Pasell (Intern)

The Challenge
Human trafficking is tied with the illegal arms industry as the second-largest and fastest-growing criminal industry in the world (behind drug trafficking). Some 600,000 to 900,000 people are trafficked across international borders each year for exploitation. Staying ahead of those who traffic other humans requires significant research; research that UNL faculty are leading the way in conducting.

There is a huge volume of information about trafficking on the Internet, but to date, there is no organized database for researchers to find the information efficiently. This lack of readily accessible, organized, timely and reliable data hinders effective and efficient anti-trafficking research efforts and makes understanding and addressing activities all the more difficult.

The Design Studio team, led by Jordan Degner was assigned to build a Web crawler that constantly scans the Internet for information on anti-human-trafficking efforts in India. Anti-trafficking groups in that country can then use this centralized data source to prevent the crime, protect the victims and prosecute the offenders.

Building a knowledge-management system from the ground up was a monumental task due to the sheer volume of unorganized information available, said Degner.
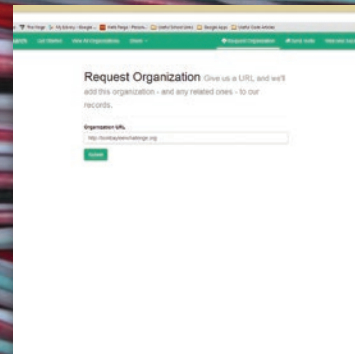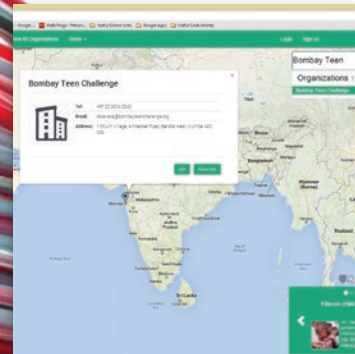
"It can be amazingly hard to tell a computer to do something you do with your own eyes in seconds," he said. "We overcame that problem by revisiting it every release. We're never done; we'll never be collecting perfect information. But we can—and should—try as hard as we can to constantly improve the quality of the information we find."

That commitment to quality pleased team member Sam Adams.

"I was surprised by the sophistication of the product we made over the course of the year, especially with how well our Web crawler worked on its own," he said. "Coming into 'team time,' I looked forward to the excitement of what I could accomplish each day, and how our team might use our strengths to move forward on this project."

The Design Studio experience has likely shaped Development Manager Degner's future. He's now interested in development management.

"This year's project has shown me what I want to be doing in my career, because I love what I'm doing right now so much," he said. "It's an awesome feeling to know what each person on your team does well. It's an even better feeling to be able to delegate work in a way that really lets everyone do what they love as much as possible."

Project: Phocalstream

Project Sponsor
Robert B. Daugherty Water for Food Institute

Design Studio Team
Tobin Brown (Intern), Wyatt Goodin (Intern), Ashlyn Lee (Intern)

The Challenge
The Platte River and the ecosystem that it feeds is one of the most significant tributary systems in the watershed of the Missouri, having a major impact on the ecology of Nebraska, Wyoming and Colorado. In the face of global climate change, the Platte has seen both record flooding and record drought in the past several years. Understanding the impact of climate on both the river and the surrounding environment is highly significant in conservation efforts, research and education.

No one understands this better than photographer Michael Forsberg and television producer Michael Farrell, who have been studying the Platte River by developing time-lapse photographs of various sites along the Platte for the past two years.

Having produced nearly 120,000 photos of the Platte that span several camera sites along the river since 2011, Forsberg and Farrell were looking for a better way to manage data. At the same time, the Robert B. Daugherty Water for Food Institute was looking for new and creative ways to study the Platte and implement an educational tool for elementary school students who will become the next generation of scientists.
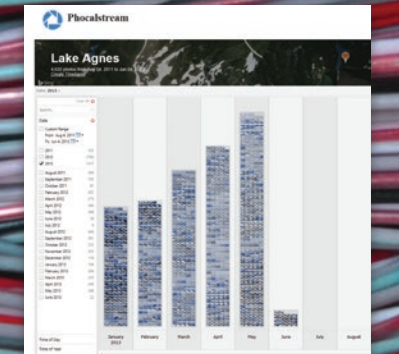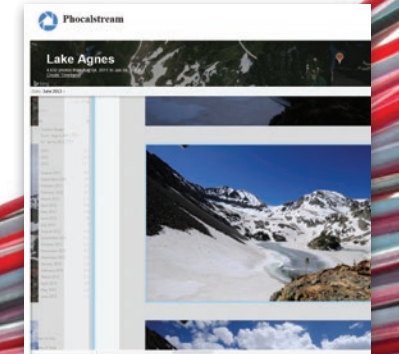
In a follow-on Design Studio project, dedicated to on-campus faculty research support, the Water for Food Institute, the Time-Lapse Photography Project and Design Studio faculty partnered to develop the next phase of an integrated photo system called Phocalstream.

Incorporating the rich photoset from the time-lapse project and data from the National Drought Mitigation Center and U.S. Geological Survey, Phocalstream enables users to quickly search the thousands of photos and incorporate historical Drought Monitor and Stream Flow data. The result provides a holistic picture of the impact of climate on the Platte River. The site helps students visualize climate, discover data relationships, create their own time-lapse videos, and share their observations of the natural world.

Using a robust data annotation framework, Phocalstream engages students in crowdsourcing to catalog and analyze the images produced by the time-lapse project. A major component of work in Design Studio this year has been bringing the rich photographic imagery found on the Web to mobile devices like iPads, which enables user interaction with the vast image library and opportunities to contribute their own images.

Of the first-of-its-kind project, Raikes School Assistant Professor of Practice and Associate Director for Design Studio Ian Cottingham said the project is an invaluable exercise in collaboration for the greater good.

"Phocalstream is about leveraging the power of research at the university and harnessing the best and brightest minds to unlock the imaginations of aspiring young scientists. As faculty, we have the opportunity to work alongside our Design Studio students, practicing what we teach, sharing in the experience of product delivery, and providing mentorship for future Design Studio classes," Cottingham said. "I can't imagine a better way to keep learning than to roll up my sleeves and sling some code with some of the most talented young developers out there."

Stats

Demographics

- **67** Students
- **29** Second Year Students
- **38** First Year Students
- **46** Raikes School Students
- **21** Associates (CSE students)
- **11** Women
- **55** Men
- **3** Student Entrepreneurs
- **7** Interns (freshmen participating in the spring)

Technologies

- **3** Microsoft .NET (C#)
- **1** Python
- **4** iOS (Objective-C)
- **1** iOS (Objective-C) and Android (Java) and .NET (C#)
- **1** iOS (Objective-C) and Android (Java)
- **1** Mac OS (Objective-C)
- **1** HTML5

Local, Regional, National Scope

- **8** from Lincoln
- **2** from Omaha
- **3** National (California, Arkansas, North Dakota)
- **2** Startups
- **6** Mid-sized / national
- **2** Fortune 500
- **2** Academic research

13 Projects

- **8** Using mobile technology
- **2** Android and iPhone
- **1** Windows 8
- **4** iPhone / iPad
- **1** Mobile Web

Timeline

- We've successfully completed **126** projects since then
- First DS projects started **14** years ago
- We have worked with **59** industry partners

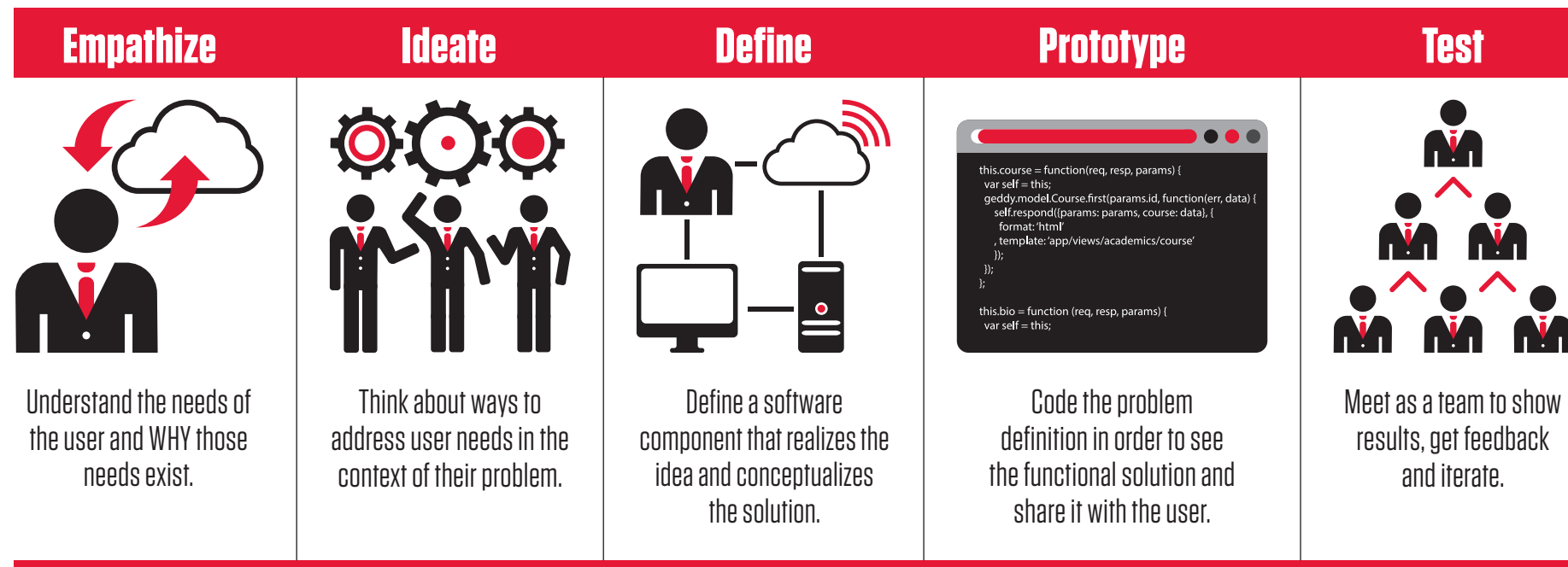"The Raikes School really has it figured out, you learn the most when you do. Rather than plan, talk and just focus on the theory of what we should do, we actually do it. And that culminates in Design Studio. Your junior and senior year you get to work all year long on a project for a client that they're actually going to use, that they actually have sales. And we get to do it."

James Verhoeff, Raikes School Class of 2014

How Design Studio Works

In Design Studio, we integrate Agile engineering processes, Lean business development, and interdisciplinary design thinking into an iterative process for problem solving and product development. Our iterative development methodologies lead to the development of robust software products that address real problems and provide elegant solutions.

Throughout the process, Design Studio teams are mentored by industry professionals from the community, helping teams more effectively communicate, overcome technical challenges, and drive innovation for their partners.

Empathize	Ideate	Define	Prototype	Test
Understand the needs of the user and WHY those needs exist.	Think about ways to address user needs in the context of their problem.	Define a software component that realizes the idea and conceptualizes the solution.	Code the problem definition in order to see the functional solution and share it with the user.	Meet as a team to show results, get feedback and iterate.

```
this.course = function(req, resp, params) {
    var self = this;
    geddy.model.Course.first(params.id, function(err, data) {
        self.respond({params: params, course: data}, {
            format: 'html'
            , template: 'app/views/academics/course'
        });
    });
};

this.bio = function (req, resp, params) {
    var self = this;
```

"Here's the bottom line. Software is the magic that's going to change the world. It's going to change every single industry. It's the giant lever. Software is the biggest extension of human thought ever. If you think in terms of improving the productivity and enhancing the equality of life of humans on the planet... software is the biggest extension of human capability ever over anything else."

Doug Burgum, Raikes School Corporate Advisory Board

The Design Studio Team

Ian Cottingham, Associate Director for Design Studio, ian@unl.edu | **Jeremy Suing**, Design Studio Project Manager, jsuing@unl.edu
Ashu Guru, Design Studio Director of Research Strategy, aguru2@unl.edu | **Doug Durham**, Adjunct Associate Professor
Tom Seevers, IBM Fellow and Visiting Professor | **Amanda Leingang**, Administrative Coordinator, aleingang2@unl.edu

```
    this.course = function(req,
resp, params) {
        var self = this;
        geddy.model.Course.
first(params.id, function(err,
data) {
            self.respond({params:
params, course: data}, {
                format: 'html'
            , template: 'app/
views/academics/course'
            });
        });
```