Syracuse University

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Content Management System

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1.0 Junior Year

1.1 Early October

I responded to an email from the honors program soliciting help from someone with a technical background to work on an Honors Capstone project. The project would include building a Content Management System for the CitrusTV station video website, in collaboration with a Newhouse student.

In talking with the Honors Program, we determined that the amount of work that was required to develop the site would constitute its own project. Therefore, the work I would complete in order to build the Content Management System would in turn be my actual Honors Capstone project as well.

1.2 Late October

After receiving the Newhouse student's name, Alyssa Elias, I contacted her regarding the project, and we finally met to actually discuss the specifics of the project.

We met in Newhouse and she basically gave me an overview of what she had done so far, what her portion of the project would consist of, and outlined a timeline for the project.

1.2.0 Project Overview:

Alyssa showed me the actual CBS website that she had worked with over her summer internship at the company which was the inspiration for this project. She specifically discussed how she wanted people to be able to view videos, the accompanying article, and be able to comment on the work for the CitrusTV website.

Here is a current CBS website that Alyssa showed me. Notice how the video's title, comments, and article are placed below the video, and additional videos are placed along the side of the page.

Alyssa also discussed how the client for this project will be the Citrus TV station. She explained how she had already discussed this project with the Citrus

TV student run management team and they agreed this project would be a great addition to the Citrus TV station as a whole.

This relationship with Citrus TV is critical because a lot of the technical work required access to the station's video library, which would be given by the Citrus TV's student run management team.

Additionally, open dialogue between myself, Alyssa, and the Citrus TV's management would be needed to remain open in order to ensure all parts of the project were completed to the station's standards.

Finally, Alyssa described what she would be doing for her project. This was important to me particularly, because even though Citrus TV was my primary client, Alyssa was my secondary client.

Her main role was to act as a facilitator between the needs and requirements of the Citrus TV student-run management team, and what I was able to complete technically.

In addition to dealing with the station, Alyssa would also use her journalism skills in order to add her personal ideas regarding the functionality of the website based on her experience with CBS.

Once the site was completed, she would also take part in helping implement the site by writing a training manual for the Citrus TV staff and training the staff how to best utilize the new site.

1.2.1 Schedule:

   After we went over the finer details of the project, we agreed on a rough

timeline to help us with the project, which is outlined below:

Rough Timeline of Capstone Project	
Second Semester Junior	Complete necessary paper work for project proposal Begin examining different news sites and their layout Initiate communication with CitrusTV staff to begin gathering information regarding their site.
Summer between Junior/Senior Year	Continue in depth analysis of other news websites Finalize needs/wants of Alyssa and CitrusTV Begin layout of Content Management System
First Semester Senior Year	Meet with Alyssa/CitrusTV when first come back to get on the same page Begin actual work on the Content Management System Utilize Advisor for technical help
Second Semester Senior Year	Meet with Alyssa/CitrusTV when first come back to get on the same page Finalize work on the Content Management System in the beginning of the semester so Alyssa has time to prepare her side of the project

1.3.0 Work with Alyssa:

Alyssa and I had stayed in contact with each other over the beginning portion of the semester establishing ideas for the project and determining what was feasible and what was not realistic. Additionally, Alyssa also maintained lines of communication open with CitrusTV in order to build a relationship and also gain a better idea of what they wanted out of the project.

1.3.1 Deliverables:

Our main deliverable during this semester was our paper work necessary for our Capstone Advisors and Administrators. This included a 3-5 page project proposal which outlined what the project was, what our goal was, how and who would help us on the project, and what steps we needed to arrive at our end goal.

The main point of this project proposal was to actually write down our goals and ideas for the project in order to help us better structure the project. This exercise was helpful, because even though the project was significant in its stature, my mindset up until this point was one of procrastination. Since we had over a year left to work on and complete this project, I was putting off the actual start-date of the project, despite the need to begin work on it as soon as possible.

Overall, this project proposal was critical in the development of the project, because even though Alyssa and I had been working on the preliminary

steps, this deliverable was the catalyst which made me realize how much more we needed to have been doing in order to successfully complete the project.

1.4 Summer between Junior and Senior Year

1.4.0 *Work with Alyssa:*

This portion of the project was the most difficult to accomplish out of the rest of the timeframes throughout the project. The obvious reason for this challenge is the fact that it was much harder to get work done since everyone was on summer break.

Although Alyssa and I were committed to completing the project, it was difficult to communicate not only to each other, but also to the CitrusTV staff. This was mostly a function of the fact that people were on summer break, and did not check their emails as often as they did during the school year. Because of this, it took longer to just get ideas and information out to everyone, which inevitably slowed the project down.

1.4.1 CitrusTV Management Changes:

Although Alyssa and I did not think much about the challenges of working with an external client when we first began the project, we soon realized the difficulties of relying on an outside party in order to complete our project. At the beginning of the project, it was known to both of us that the CitrusTV student run management team was elected every year before winter break.

When Alyssa first contacted the management team during the first semester Junior year, they were very excited about the project and were ready to implement our work as soon as we completed the website. However, the new staff that was elected going into the Spring semester was less than excited for our project.

Alyssa and I did not realize these issues until over the summer when we started pushing deeper into the project, and our emails would rarely be responded to, if at all. At the time, we just figured this lack of enthusiasm was a result of the summer break, and looked forward to the start of school in order to get the most of our questions answered and work completed on the project.

1.4.2 Deliverables:

Our main goal over the summer was to work on ideas that would help develop the Content Management System that would be the most functional for the CitrusTV website and news station.

While Alyssa did most of the struggling with the CitrusTV staff, I reviewed and analyzed different news websites and examined how I would be able to incorporate the items I knew Alyssa and CitrusTV wanted in the Content Management System while also being realistic with the available technology.

2.0 Senior Year

2.1 First Meeting Back

Upon arriving to campus, Alyssa and I made it a point to sit down and cover over everything we had done up to this point in time. Despite Alyssa's struggles in working with the CitrusTV staff, she actually managed to obtain some examples and important ideas that they wanted to incorporate into the website.

One of the main goals they wanted was to ensure that the Content Management System looked and felt just like the original CitrusTV website did. Additionally, they wanted as much control over the Content Management System as possible, in order to make sure we did not use their content without their permission.

In addition to listening to what Alyssa learned, I also explained to her what I found over the summer and what was realistic in order to complete the project. For instance, I knew that although the CitrusTV staff wanted to control their content, I knew we would need some access to the raw video data on their website, in order to develop the Content Management System.

This type of open honesty between Alyssa and myself is what helped push the project along, and what allowed us to work so well together.

2.2 End of September

After discussing with Alyssa about the finer details of the requirements for the project, I now needed to begin actually building the website. Although I had sufficient technical background, I knew this project was above my skill level. As a result, I met with my advisor, Professor Susan Bonzi, to see what help was available.

When I spoke with my advisor, we realized that maybe a better solution to the project would be an Information Management System, rather than a Content Management System. The main difference between the two are that a Content Management System's aim is to manage work in a collaborative workspace, while an Information Management System is a system which allows data to be stored and accessed in an intelligent manner in order to maximize business efficiency.

Once my advisor helped me realize that an Information Management System would be the best solution for what my business needs were, she gave me the contact information of Professor Howard Turtle.

Professor Turtle specialized in Information Management Systems, so he would be the most useful person to discuss my project.

2.3 Beginning of October: Meeting with Professor Turtle

Based on my advisor's advice, I scheduled a meeting with Professor Turtle to review my project requirements and see how his expertise in Information Management Systems would best be utilized within my project.

In speaking with Professor Turtle, he gave me a more detailed description of what an Information Management System was, and how I could build one for the CitrusTV website. Also, Professor Turtle referenced me to one of his graduate student, Yatish Hegde, who would be able to sit down and actually assist me with my project.
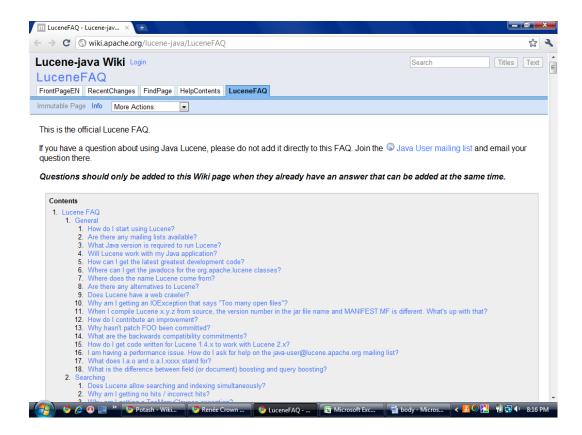
2.4 Mid October: Meeting with GA Yatish Hegde

Yatish was very helpful throughout my entire project, especially explaining to me exactly what tools I would need, and how to use those tools in order to complete the project. He first began by explaining to me how the entire system would work, and then went into greater detail into each separate sub-system.

The main system would utilize an indexing program known as Lucene, which was first proposed by Professor Turtle. Lucene is an open source indexing software which allows users to develop and retrieve information from a directory.

Yatish helped educate me on the finer workings of Lucene by sending me self-tutorial programs. These tutorials showed me how to use Lucene, in addition to explaining in even greater detail how the program actually worked.

This is an example of one of his tutorials:

We also covered the development of the directory necessary for the Lucene software to pull data from a source in order to display the videos and content. This part of the project would require me to work closely with Alyssa and the CitrusTV management team in order to obtain copies of the content so I would be able to create the directory.

Also, since Lucene is in Java, the directory would also need to be created using Java, in order to allow for similarities in the programs.

2.5 End of October to the end of November

Although a lot of effort was being put forth in order to complete the project throughout this timeframe, not much ground was actually accomplished as a result of several challenges.

2.5.0 CitrusTV Management Changes:

This was the major issue Alyssa and I faced as a team while trying to complete this project for the remainder of the year. The reason for this is because of two issues, the lack of enthusiasm to help us develop this project, and the elections of the new CitrusTV management staff at the end of the first semester both school years.

Throughout the first semester Senior year, we quickly realized that the current CitrusTV management team had very little interest in helping us with our project. We recognized this from the lack of communication over the summer, but at the time attributed that to the summer break. However, as the semester continued, it was apparent that the CitrusTV management team was not interested in our project.

This was difficult for both Alyssa and myself, because we had already spent almost a year working on this project, and needed CitrusTV's cooperation in order to complete the project as we outlined when we first began the capstone project.

The second issue was the election of a new CitrusTV management team in the end of the first semester of both Junior and Senior year. This change over in

administration meant that by the time we would finish the project, we would have worked under three different CitrusTV management teams throughout the duration of this project.

Additionally, it added a level of uncertainty, because as we had learned from the last staff, this new management's perception and cooperation with our project could potentially mean the end of the project as we knew it at that point.

2.5.1 Late November: Meeting with John Glass

John Glass is a professor in Newhouse, and Alyssa's advisor for the project. After listening to Alyssa's problems with the project surrounding the issues of the CitrusTV management team, he asked to meet with the both of us to discuss what could be done to correct this issue.

In the meeting with Professor Glass, we discussed all that Alyssa and I had accomplished for the project, and how issues with the CitrusTV management team had affected our planned deliverables. After a long debate about how to move forward, we came to a conclusion that we should slightly change Alyssa's portion of the project to be a theoretical implementation of my website rather than our planned scenario where CitrusTV actually uses our Information Management System.

The purpose of this change is to give Alyssa and myself more flexibility and control in our own project, so we would be less influenced by challenges with CitrusTV management. This was later approved by the capstone administration

because the challenges we had faced with the CitrusTV management staff was an external force out of our control.

Additionally, we would still collectively be creating a working website, except we would not actually be teaching it to anyone for practical use. As a result, although the project's final goal was modified, the same deliverables were expected of us with slight considerations for our unforeseeable challenges.

2.5.2 Second Meeting with Yatish:

After our meeting with Professor Glass, Alyssa and I were very excited to continue work on our project. My goal over the winter break was to do most of the work on the website that I should have done over the semester but was otherwise unable to complete due to CitrusTV management complications.

This big push to get as much work done over winter break prompted me to meet with my GA contact Yatish in order to finalize the project plan and to ask a few questions I was having concerning the directory.

At first, I updated Yatish on the recent challenges with the CitrusTV management team and the modifications we made to Alyssa's portion of the project. Secondly, I described how the CitrusTV management team was not giving me access to their video content. Without this content, I would not be able to build the directory that Lucene would use to pull data from, effectively preventing the project from being completed.

After some consideration, Yatish and I determined that the system which would allow me still complete my project while avoiding this barrier, would be the original plan of a Content Management System.

Since I knew how to develop a Content Management System, I was able to work on the remainder of the project on my own. However, Yatish still offered his services in case I ran into some trouble throughout the rest of my project.

2.6 Second Semester Senior Year

2.6.0 Work with Alyssa:

In the beginning of this semester, as we did with the previous semester, Alyssa and I met again to update each other on what the other had done on the project since the last time we spoke. Additionally, she wanted to give me an idea who the new CitrusTV management team was, and how her relationship had evolved while interacting with them.

Over the break, she had spoken with the new CitrusTV management team and developed a reasonable relationship with them concerning our project. They agreed to give us some CitrusTV logos to legitimatize the website and suggestions on how to better lay it out based on their news experience.

An example of their logo is displayed below:

This re-built relationship was greatly appreciated by Alyssa and myself, and we scheduled a meeting with the CitrusTV General Manager officer in order to see what else a news station like themselves would need, if they were to ever adopt a Content Management System like the one we were working on.

2.6.1 Schedule:

Since we only had one semester left to complete the project, and we were already behind schedule, Alyssa and I created a new timeline of when we wanted to complete items by, in order to stay on task during this crunch time period.

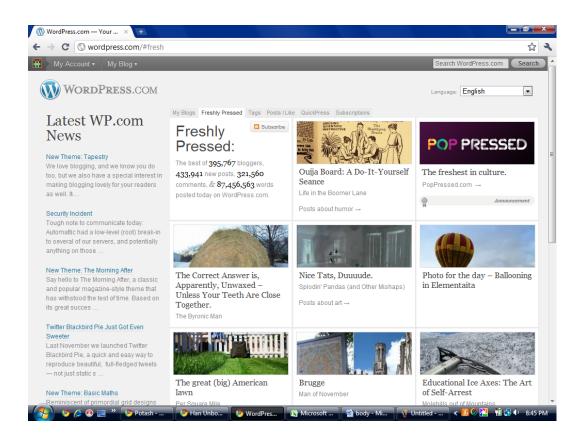| Second Semester Senior Year Timeline	
Mid-February	Have the first rough draft of the website completed
End of February	Receive review from Alyssa and CitrusTV staff on areas of revision
Mid-March	Submit revised website to Alyssa for final corrections
End of March	Receive revisions from Alyssa
Beginning of April	Meet with Alyssa to completely go over the website and make any small changes necessary

2.6.2 Deliverables:

As outlined in the schedule, I needed to complete the Content

Management System by mid-February. At the beginning of the semester, I had

opened an account with wordpress, which is a free Content Management System,

and familiarized myself with the website.

An example of wordpress is displayed below. Wordpress is known for its

easy to use displays and features, which make it great to individualize your own

website.

The actual site needed to be completed as soon as possible, so I would be

able to give it to Alyssa and let her make her journalistic improvements.

2.7 January to Mid-Febrauary

Most of my work on the Content Management System took place between this time period. The major issue I had when developing the website was finding CitrusTV video and being able to incorporate that video to the website.

Although relations with the CitrusTV management team had improved after the elections, the staff would still not allow any of the video to be released for our Content Management System. However, after exploring wordpress, I found that there was a video embedding add-on that would allow several different public video website, such as youtube, to be uploaded to the wordpress website.

As a result, one of my questions for our meeting with the CitrusTV General Manager officer would be to see if any of the CitrusTV videos had been or could possibly be uploaded to one of these public video websites.

2.7.0 Meeting with Ben Slutzky:

At the end of January, Alyssa and I met with Ben Slutzky, who is the General Manager officer for the CitrusTV management team. Our discussion with Ben was mainly to see what he thought of the site so far, and if there was any way we could have some videos to embed in the website.

Although Ben was open with us about what changes he would suggest we make to the site from a functionality stand point, he was unable to give us any videos from the CitrusTV website. However, he did mention that some of the

videos had been uploaded to youtube, so it was okay to use any of those videos for our website.

3.0 Final Push

Hearing from Ben that some of the CitrusTV videos had already been uploaded to youtube was a huge success for our project. The only final issue with this solution was the fact that the wordpress video add-on cost just over $55. After discussing this with the Honor Administration however, they explained that I was entitled to a reimbursable budget of $200, which would obviously cover the $55 price tag of the add-on.

Once this speed-bump was overcome, I was able to finally embed youtube videos onto the wordpress website. All that had to be done, was find different segments of CitrusTV videos that had been posted on youtube, and embed those into the wordpress. As are result, the Content Management System was fully operational, even without the video access granted by the CitrusTV management staff.

3.1 Alyssa's Contribution

Once I completed the functionality of the site, I submitted the wordpress website to Alyssa for review. During this time, Alyssa also incorporated some journalistic items, such as the CitrusTV logo, and a link to the original CitrusTV website.

Alyssa had a lot of great ideas for the website, which she was able to develop based on her internship with CBS. However, she was not able to complete some of the additions that she wanted to do, so she resubmitted the project to me to see if I could make the adjustments.

3.2 Final Product

In the end, Alyssa and I were very happy with our Content Management System. Although the project took many different turns and was constantly changing for both of us, we did learn a lot in the end.

I learned a lot about what it is like to develop systems for multiple clients, and how politics can quickly change any project and its goals. From this, I also learned that you need to be flexible and ready to change your mindset in order to achieve the final outcome, even if it is different from what you originally intended.

In addition to my experiences in working with people, I learned a lot about both Information Management Systems and Content Management Systems. In

hindsight, having to research and understand both Management Systems was a benefit to myself, because I was able to expose myself to two different systems.

Even though at the time I was upset and discouraged by having to constantly change my project, and at some points throw-away what I had already produced, I am a more knowledgeable person for the experience.
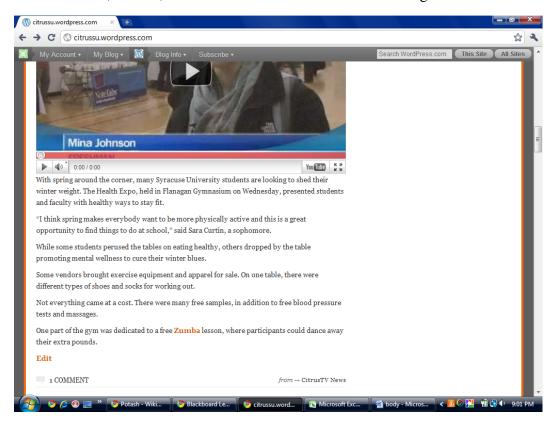
4.0 Appendix

Examples of the final Content Management System and the different pages are displayed below. The website address is www.citrussu.wordpress.com.

Home Page:

View of Video, Article, and with Comment section of Home Page:

Comment Section of above article:
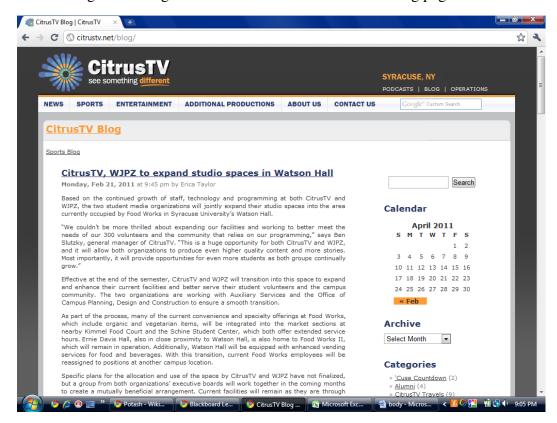
News Tab:

Entertainment Tab:

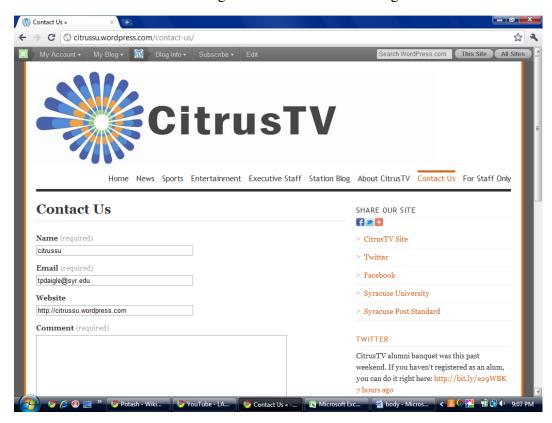Executive Staff: Includes bios of the CitrusTV management staff

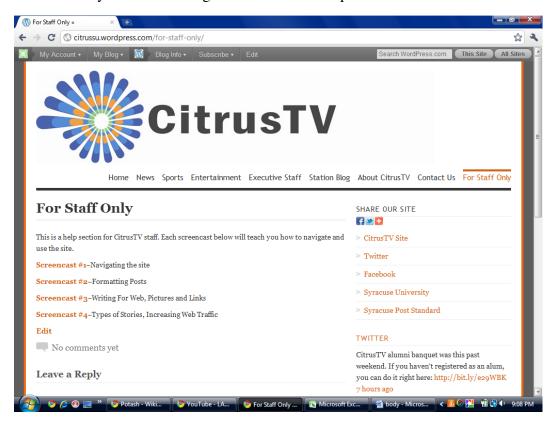Station Blog Tab: Brings user back to the actual CitrusTV blog page

About CitrusTV Tab: Small excerpts about what CitrusTV is

Contact Us Tab: Allows user to get in touch with site manager

For Staff Only: Includes user guide and links to help teach how to use the site

Share Our Site: Allows user to follow our page, in addition to travel to other news/social networking sites of interest