Zoaki: A Website for Pet Lovers

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In Relation to:

Computer Science Senior Project
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***Abstract*— This report will go into detail on why Zokai was created in the first place, along with in-detail explanations on the front, and back end along with the design philosophy and customer interaction with the website.**

Keywords—website, internet, animal, shelter

I. INTRODUCTION

Around the US, there are around 6.5 million pets going into shelters. Of those 6.5 million, 1.5 million of them are euthanized to make room in those shelters. Around 44 percent of the US own dogs and 29 percent own cats. Millennials between the ages of 20 and 30 are looking for pets more than having a child. With these numbers, our goal is to help present and future pet owners find their future pets. This will decrease the number of animals being sent to shelter and in turn decrease the amount of euthanization of pets in the shelters.

With this in mind, we brainstormed ways to combat this, and came up with a website. Our main goal is to create a pet care website which will be responsive, user-friendly, and functional. First, the term responsive means that the website will be automatically fit into different size of device like iPhone, tablets, laptop, desktop or others; Second, user-friendly design will offer every user a nice and clean user interface which is easy to understand and read. Third, our website will be powered by JavaScript and php which will make the website functional, so that users can be able to post, search or ask for their desired questions or purposes.

Starting off we created a plan of attack to do figure how are we going to do the website in a timely manner with the resources and limited time given to us. We are seniors' students with jobs and families so creating a website is no easy task. However, we were determined to do, started as soon as we can.

We decided our main objective should be to create a website that will inform pet owners and provided an "online shelter" that will connect users with animals via the web. The services provided will include providing pet owners with information on how to care for their pet and a platform for adopting animals.

II. Team Members

For our group name we came up with a team name SOAI(Sons of an Immigrant) to reflect our multi-ethnic background, and diversity within our group. Our group members are highly skilled and are very determined to do whatever it takes.

Rafat Raihan Islam
Skill : HTML, CSS, Java
Experiences: in large team projects
Favorite past time: Drinking Tea

Troy Wu
Skills: HTML, CSS, Bootstrap, SQL
Experiences: Web developer
Favorite past time: Hearthstone

John Nnamezie
Skills: Java, Python, Django
Experiences: Website Development
Favorite past time: Coding Websites

Philipp Pujada

Skills: HTML, CSS
Experiences: Vet and animal care
Favorite past time: Playing with puppies

Myron Woods
Skills: Java, Python, C++
Experiences: Code Pizza Delivery system
Favorite past time: Gamble, and coding

III. Technical Approach

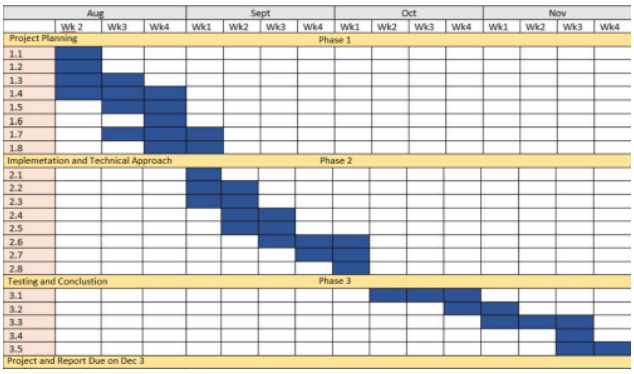
For Zokai website for animal lovers, we look many different technologies to help build our website. We needed software that were easy to use and implement with very little so all the team members can pick it and start coding. We discusses software platforms like Django, and .NET Visual Studios, but we ultimately decided against using these since most of the team did not experienced enough on those platform.

Our team leader Troy Wu suggested we use HTML, CSS, Javascript along with Bootstrap, since most of us already knew HTML, CSS, and a little of Javascript. We did however had to learn since most of the team never worked on Bootstrap, however Bootstrap websites has tons of tutorials, so learning the information was easy to grasp. Our team leader Troy Wu also had experienced working on websites before, so he helped us in any way he could.

For IDEs every member of our group chose different IDEs to match our preferences. We choice Notepad++, Visual Studios, Pycharm, and Eclipse. We also used Git for our version control since it saves a lot of work, and it is very powerful for web development. We also coded our entire backend in PHP, and SQL, since our two lead programmers knew that language the best.We also used googles docs to store all of our files, reports, powerpoints so all of the teams can take a look at it anytime. Lastly we used Hostgator to host the website because of the low-cost.

IV. Timeline

Our team managed to get through the project in a sufficient and timely manner. While we brainstormed ideas for the project, a big part of that time was used to make a schedule. This schedule was going to be our meeting days. Each meeting day would have all of our team members come together and see if they had completed their task for that day or time period. Most of the time everyone got on track and competed their part of the project in the time that was given to them. There were some times where team members had issues and asked for help. We would try to meet frequently within the week so team members can ask for help and we will help them as soon as possible to make our deadline.



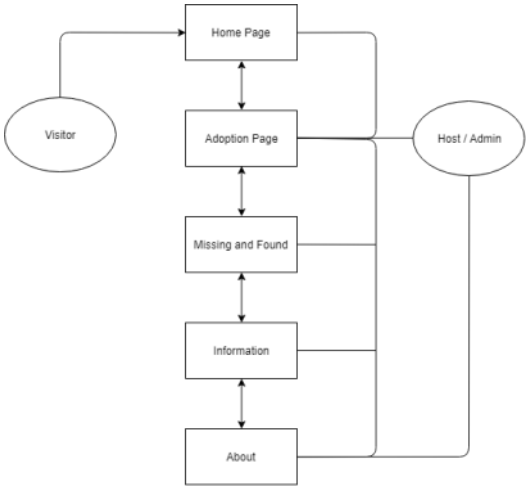
As seen on the chart, meeting were held more in the beginning stages of the project. The further we got into the project, the less time we would meet. The reason for this is because there wasn't much left to do for the project, and we had designed our schedule like that. Doing the majority of the work in the beginning gave us more time on fixing bugs, getting designs right, and perfecting the web pages.

This method helped us a lot and we think it is a good idea to use in later projects. having the majority of the project done early in the development stage gives us more time in the later stages to fix, debug, and add onto our existing project. Fixing bugs were not as bad as getting details designs on the web pages responsive.

We also had meetups before our weekly reports. Our weekly reports were embedded in our schedule. We designed the meet up schedule so we can document our progression in our weekly reports. The weekly reports would include what we have done so far and what we got done after the previous weekly report.

V. Front End Development

For the front end we wanted to make a user experience that was simple and intuitive. We simplified our website into five main pages. These five pages included the home page and four additional pages titled “Adoption Page”, “Missing and Found Page”, “Information Page”, and “About Page”.



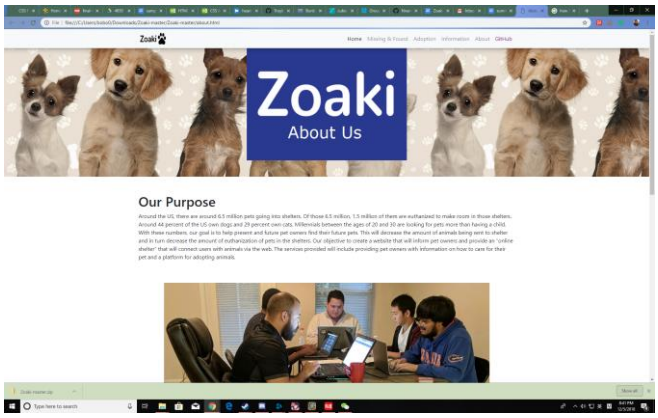
The home page, of course, will be the first page a visitor is presented with. With that in mind, we wanted the homepage to be accommodating to both repeat visitors and first -time users. The first way we tried to achieve this is having the first screen of the homepage display both the purpose of our website and a navigation bar. First time users will be able to see and read information about the website, while users familiar with the site will have a convenient way of getting to other areas.

The next objective of the homepage is to grab the attention of the user; especially first-time visitors. Project “Zoaki” is a volunteer organization that relies on an active community to help accomplish its goals. This means outreach to new participants is paramount in the success of the website. The best way to get people involved is to present them with information and statistics. We present the problem that we are trying to solve, while also giving it context. This means we need to frame the problem that shows its magnitude, while giving a perspective that the problem can be mitigated with support.

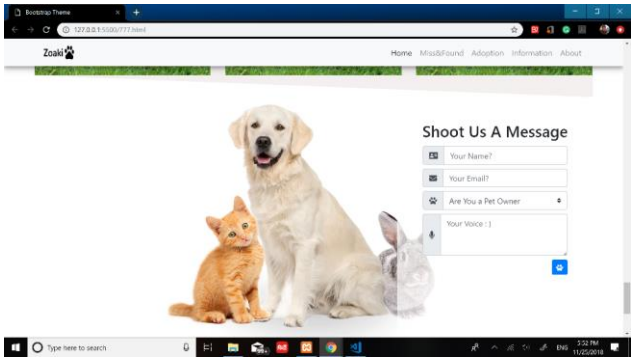
Another key area of the homepage is the “Shoot us a message”. This is a simple form that allows users to contact us about any topic. While simple in nature, this solves a lot of potential problems. The first and most obvious problem would be to solve ambiguity and provide clarification on our website and goals. If a user is still unsure about our purpose and goals, we want to provide them a way of reaching out. This leads into another situation. We don’t want to force visitors to support the cause in any predefined way. The goal of Zoaki is to help animals. If a visitor wants to help in another way not expressed in the website. We want them to be able to get in touch with us.

We now move to next two web pages named “adoption” and “missing and found”. This could be considered the heart of the website. Animals tend to fall into two categories; an animal that is in need of a home or the latter situation where the animal is a pet that already has a home and needs to be returned. While these two categories are similar, the distinction in ownership is a very important factor and lead us to separate them in different webpages.

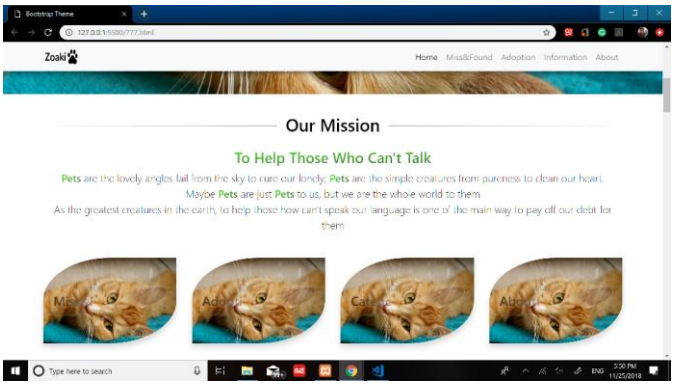
The “adoption” and “missing and found” pages have a very simple layout. The layout displays lists of animals with information about them. This information includes a picture, gender, type of animal, and more. Also, depending on the webpage, the description will also include whether the animals needs adopting or is lost and found. Another key element of the webpages is allowing users to upload new animals. This is also however, where classification is subject to interpretation. While there is no specific science to deem if an animal needs adopting or is missing and found, there are usually indicators. Indicators such as whether the animal is wearing a collar, if the animals was found in a residential area, if the animal is currently in a shelter. As of the launch of the website, we are leaving the classification at the discretion of the uploader. We may release a guide in the future to help users with their determination.



The last two webpages of our website are the “information” and “ about” pages. The information page will serve as an information hub on different pets and animals. Here visitors will be able to find specific information on a variety of animals. The type of information included will range from animal care, behavior, health and illness, and other topics. The goal of the information page is to provide visitors with an all inclusive location to find information on their pet. Typical animal websites specialize in a specific area of animal information. This means users have to visit multiple websites in order to piece together the information they need. Our goal was to consolidate this process and provide users with a convenient way of getting all the information they need.



Last is the about page. Here we give further clarification on our goals; along with a peek behind the curtain of the development team. Usually internet users visit multiple websites a day and it’s easy for users to begin to view them as lifeless pages of information. Since Zoaki is an veterinary effort that is relying on users to help reach its goals, we wanted to retain a human element to our website. So we decided to include pictures and information of our team during the development process. There was two ideas behind this. Firstly, we wanted to show our effort and hopefully inspire confidence in our vision. Lastly, we wanted to put faces to the website. This again goes with the idea of having a human element to our website.



V. Back End Development

One of the key missions of our website is to link pets to potential adopters and their owners. This means we will need to implement a database to house the animal’s information. We decided to use MySQL for our backend. MySQL is a very popular, lightweight database that is perfect for our website. Also, MySQL has a very active community. This means going into the future, we should ample support for troubleshooting and possible future expansion. When implementing the database, simple tables were sufficient for the backend of our website.

This leads to the next natural progression of what to put in the tables. We needed to take in adequate information on each animal. Each potential adopter will have specific wants and needs; so providing adopters and owners with as much information as possible would increase the chances of an animal being selected or found. So, we created a table named “foundmiss” to house the animal’s information. The information in this table would include pictures of the animal, animal age, gender, date acquired, and other specific traits of each animal. Next, we would need to take in information from users or potential adopters and owners. If a user was interested in one of the animals, we would need

their information in order to respond and begin a discussion on a possible future adoption or returning an animal to their owner. So we created another table named “adoption”. This table was responsible for housing information such as name, phone number, email, and other information that a potential adopted would need to be contacted.

```
31 CREATE TABLE `adoption` (
32   `user_id` int(255) NOT NULL,
33   `user_name` varchar(255) NOT NULL,
34   `user_phone` varchar(255) NOT NULL,
35   `user_email` text NOT NULL,
36   `post_date` date NOT NULL
37 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

Once we had the a sufficient database, we could begin to make calls to it from each of our web pages. This enabled us to use different input and output methods such as forms and display information.

This lead to the next challenge of having the website interact with the database. When developing for a websites backend, “logic” is introduced to the webpage. Without logic, we would have no method of inputting and outputting information to the database. For our website’s logic, we decided to use PHP. This language was perfect for our development environment; as PHP can be written in conjunction with HTML. Developing our backend and frontend in a similar location helped with cohesion and made making modification very simple.

With the use of PHP, we could then make calls to the database. When information about an animal is submitted and finalized into the the database, visitors would then see this animal appear in areas such as the homepage and the “Missing & Found” page. Calls to the database also allows our website to avoid an “information overflow” or displaying an overabundance of information to visitors. The initial information displayed on the homepage includes a picture of the animal and the animal’s status (Lost, found, needs adopting, etc.). A visual of the animal is usually the first thing to catch the attention of a potential adopter or owner. Then if the user is so inclined, they can choose to view more information on the animal. This also means another call to the database. The database is also used for the submitting of forms, searching for specific animals, and managing animal statuses.

VI. Future Development and Challenges

As we move into the future, it is unquestionable that Zoaki will face new challenges. One of the major obstacles is growth and scalability. As more and more users begin to interact with the website, problems will undoubtedly begin to emerge within different sections of the website. One important factor is accuracy of information. Since users will be allowed to upload content to the website, we are trusting that the information being uploaded is somewhat correct. However, it is completely possible for a user to upload false information; be it intentionally or unintentionally. Being an emerging website with little user traffic, we can do quality control on uploaded information. However, as the amount of uploaded content increases, hand checking the accuracy of each post may become more difficult .

There might be several possible solutions to this problem. One solution may be the introduction of moderators to the website. Moderators often serve as a the “policing” force of a forum or website and govern uploads. For instance, if a post of a missing cat has a picture of a dog, the moderator can take the necessary steps to correct the post. Moderators may also be allowed to block users who they suspect of intentionally uploading false information; stopping these type of users from uploading altogether.

However, as the amount of uploaded information continues to grow, we may get to the point where we have to introduce nonhuman methods of ensuring accuracy. With machine learning become more popular and accessible, we could introduce an AI that can match animals to pictures. Or we could introduce a backend system that tracks a user's history. If a user has a history of accurate postings, the content would be posted to the website with minimal oversight. This means we won’t have to waste time and resources checking content that is more than likely correct.

Continuing with the trend of expanding information, we may have to look at alternate ways of storing and hosting large amounts of information. We are currently using MySQL for our backend. We don’t anticipate the complexity

of our website changing, so the quarry language should be more than ample moving forever. Where we might run into trouble is with hosting. Hosting requires uploading your website and its data to a hosting server; which isn't free. If we continue to host ever growing amounts of data, hosting can start to become very costly. Zoaki was designed with intention of being non-profit. We don't anticipate excessive hosting costs; especially how cheap it is to host a website. But if the site proves to be very popular, it could become a factor.

Lastly, Zoaki is a website, but we want its influences to be felt offline. We want to collaborate with people and organizations to help animals on the streets find homes and loving families. With the help of the organizations, we have more resources and a bigger following. This means that Zoaki would be used to post up pets in shelters that the shelters need the most help with. A lot of animals in shelters don't get a lot of attention through shelter websites. So posting up their profile on our website will bring them more exposure, which means more likely to get adopted.

VII. Conclusion

Zoaki was made by five college students who have a passion for programming and the will to save animals. Our mission is to get our website in the map and to make it better. Making a good website is key to get more traffic to our website. Not only does making a good looking website matter to us in terms of presentation, but it also will have a positive impact on the animals in shelters waiting for their forever family. Their lives are depended on them being noticed.

As a group, we learned a lot during this project. In the beginning stages of this project we were more focused on the functionality of the website and how it was going to transition. Near the end, after we got the functionality working, we worked on making the website look presentable.

However, there are still a lot of things need to be improved. First, we need to build a better and stronger connection with each because most of us have classes except the senior project, so sometime when we have question for a part of project that other member is responsible for, and he is working on other class, then we can only get his response after he finishes his class. Second, we need to focus more on the content since we are trying to help people know better about their pets, and to save more abandoned pets. Third, although the project was came out as we expect there are still a lot of things need to be improved like user-interface, database, content, loading speed, and more.

In conclusion, we are going to keep updating our website to make it look more professional and we are also going to add more content to it. In doing so, we will be saving more animals by putting in more information and an easier way for users to locate their forever pets. We are a group of people who have the power to help these lost pets, and we plan on using our knowledge to help them in whatever way.