A Student Project Experience: A Virtual Campus Tour

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**ABSTRACT**

This paper describes a class project combining web technology, communications, and graphic design to produce a virtual campus tour. This project combined interdisciplinary learning, modern web technology, and service to the institution. We believe that this serves as a case study in putting Computer Science into a larger context, allowing students to collaborate with outsiders that have expertise in a variety of areas. This project was “just right” in a number of ways: it was doable in a single semester, it surpassed the capabilities of an existing expensive software system, and could be implemented in a stand-alone manner.

**INTRODUCTION**

Talk about the difficulty in providing students with a realistic software development experience. Cite some SIGCSE papers here. Stress the importance of interactions with people outside of the Computer Science community. Motivate students by working on a project that can go live and is important to the institution.

Talk about client side web programming and the Javascript software development process.

**Background**

Talk about the old tour and its deficiencies. Mention the cost of the old tour ($20,000 / year).

This project was created when there was a need for an updated version of our current virtual tour. Every year the institution spent $20,000 for a tour on YouVisit. YouVisit is a service that creates a virtual tour for a school, resort, or any other imaginable place. Multiple schools use this website but it has some serious downfalls. The YouVisit tour has an audio recording on students trying to guide you. Instead of being helpful these students are extremely annoying. Additionally when one actually tries to use the tour there is a superfluous amount of stops between each building/location. The map that YouVisit uses to help guide the user to their location had issues with movability and the display. There was little too no branding representing our university. Annoying pop-ups would appear urging the future student to contact admissions. Any additional content such as panoramas, pictures, or videos were severely disconnected from the original tour. As a class, the tour that YouVisit had produced did not suit what we believed future students should be experiencing and did not represent our university. When one used the previous tour the school was paying for, they were not understanding what it was like to attend our university.

**Project Goals**

Design goals of the tour:

1. Incorporate the institutions marketing message into the tour
2. Create a tour that uses a variety of media to “tell the story” of the institution, including information about the location, the community, the surrounding area.
3. The tour should be personalized – information should come from student voices
4. The tour must work on most devices – from phones to full sized screens

**METHODOLOGY**

In order to begin the Virtual Tour Project, the class needed to be divided up into groups to work on certain aspects. Some of the groups consisted of the menu, spy, carousel, testing, integration, etc. One of the main tasks for the spy was to investigate current campus tours and Javascript libraries that other Universities were using. We found many great libraries and tours to choose from but we needed to narrow it down. This was a great place to start because it allowed us to figure out what and how we wanted to build our Virtual Tour. Eventually, the groups began coding separate parts of the tour and presenting them to the class. These groups were given input on their code and sent back to make improvements before the pieces were integrated together. The integration group was divvyed into about 4 people who were in charge of making sure all of the code fit together nicely. As you can imagine, with multiple groups creating their own code, this took some time. One of the individuals was in charge of the screen layout and making sure that the tour was suitable for everyone. Once we had the basic structure of the tour, we began testing in different browsers and difference devices. This process was very important because of the popularity of mobile devices. After multiple presentations to the marketing department, we reached the point where the tour was ready to present to the cabinet. The cabinet was impressed and gave positive feedback on the tour. They liked it enough to give us funding over the summer and continue making progress on the tour.

**Key Technologies: Quinn** (Since you worked on this)

Steps in creating the project

1. Investigation of current Javascript technologies
2. Investigation of existing campus tours
3. Decision to put the logic at the client side
4. Coding of separate parts
5. Integration and testing
6. Use of meta-programming to customize the project and avoid using a remote database
7. Presentation to the cabinet and funding

Key technologies:

1. Javascript development environments – talk about browser-based development
2. Javascript libraries – To simplify the project and amount of hand-written code produced, JavaScript libraries were utilized. Multiple libraries were used to simplify individual steps in the project.
3. Source code control (git) -

**RESULTS**

Describe the basic engineering of the system. Don’t go too deep into specifics – no need for massive code dumps.

1. Talk about the basic structure of the project: a single html file with javascript support that implements a state machine.
2. Talk about the layout of the screen and how the different objects are integrated.
3. Talk about the data underlying the tour and the classes that represent it.
4. Talk about different roles that students had during development.

**FUTURE WORK**

Talk about current work on this project: adding analytics, working with marketing add and evaluate content, adding a call to action. Point out that this is a continuing opportunity for student employment.

**CONCLUSIONS**

Talk about the

Status and future work.

**REFERENCES**

[1] Something about the web as a communications medium

[2] Something about the shift from server based to client based web logic

[3] Something about selecting good projects for students

[4] Something about student collaboration on an interdisciplinary project

[1] Abrams, J., A definitive proposal for solving all NP-complete graph problems, *Journal of the Impossible*, 10 (3), 34-35, 1999.

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[3] More, N. O., *Handbook of Known Solutions to the Traveling Salesman Problem*, Amarillo, TX: Big House Publishing, 2000.