**Our Solution**

With the collaboration of Mr.Willard and Professor Sabal, my colleague and I were able to produce a solution to meet the desires and needs of Virtual Charity Events through our internship positions. Our first assessment was that of Virtual Charity Events’ needs and desires through the eyes of Mr.Willard the owner. He desired that Virtual Charity Events would have its own online registration platform that is simple and user friendly, as Mr.Willard himself does not have much experience with computer programming or coding. The purpose of such a platform was to combat the fees involved with using third-party online registration platforms. Mr.Willard desired a drag-and-drop format be applied to the process of making the registration forms online. He felt that this would be the most user-friendly interface for his clientele. We informed Mr.Willard that this would not exactly be possible to push the project this far in the three-month time-frame of our internship and his solution was that other interns could step in and take our roles once our internship period was over. This was an excellent solution and plays into our solution and recommendations for Virtual Charity Events. We agreed with Mr.Willard that in order to combat the issues that were arising with third-party fees that it was necessary for Virtual Charity Events to have and maintain their own online registration platform. However, since the timeframe allotted to our internship was too short we decided that the project would be done in phases. In these phases, differing teams of interns would work for Virtual Charity Events and work on progressing the phases until the project was completed. Therefore, we were planning and working on completing phase one. In a collaborative effort, the project became known as V.C.E. Velocity, with the hopes that Virtual Charity Events could use this in the future to expand their brand.

Phase One

This phase would be the foundation for the following phases and specific deliverables were proposed. Due to the complexity of creating an entire online platform we were advised to use the Drupal 8 Content Management System in order to reduce the time and energy spent on back-end coding and database creation. The initial deliverables for phase one were as follows but were not limited to:

* The creation of a Landing Page with a secure Login Functionality and Registration Functionality
* Neat and Organized Custom Registration Page Builder
* Functional PayPal Payment Gateway
* Complete Documentation for Maintenance/Administration purposes
* Complete Documentation for Companies who will be using the platform

Our Work

Our work then began, as neither of us had ever done any work with Drupal 8, so we had to learn the basics and intermediates fo the Drupal 8 platform. This helped us to generate ideas of what is absolutely necessary for the base model site for phase one. This process also involved us learning how to install Drupal and the use of puTY and FileZilla in order to access and move files and information of the csinfo servers hosted by Cairn University. Once we felt comfortable with our skills while also learning new skills along the way we began to experiment and build. Our largest challenge we realized was that of our payment gateway. In phase one, PayPal is to be the intended payment gateway because it integrates well with Drupal 8 and has many capabilities that are already pre-built. PayPal unfortunately still has some fees involved but they have an increased reduced rate for non-profit organizations like that of Virtual Charity Events. However, in future phases, a new payment gateway will hopefully be implemented to eliminate fees as much as possible. We set up a PayPal sandbox account and installed the Commerce and PayPal modules for Drupal 8 and were eventually successful with the set-up and execution of paying for a registration slot.

The second place where our work brought us was to deal with the creation and maintenance of registration forms. Drupal 8 has a pre-build module called Webforms that allows administrators of the site to create and maintain Webforms, which are simply online registration forms. These forms can all be unique and can be customized to fit the organization that is creating them. We then determined that we could establish accounts and provide only certain permissions so that in theory the companies that Mr.Willard works with could have an account that has the capability to create and maintain webforms without providing them with too many privileges. We were also able to implement a login page that allows for users to create an account but privileges must be given by an administrator. We also included a riddle CAPTCHA feature to help protect the site against bot attacks that try to create thousands of accounts and disable our site. This riddle CAPTCHA feature is and can also be included on any webform to prevent bot attacks as well.

Once the above were completed we knew that we would need to provide accurate and complete documentation as well as instruction on how to use our new platform. Therefore, we created a documentation manual that provides the necessary steps with photos of how to create webforms and maintain them. We also knew that reporting features would be necessary and we include instructions on how to download the webform submissions into an HTML, CSV, or Excel file for the use of the Virtual Charity Events and their clients. We aslo created a YouTube channel and have uploaded short videos to help the visual learners with creating and maintaining Webforms.

Once all of the above was completed the site was ready to be moved to a Live version.

(still missing some of the info here because it has not happened yet… Waiting for the Go Live.)

Conclusions and Recommendations

In conclusion, this project did not come without error on our behalf and we learned a lot from those errors. In the process of creating our site, we have to start from scratch five times because of mistakes that left our site in chaos and unfunctional. This brought the lesson of having and taking back-ups so that we can restore a site before our mistake occurred. It also taught us the importance of documentation. Drupal is an open software and therefore people are free to create and publish content for other people to use. However, many of these creations have no documentation on how to use and implement them effectively and correctly. We desire to not happen with our site as we want future interns to be able to pick up where we left off. It also forced us to pick up and learn new skills, specifically command line prompts to help us navigate the server and move and remove information.

As for recommendations, it is unknown how many internship teams will be needed to complete this project however, there can be a plan for the future phases. Building off of phase one, phase two would be to add in additional payment gateways for change payment gateways to one that has little to no fee to process payments. It would also include the possibility to have the payment gateway become completely automated on our site, no moving to an off-site processor like that of PayPal. This may involve interns working on creating their own payment processor and creating a Drupal 8 Module. Phase three would work to incorporate the drag-and-drop functionality of registration form creation that Mr.Willard envisions for Virtual Charity Events. This process also may include the coding and creation of modules for Drupal 8. Phase four would then be the final phase, in which Virtual Charity Events may want to consider using the V.C.E. Velocity brand to create other online resources for their clients. Drawing from the work that has been complete this summer it has been an honor to work with and for Virtual Charity Events and Mr.Willard. Much has been learned and experience gained that provides valuable insight for the future.