

PB OUR SPACE

Giving Everyone A Voice

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IPRO 320

On-Line Dynamic Information Management
for Large-Scale Infrastructure Projects

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Recommendations

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Appendix



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EXECUTIVE SUMMARY



PB OUR SPACE

Parsons Brinckerhoff (PB) is an engineering, construction, technical, and management services firm that provides diverse solutions to private industrial customers worldwide, as well as to federal, regional, and local government agencies. Gathering requirements and feedback from the stakeholders for each project is imperative to meet the client's needs. This process may be challenging due to the stakeholders' diversity, location and time constraints. IPRO 320 was commissioned to design an application to interact with stakeholders for all PB projects. The stakeholders will be able to access information and take surveys, as well as post comments and other forms of multimedia to voice their opinions related to specific PB projects.

During the summer 2011 semester, the IPRO developed concepts for an operational mobile application and web browser called PB OUR SPACE. To begin, this project required a vast amount of research and collaboration with Parsons Brinckerhoff. In order to make the most of a limited amount of time, the semester was divided into two parts. The first half of the semester was used to gather information about PB to build a better understanding of what would be required for the application. For the second half of the semester, we utilized that information to create a storyboard showing how the application will be used and developed.

The functionality of the mobile application and browser is detailed in Appendix 3: Storyboard. The future IPRO team will be able to continue and expand this work by creating a working prototype of the storyboard concepts. All our work this semester has been compiled and filed to help make a smooth transition between semesters. This information contains the progress made thus far as well as recommendations for development of the application. By providing this information, the developed storyboard and proposed conclusions will make a solid framework for the development of the product, PB OUR SPACE (stakeholders' perspectives about contextual elements).



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PURPOSE & OBJECTIVES



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For projects conducted by Parsons Brinckerhoff, federal law mandates that they hold public meetings to gather information on public opinion concerning their projects. The company has come to realize that many of their current information gathering techniques require a considerable amount of time and effort to handle them. One way PB receives suggestions is through paper surveys handed out at public meetings. Currently these surveys are the only consistent resource PB has for gaining feedback from the community. However, for a variety of reasons primarily conflicts of time and location, not all stakeholders are able to attend these meetings. PB has decided it needs more ways to gather information from the community. To make this possible, they aim to create a multi-platform application that would allow interested stakeholders to research and provide feedback on PB's current projects without having to be present at public meetings.

The main objective of this multi-platform application is to serve as a viable information gathering tool for PB, providing them with a genuine insight into the opinions of all stakeholders involved in individual projects. For the stakeholder, the application will be an easily accessible way to stay informed and voice opinions pertaining to a project that affects his or her community. Anywhere that a PB OUR SPACE user has access to the Internet, they will be able to log in and contribute input to a PB project.

Currently, smartphones account for seventy-six percent of all cell phone sales, and the number of smartphone users is projected to increase drastically in the next few years (The Nielsen Company). Taking this into account, in order to accommodate modern technology PB OUR SPACE will be accessible via mobile devices as well as a web browser. Our IPRO group researched and designed a storyboard for a mobile application and a web browser, along with the administrative database interface connecting the two for PB to monitor each project.



The objectives of our IPRO were to:

- Categorize stakeholders into archetypes (groups who have similar objectives)
- Determine different scenarios that may occur for each type of stakeholder, along with how they might react
- Consider stakeholder disabilities, language barriers, logistics, and other diversities
- Research mobile device platforms and web browsers for PB OUR SPACE and the existing applications that could be bundled to support collaboration with stakeholders
- Research data governance of stakeholder information (including login and registration capabilities)
- Review ethical issues that impact this type of social network
- Create a storyboard for the user interface of PB OUR SPACE including login, registration, and user actions
- Create a storyboard for the administrative database interface of PB OUR SPACE, which accesses a database of users' input for each project
- Determine development platforms to create applications for mobile devices and web browsers



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ORGANIZATION & APPROACH

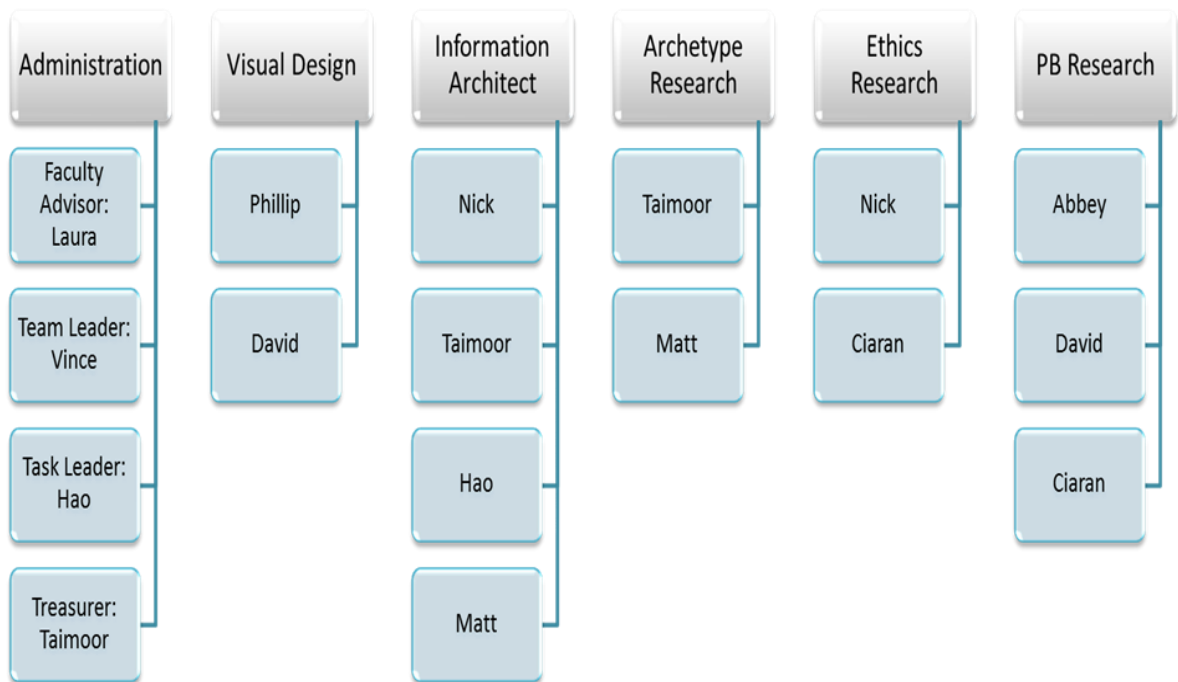
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Since IPRO 320 is a new project, the approach for PB’s mobile application is heavily dependent on research. Initially, group members were assigned certain research positions, as well as the appointment of a team leader and secretary. Our team was divided into three main groups: research team, visual design team, and information architecture team. Although divided, our research teams worked interdependently so that our project objectives were met. Our research team consisted of several subgroups concentrating on archetypes, PB’s construction and background, and ethics. After communicating with Tom Coleman, a PB representative, our team devised an appropriate plan on meeting PB’s expectations. Our team structure can be seen as follows:



Our initial research goal was to accurately define the many archetypes and the particular stakeholders we assume will be the primary users of the application due to its accessibility. By conducting research into Parsons Brinckerhoff, it enabled us to understand the company’s need for a multi-platform application and how we could design this application fulfilling those needs. In addition, ethics research was conducted through online resources and articles provided by Kelly Laas (from the Center for the Study of Ethics in the Professions Library). These links and articles presented various case studies related to ethical dilemmas in which PB may experience

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with the construction of this mobile application. (See Appendix D for the full report). The visual design research was used in designing an aesthetically attractive, easily accessible, and intuitive blueprint for the application. The information architecture team conducted research pertaining to the best program platforms for both the mobile devices and web browsers for the application. Once most of the research was completed, the visual design and information architecture teams took charge in creating a storyboard of the application, administrative database interface and the information architecture. These storyboards will help in developing a prototype for a multiple-platform mobile and Web browser application for future IPRO groups.



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ANALYSIS & FINDINGS



Since the demographic of people affected by PB projects ranges across a wide spectrum, our IPRO team determined that a multi-platform tool would be the best option for PB OUR SPACE. While some users may find a mobile application to be the most convenient form of access, the same information must be attainable on a standard browser so users can access the applications from their personal computers. After considering various options, we constructed a storyboard for an overall approach in creating an application, which includes the front-end design, administrative database interface and the information architecture.

Front-End Design

Parsons Brinckerhoff's main intention is to expand the accessibility of PB project information to the community. Advertising is necessary in areas where potential PB OUR SPACE users would visit, such as train stations or bus stops located near a transit construction project. These advertisements will come with an access code exclusive to that PB project (see Appendix C, Figure C.1). This way, local users can be given direct access to blogs and surveys related to the project that affects their lives. Our IPRO team considered using a global positioning system for the application, but it was decided that the access code will be a less intrusive alternative. Also, with the access code, the new user is linked directly to the appropriate project without the need to search for it.

The next step is for the new user to download the PB OUR SPACE application (see Appendix C, Figure C.2). The goal is to make the application accessible to the majority of mobile device users. As an alternative, new users may also set up an account using the PB OUR SPACE application on the web browser (see Appendix C, Figure C.14). Returning users will reach a login screen where they will be asked to enter their usernames and passwords in order to access the application (see Appendix C, Figure C.3). For new users, an option is provided on the login screen to create a new account (see Appendix C, Figure C.5). Required information for the login process includes the access code provided on the PB advertisement, a username, a password, and the user's email address. Additional information may be added to the user's profile at their discretion, such as first and last name, occupation, median income, age, address, and affiliation with PB. In addition, a new user must agree to the terms and conditions, which will be provided by the PB administration. New applicants will be checked by PB administration, and if added, their information will be added to the PB database under the appropriate project.



Once accepted, the user gains full access to the corresponding project page. On the mobile application, a brief description of the project is available via drop down tab located at the top of the home screen (see Appendix C, Figure C.6). In addition, the main screen contains several icons that allow the user to navigate the application (see Appendix C, Figure C.7). There will be a settings icon that allows users to view and edit their profile information, including all information that was optional at the new profile creation screen. In addition, a section is provided for a written description of the user if he or she decides to do so. The settings screen will also allow a user to select whether or not their posts will be visible to other users or only to the PB administration. In addition, the settings screen will contain contact information for PB, as well as an option to email PB administration about any inquiries. Along with the settings icon, there will be a survey icon that brings the user to the survey provided by PB administration, if there is one available. After answering survey questions, the user may view results for any poll-based questions when clicking the survey icon

Next, there is a blog icon that leads to the blog screen of the application (see Appendix C, Figure C.6). This allows the user to access all posts made by other users thus far, which includes text, audio, video, and images. Furthermore, the blog icon will grant the user the option to post text or multimedia to the blog. In accordance with PB's request, all postings will go through PB administration before showing up on the blog to other users. This process will be available to PB administration through the administrative database interface when clicking on new posts in the appropriate project folder. Finally, there will be an icon to browse other projects that PB is affiliated with. This allows users to have a better understanding of PB as a whole. However, when browsing other projects, users will not be given access to blogs and surveys. The reasoning behind this is that PB does not want to clutter up the blog with irrelevant feedback. As stated before, there will also be a web browser application of PB OUR SPACE. This will contain the same information and usability as the mobile application with a similar layout.

Administrative Database Interface and Governance

In order to make a multi-platform tool possible, an administrative database interface accessible to the PB administration is necessary (see Appendix C, Figure C.10). The database interface will include a list of all projects that are accessible to users of PB OUR SPACE, which will be categorized by type of project. The database will



consist of a series of tabbed information for each project in order to store information in an organized manner (see Appendix C, Figure C.11). Each project will contain a list of all users who have been given access to the project. The database will contain all text-based posts, and multimedia based posts including audio, video, and images. The information that comes through to the PB administration will be compiled in an organized and efficient manner in order to simplify the moderation of incoming data. PB may select, edit, or remove any posts made by users if they decide to do so (see Appendix C, Figure C.12). In addition, a tab will be included that stores survey answers from each user. Survey forms may be added by a PB administrator at any time. There will also be an option in the database interface to change the design of the website (see Appendix C, Figure C.13). This includes adding new categories and new projects.

Information Architecture

From the moment when the user presses the “Comment” button to the moment when it actually appears on the screen, a series of commands are executed. Within each command using PB OUR SPACE application, there would be several functions that are triggered so that each variable inserted by the user is stored and displayed in a database. This message is then traversed through an administrative interface to the company and used for PB’s main purpose of building a better communication between the stakeholders and project managers.

The development process of designing a mobile and web browser applications begins with the user in mind. Every application has two sides, one being the design front-end and the other being the developer’s back-end, where information appears to be less appealing and rather modular with hundreds of lines of code. To complicate this development, each user has his or her preference for a certain application platform, each of which may contain a different coding language. Four major players in the mobile application industry are Apple’s iOS, Android, BlackBerry, along with several web browsers. Each of these platforms must be taken into consideration by the developer in order to target the bulk of the application industry.

Apple made it fairly easy to program for iOS by incorporating a software called “Xcode”. It allows the programmer to write code while having an “Interface built-in Assistant” that allows the programmer to see how the program will behave on an iOS device. In addition, there are several software bundles containing templates



for some of the most frequently used functions. What makes Xcode so convenient is the ability to “fix live issues,” meaning any syntax error is fixed in real time without the need to compile the program, similar to how Microsoft Office’s spell checker works.

Android, another major contender, was originally coded using Xcode. However, this was recently changed when Google deployed the Gingerbread update for its Android platform and support for Xcode was discontinued. After the update, one way to code for Android is through the use of a command prompt, quite similar to MS DOS. However, this method increases the odds of error propagation, so very few developers choose this route. Instead, many Android developers use Eclipse to code for Androids, and this is the most widely used method. While Eclipse does contain similarities to Xcode, the language and structure is slightly varied.

For BlackBerry, applications are created using Java, which is one of the most widely used languages for coding. It is fairly difficult to code using Java for a BlackBerry headset because the language does not offer any real-time syntax error correction. In addition, Java does not have the capability to emulate how the application will run on the device, making the debugging process less automatic and much more complicated. Furthermore, while Android and iOS devices generally make use of touch screen technologies, BlackBerry’s devices are primarily controlled by a track-pad, which in turn adds to the complexity of designing a mobile application for BlackBerry OS.

Mobile devices aside, the developer must also take into consideration coding for web browsers, most typically done through the coding language PHP. There are several different variants of PHP scripts. IPRO 320 has decided to focus on CakePHP, an open-ware developed at Massachusetts Institute of Technology, as there are several generic templates of codes that are available. Using this language, coding is similar to that of Java aside from having a different structure. The diagram below shows a layout of the programming with these approaches:





According to current statistics from Nielsenwire, approximately 27.9% of the smartphone market share is controlled by iPhone, followed closely by BlackBerry and Android at 27.4% and 22.7% respectively. In addition to these major contenders, the Windows platform comes in at 14.1% of the market share. Individually coding on all four platforms would be difficult and quite time consuming. However, there is another option; a program called Genexus that allows the programmer to code in one language. Genexus is similar to Xcode in that it has pre-coded templates and an emulator to see how the application would actually function when run on a mobile device. However, the property of Genexus that makes it so favorable for development is its unique built-in feature that allows developers to code everything in one language, later converting that one code to be compatible with iOS, Android, BlackBerry, Windows, and Symbian operating systems. This currently accounts for over 92% of all smartphones. The diagram below shows the easier coding structure using Genexus:



Taking all of this into consideration, while analysts do believe RIM's (BlackBerry) market share will continue to plummet, Parsons Brinckerhoff can have a majority share of the smartphone market by creating a mobile application for the Android and iOS operating systems. Above all, coding on Genexus seems like an excellent solution, since it is easier to code than Java and accounts for such a large portion of the entire smartphone market. Genexus is a licensed program, so licenses would need to be purchased; however, the IPRO Office at Illinois Institute of Technology currently owns five computers equipped with Genexus, so our IPRO can utilize those computers for coding.

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CONCLUSIONS & RECOMMENDATIONS



In order to solve Parsons Brinckerhoff's problem to expand stakeholder feedback on specific projects, our IPRO began with extensive research, focusing on several different issues ranging from PB's history in stakeholder feedback to ethical dilemmas associated with online social networking applications. Then we developed the concept of a cross-platform application that will allow stakeholders to learn about and provide feedback on PB's current projects. Storyboards were prepared for future development of a prototype application. (See Appendix C: Storyboard).

As IPRO 320 continues into the fall semester, the team will utilize the storyboards to create a working prototype of the application. In terms of coding for the prototype one approach would be to code for each application platform and browser this method would be timely and monetarily consuming. Our recommended approach is using Genexus, which can code for multiple platforms without having to individually code for each platform. Also, since IIT has acquired five licenses that students can use, the coding process will conserve both time and money.

With regard to developing a web browser application, CakePHP would be the preferred method of coding because it is openware. Furthermore, both Genexus and CakePHP have templates already installed so we will not be starting the coding process from scratch. In addition to the front-end design and development, the back-end database and administrative interface will need to be addressed. This was not our main focus this semester or in the fall, although discussion with PB on how they would want to mine the data is necessary. With the large amount of coding necessary in the development of a prototype application, it is recommended that several of the fall IPRO's team members are computer science majors who are familiar with PHP, mobile application coding and database design.

Lastly, we recommend that focus groups be conducted for different archetypes next semester to measure public interest in PB OUR SPACE. In addition, usability studies should be conducted after a prototype has been developed for the product. Overall, we believe that the storyboard design will be a major stepping-stone for the fall IPRO to create an effective application. In turn, we hope that this will increase stakeholders' sense of



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ownership in projects affecting them and their community. In essence, we hope PB OUR SPACE will give everyone a voice.

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APPENDIX A



IPRO 320 budget includes expenses for materials and supplies for IPRO Day. The current budget refers to materials needed for publications and prototype printing of screenshots. In the following semesters there will be expenses regarding finalizing an actual prototype of the application.

IPRO 320 – Budget Estimated and Actual

<u>Expense Category</u>	<u>Estimated Amount</u>	<u>Actual Amount</u>
Materials and Supplies: Printing of screen shots and reports	\$ 300	\$ 150
Publications and Communications: Poster and Brochure for IPRO Day	\$ 200	\$ 200
Other Expenses: Misc. supplies	\$ 200	\$150
<u>Total</u>	\$ 700	\$ 500

Reasoning

Materials and Supplies – For dissemination of information within our group and to sponsors.

Poster and Brochure for IPRO Day – to use for visual display during IPRO day

Other Expenses – For general use of supplies and food



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APPENDIX B



Team Member	Major	Primary Position
Vince Bell	Business with Applied Science	Team Leader
Hao Nguyen	Mechanical Engineering	Task Leader
Matthew Kavicky	Applied Mathematics	Prototype Concept Designer
Phillip McBride	Architecture	Visual Designer
Taimoor Khan	Mechanical Engineering	Information Architecture Researcher
Ciaran Kohli-Lynch	Applied Mathematics	Construction and Ethics Researcher
Nick Leevathana	Mechanical Engineering	Ethics Researcher
Abigail Vargas	Civil Engineering	PB Researcher
David Wilkinson	Architectural Engineering	Website Designer



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Appendix



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The Storyboard shows the user experience using PB OUR SPACE with a mobile device and how it loads to a backend database and displays in an administration application for the client. In addition, it shows a browser view of PB OUR SPACE.

Figure C.1

USER



User finds out about a PB project and is given an access code

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Figure C.2



Figure C.3



Figure C.4



Create account – entry of access code

- User enters access code to gain access to appropriate project (ex. Evanston, AA, etc)
- User added to the appropriate project in database after registration is complete

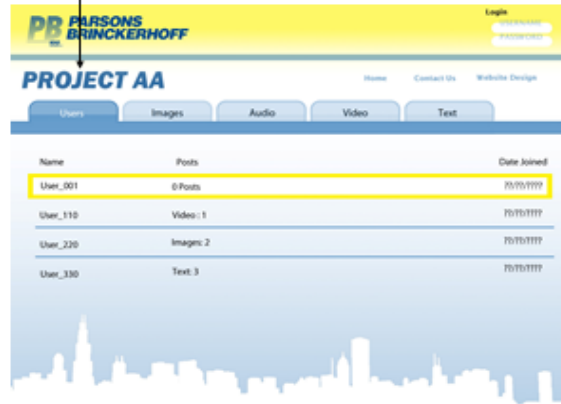


Figure C.5



Create account – information entry

- Email, username, and password required
- First and last name, occupation, median income, affiliation with PB, age, and address optional
- User must agree to terms and conditions
- New user sent to PB to be accepted or denied
- If accepted, new user added to PB database

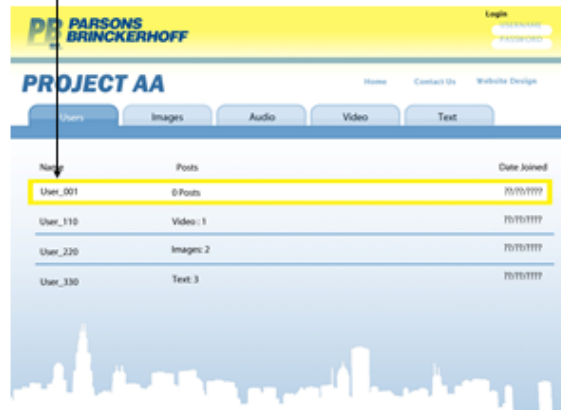


Figure C.6

User Actions – View project information and blog entries

- User clicks on the project title to view drop down information about the project background
- User clicks blog tab to read previous posts and view multimedia for the project
- User can click on username of previous bloggers to view profile information (if user allows)



Figure C.7

User Actions – Fill survey and post to blog

- Survey – Take a survey associated with the project, view poll results
- Blog – Post a comment or a video, image, or audio file
- This info gets stored in the database in the appropriate tabs with information about user, size, and date



Figure C.8



User Actions – Browse

- Browse other projects PB is affiliated with
- View only, can not comment or post without access code
- Projects stored in PB database



Figure C.9



User Actions – Settings

- Modify user information (age, occupation, etc.)
- Can fill in a user profile (description/summary of user)
- Adjust who can view user profile (admin only or all users)
- Contact PB – Send email or view other means of contacting PB
- Emails sent to PB to respond to

Figure C.10



- PB database home screen**
- PB affiliate logs in to the database
 - Can modify the design of the website



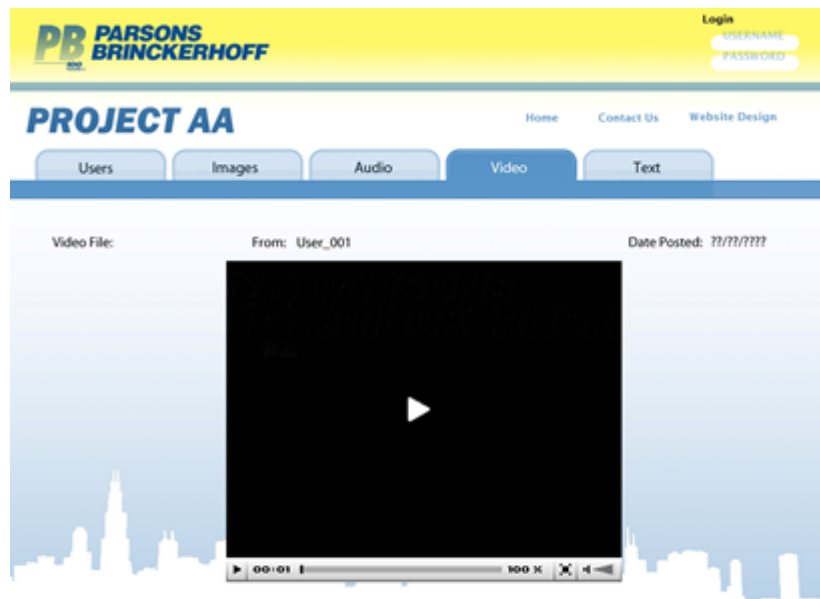
Figure C.11



How PB views the database content for each project

- Multiple tabs to organize data
- Can modify or remove files or text

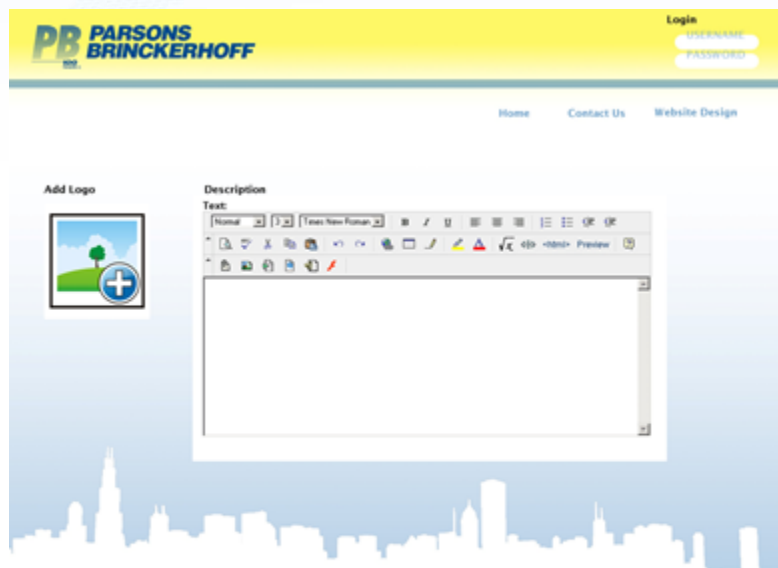
Figure C.12



View after clicking on a file in database

- Previews content to be accepted or rejected by administration

Figure C.13



Website Design section for PB administration

- Add new content to website (new category, new project, etc)
- Logo and text options



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Figure C.14

BROWSER



PB OUR SPACE can also be viewed through a Browser for individuals who do not have access to a mobile device.

User Actions – View project information and blog entries

- User clicks on the project title to view drop down information about the project background
- User clicks blog tab to read previous posts and view multimedia for the project
- User can click on username of previous bloggers to view profile information (if user allows)

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Figure C.15



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IPRO 320: Ethics Report

Introduction

Parsons Brinckerhoff (PB) is an engineering firm known mainly for construction and operation management, involving projects which range from transportation infrastructure and building construction to community development. Federal law mandates that the firm holds public meetings to provide input on such projects and the company has utilized many different means to obtain stakeholder input on its projects. One way a company such as PB receives suggestions is through paper surveys handed out at public meetings. For a variety of reasons however, not all the stakeholders are able to attend these meetings. In order for the process of dialogue with stakeholders to be more accessible and transparent, PB aims to create a cross-platform application that would allow interested stakeholders to learn about and provide feedback on current and past projects without having to actually attend meetings.

PB has contacted the Illinois Institute of Technology with the aim of designing an interactive mobile platform that will allow stakeholders to provide suggestions and comments on their projects. Within the mobile application PB would like stakeholders to upload multimedia files, take surveys, and comment on their projects. As OUR team continues the process of building this mobile application, the importance of researching ethical issues involved in this project is critical with the increase of social mobile networking; several of these major ethical issues include privacy, identity theft and moderation.

Privacy

PB requires a log in where users will be prompted to include necessary personal information, such as a full name and zip code in order to geographically connect them to a nearby project. In addition, there will be a profile section where users can choose to type in their occupation, median income, gender, age and primary means of transportation. This profile will be tailored to each particular project. Due to the personal nature of this portion of the application, it would pose ethical issues with the controversy involving the management of the user's privacy.



Location awareness is another major concern for PB since the mobile application may use global positioning system (GPS) location so that the projects are provided depending on the user's GPS coordinates. PB must ensure that their informed location is not being stored in the database for anything other than its sole purpose of displaying the correct project to the user. A hypothetical case where location awareness is considered a great deal involves a popular "check-in" site fOURSquare, which utilizes GPS location. Using fOURSquare, criminals targeted users who checked into places distant from their residences and they used this opportunity to invade their homes. A solution in preventing crime associated with using location based "check ins" is to never store a user's GPS location nor publish it to the public. In order to eliminate any liability on PB's end, a disclaimer can be added to the application description, notifying that the application operates with location based services

Facebook, a potent social networking site, encountered several invasions of privacy suits. The most prominent being a high school teacher obtaining the user name and password of a student and utilizing that to access the student's private messages to another classmate which regarded the faculty (Johnson). This is a future matter that PB should investigate; even though the site is being moderated, users' private information and private conversations can be compromised.

With these specific risks, there are some actions the user can take, such as adjusting privacy settings. Through this modification, the user is making sure personal information is sent over a secured network. The user can verify he or she is on a secure connection by making sure there is a padlock icon in the corner of the browser or address box; also, the URL may contain "https" instead of "http" signifying a secure connection. Cookies store user information like usernames and passwords; plus, they can carry spyware or keyloggers, which track user browsing habits and create an invasion of privacy. Users can protect themselves by making sure their browser is set to "private browsing", a feature that allows users to browse anonymously without storing cookies (Milian).

Identity Theft

Approximately 15 million people fall victim to identity theft annually. Among these incidents, roughly half were done so through the Internet which, according to identity theft statistics, "in dollars . . . translates into \$335 million stolen." Most of these criminals target social networking sites because it provides them with a nice



foundation of personal information (i.e. full names, email addresses, dates of birth, geographical locations and employers). Common techniques criminals use to gain financial gain are “phishing” and “spoofing”.

Phishing often starts as an email claiming to be from the bank the user is affiliated with, asking the user for detailed information such as a full name, social security number, account password, PIN number, or bank account (Longley). The email could include a fraudulent link to a website with the bank’s logos and will ask the users to sign in to verify. Once the user responds or verifies, it instantly allows the criminal access to their bank account, and the user’s computer may be vulnerable to viruses. Stemming from identity theft is ‘stolen credentials’, where an account is created under a fake alias. Although it may not be financially adverse to a person, it could emotionally affect the user that is being victimized. This event happened to Jessica Ferguson; someone stole her identity on Facebook, by taking her photos and claiming them as another’s (Paluka). To prevent this, a secured connection must be created when inputting personal information. In other words, PB must make sure that users’ emails and personal information are not solicited out to a third party; this would inhibit the risk of receiving phishing email scams.

There are several methods to ensure that the user’s identity remains safe from intruders. Generally, utilizing a firewall application is a must to fend off any unwanted outsiders. In addition, users should remain cautious in revealing any personal information electronically without knowing the privacy policy. Disabling cookies on the browser will guarantee any significant information will not be stored and therefore accessible to hackers (i.e. credit card information and log in accounts). Ultimately, minimizing and monitoring Internet use is the most important step towards preventing identity theft (spamlaws.com).

Governance and Moderation

A developing issue arising from blog-like and social networking type applications is the issue of governance. If a multi-media blog is not governed properly, users take advantage of this by publishing obscene pictures and lewd comments, which can lead to the defamation of other users and can affect the reputation of the brand in question. In order to prevent this offensive act, a moderator is essential. The moderator is in charge of filtering out unrelated and derogatory pictures and comments.



Gradually, the topic of cyber bullying has become a major concern due to the lack of moderation, as users are allowed to explicitly express their feelings. Statistically, over 25 percent of adolescents and teens have been bullied through usage of their cell phones or the Internet. Specifically exemplifying the importance of governance, a case where a Facebook user was harassed by her “friends” through Facebook’s services escalated into a lawsuit against Facebook (Davis). Since Facebook does not have any type of moderator that can delete offensive comments or pictures, the Facebook user attempted to sue Facebook and her classmates for being liable in taking part in ruining her image. Despite this, Facebook has a disclaimer that states all their users are responsible for their own content and the judge dismissed the defamation lawsuit against Facebook. In the event that users of PB’s application decide to post inappropriate content about each other, a system moderator will have the ability to omit it from being displayed to the public.

Having a moderator does not fully ensure that profane language or any matters detrimental against the company would be kept out of the blog, however. For example, a system moderator on the Facebook page of the renowned company, Nestle, encountered numerous negative comments berating the business. The users, who were upset that Nestle had invaded and destroyed rainforests in search of a palm oil ingredient they used in their candy bar, began harassing Nestle’s Facebook page under a logo parodying that of the “Kit Kat” candy bar that said “Nestle Killer”. Nestle’s moderator warned posters to change their profile picture or else their post would be deleted. Posters used this as even more motivation to criticize Nestle’s brand. Many of the posters banded together to rally against the Nestle moderator, and vowed to boycott Nestle’s products (Magee).

A concern PB should be made aware of is brand defamation by its users. Although their demographic will be mainly PB affiliates, there is a small percentage of opposition who will behave inappropriately on this application. To curb the risk of cyber bullying, PB can take several measures to prevent it; primarily, the application will be a closed blog. All comments will be screened for vulgar language before they are posted. Each post (comments, pictures, videos) will first have to be verified by a moderator ensuring that it relates to PB’s project. If it passes the requirements, the moderator will allow it to be posted; otherwise, under administrative authority, the post will be edited with consideration towards the subject at hand. Because the



entire blog will be heavily moderated, no user will be harassed or bullied, and this will prevent an issue similar to Nestle's from occurring.

Conclusion

Entering the social networking mobile business requires an established and trusting relationship between the consumer and its service provider. Due to the ethical concerns inevitably related to the disclosure of personal data, mobile identity and user's autonomy, effective governance is necessary. Disciplinary restrictions facilitate the transitioning of communication between the user and business, which in turn protects the user's right to individuality and privacy within the system. Moreover, mobile management is essential in creating a stable and functioning mobile network so that its purpose is fulfilled.



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