EPICS Website

Project Paper

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Chapter 1: Introduction

Engineering projects in community service, or more formally known as EPICS, allows for students to do real-world engineering projects while doing good for their community. EPICS is a course that all Butler computer science and software engineering (CSSE) students are required to take. However, it is common for other students who are not CSSE majors to take as well. If someone wanted to learn more about EPICS at Butler, the first resource they would turn to is its website: <https://epics.butler.edu/>.

Students may choose from a wide variety of projects for non-profit organizations including The Polis Center, WFYI, and the Ronald McDonald House of Indiana. Because EPICS at Butler is also a non-profit, Butler students also have the opportunity to complete a project supporting it. Commonly, this includes working on the EPICS website. The last time the EPICS website was worked on was in the spring of 2019, but it has been a while since the website has completed an aesthetic overhaul.

This semester, our main objectives were to improve the website's appearance while adding some functionality for collaboration. The team members and their roles are listed below:

Brianna Sorenson: Team leader & scrum master

Zach Tran: Team member & design leader

Tim Winter: Team member & design consultant

Our stakeholder and the leader of EPICS at Butler, Dr. Panos Linos, helped to provide these main objectives and refine our ideas as we progressed through the semester.

The entirety of the process used to revamp the look of the EPICS website while adding collaboration tools will be discussed in detail in this paper. This will include a chapter on the initial research and data acquisition done by surveying the student and stakeholders/advisors/consultants followed by a chapter examining the new minimalistic design and architecture for the website.

The next few chapters will discuss the implementation of our aesthetic changes as well as the implementation of some collaboration tools and the testing of those changes. Lastly, our team's organizational structure will be highlighted before finishing with a discussion of future work to be done that will aid the progression of the EPICS website in the years to come.

The overarching goals we had for the appearance of the website was to create a more minimalistic website that was easy to navigate using brands like Apple for inspiration. As for the collaboration tools, initially we thought a messaging system would be adequate but later found out there are a plethora of tools and plugins[[1]](#footnote-0) available to boost collaboration using the website. First, though, we needed to validate our intuition by getting feedback from the actual users of the website.

Chapter 2: Requirements Specifications

Given that this EPICS website is supposed to be a resource for all of the students taking the EPICS course, it was imperative to get feedback from the class in order to influence our decision making. We thought it was important to get feedback from stakeholders, advisors, and consultants. Two surveys were created for each functional group: a survey for the students and a survey for the stakeholders, advisors, and consultants.

The student survey had the following questions:

1. Do you see the EPICS website as a useful tool as is right now?
2. How do you feel about the aesthetic appeal of the website
3. Name a website that you think is modern looking and easy to navigate
4. Is there anything on the website you'd like to make it easier to interact with your stakeholder?
5. How likely are you to reach out to a consultant for help on your project?
6. Would you be more likely to reach out to a consultant if there was an easy way to do it on the EPICS website?
7. If you inherited a project from a previous semester, what has been the most challenging part about that transition. Is there anything that would make that transition easier?
8. What information do you think should be presented on the EPICS website homepage?
9. Are there any other improvements you would like to see on the EPICS website?

There were three focuses for the set of survey questions for the students. Consequently, these focuses were strongly correlated with the requirements and specifications we had for this project. The first focus was about organization and aesthetic appeal of the website. The second focus was to see how the website could help facilitate collaboration between the students and the stakeholders/consultants. The last focus was aimed at creating a more seamless project handoff as project teams change from semester to semester.

Similar questions were asked of the stakeholders, advisors, and consultants:

1. As an advisor/consultant, would you like to be able to use the EPICS website to collaborate with the students?
2. How do you feel about the aesthetic appeal of the website
3. Name a website that you think is modern looking and easy to navigate
4. What kinds of tools would make it easier to interact with the students you're working with?
5. What has been the most challenging aspect of working with your student groups in the past?
6. What information do you think should be presented on the EPICS website homepage?
7. Are there any other improvements you would like to see on the EPICS website?

Overall, a total of sixteen student responses and seven stakeholder/advisor/consultant responses were received. Two figures are shown below with results from the student survey. The first figure shows that students are more likely to reach out to consultants if there was an easier way to reach out to them on the EPICS website.

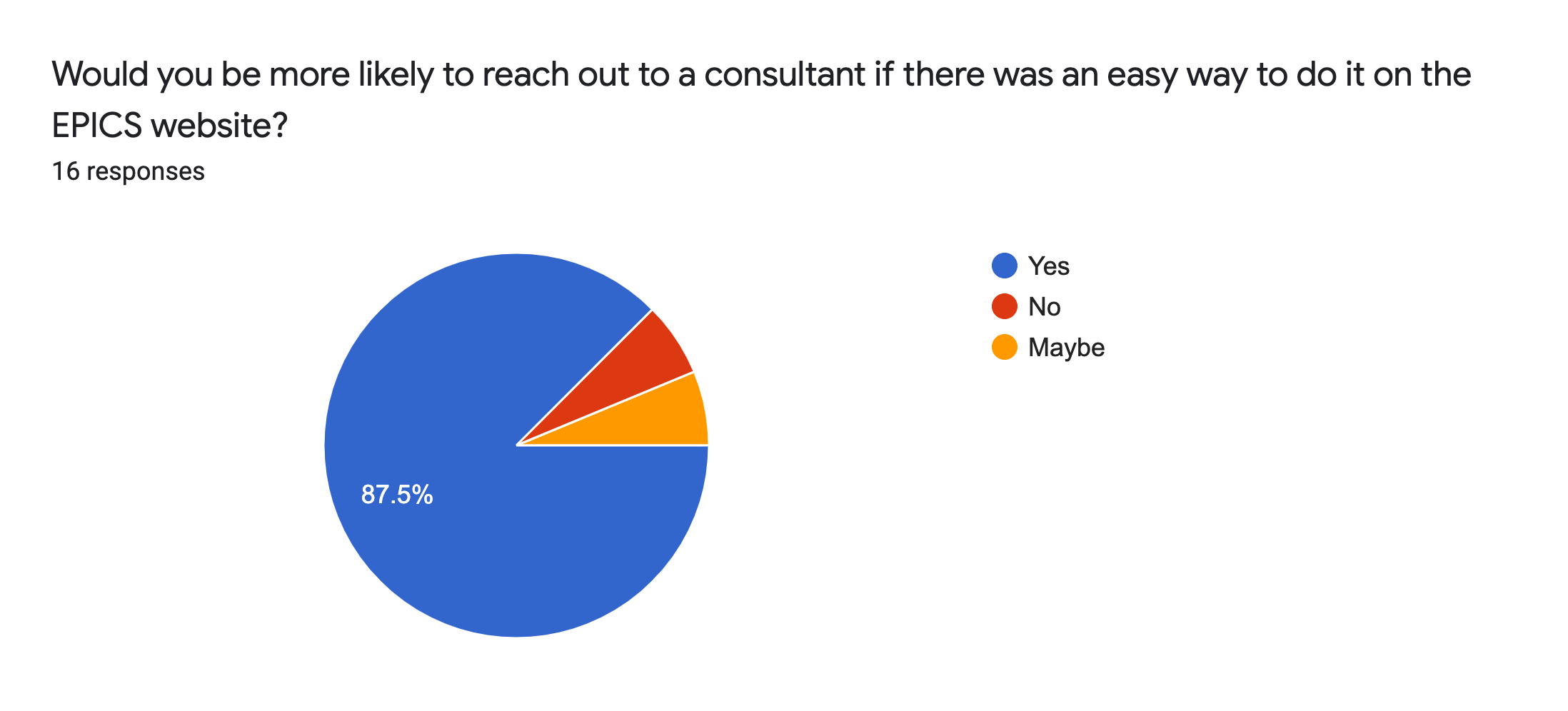


Figure 1: Student survey results

The second figure highlights what students think should be presented on the EPICS homepage. Overwhelmingly, they thought that a paragraph summarizing EPICS and corresponding video should be included.

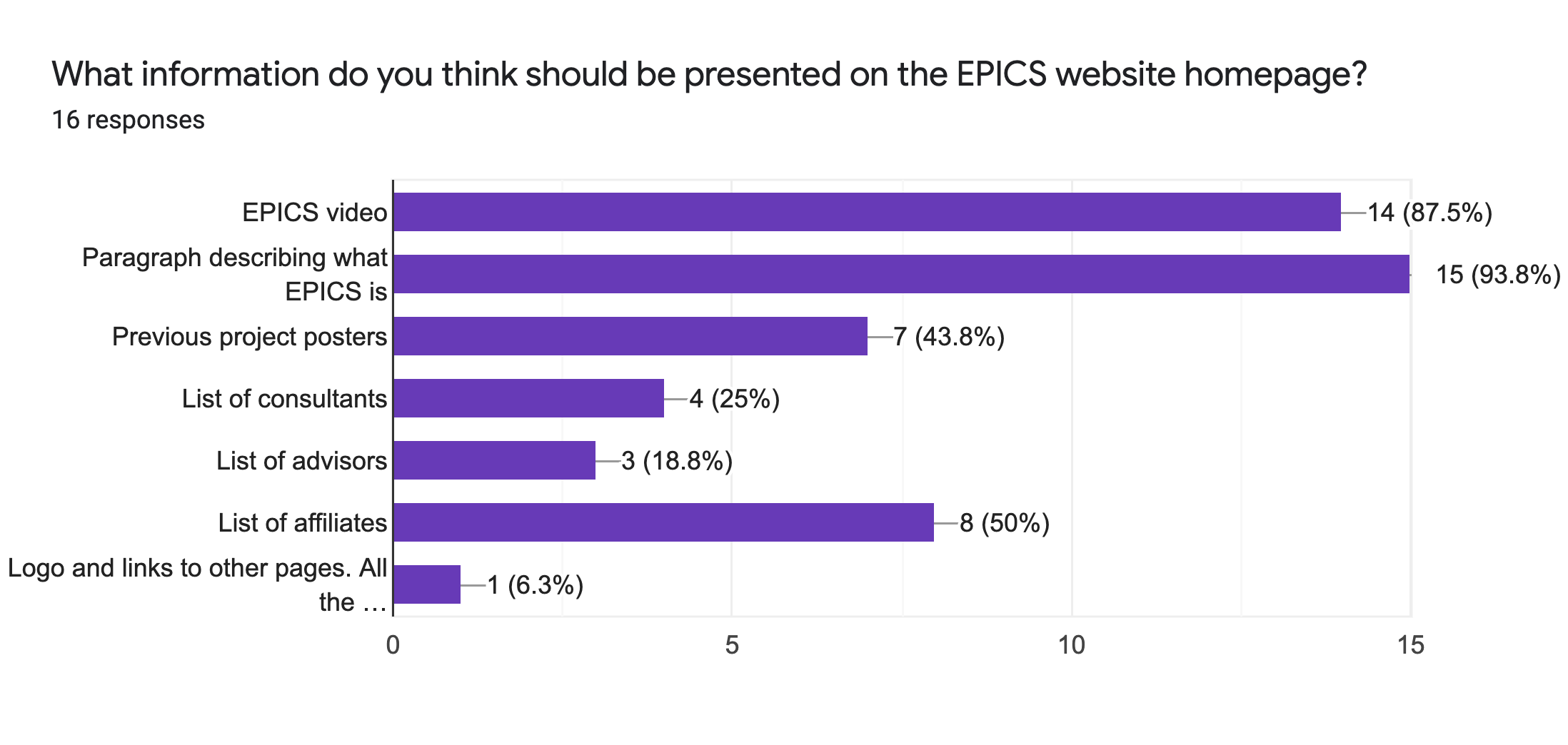


Figure 2: Student survey results

Comprehensive results from both the student and stakeholder/advisor/consultant survey can be seen in the appendices.

The last consideration we needed to keep in mind while revamping the EPICS website was to ensure that the website would be functional for years to come. To do this, we are ensuring that this paper encapsulates our work well in addition to cleaning up the trello board for the website.

By establishing ample information for project handoff and making as much progress with the work we have started this semester, the EPICS website will hopefully see its full makeover within the next year. However, it still may be important to continue to survey the students to gauge their changing needs and opinions. While the makeover will be completed soon, the website requirements will continue to be dynamic, so it's imperative to keep innovating.

Chapter 3: Architecture

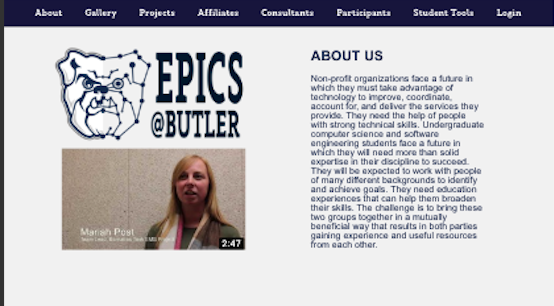
The EPICS website was created and is maintained through WordPress. This allows for relatively easy creation and modification of pages. WordPress is also very beneficial when there are several users working on the same website because it allows several users to have access to the editing of the website.Additionally, developers have the privilege to do things like create user accounts.

With their accounts, users are able to upload and store their work on the EPICS website. This storage process is the main interaction between the website and the users. For less frequent users, or visitors, the website is designed to serve an informational purpose. The website portrays what EPICS is, who the people of EPICS are, and what EPICS does for students and the community. From the developers’ side, there have been several components added to the design process this semester. Adobe XD and several WordPress plugins make up these components. Adobe XD was used to create the wireframe, externally from WordPress. Plugins, like Elementor, were used to implement the wireframe into WordPress. This semester, we also added a messenger component to the website. The messenger will allow users to be much more involved with the website.

Chapter 4: Design

One of the main goals of this project was reimagining the EPICS website in a minimalism style that more aesthetically portrays what EPICS is, who we are, who we help and how we do it. We looked at the websites of some of the most recognizable brands in the world, like Apple, Microsoft, Nike and many more, to gather an idea of what a successful, professional website looked like.

While keeping that vision in mind, we looked carefully at the feedback we received from the surveys. It was decided to keep very similar information to the previous website along with the addition of a built-in messenger. The next step was to take all of these ideas and begin building a wireframe using Adobe XD. After several discussions amongst our team and Dr. Linos while considering feedback from our peers and consultants, we finally landed on an aesthetically-pleasing, informative and well-received design:

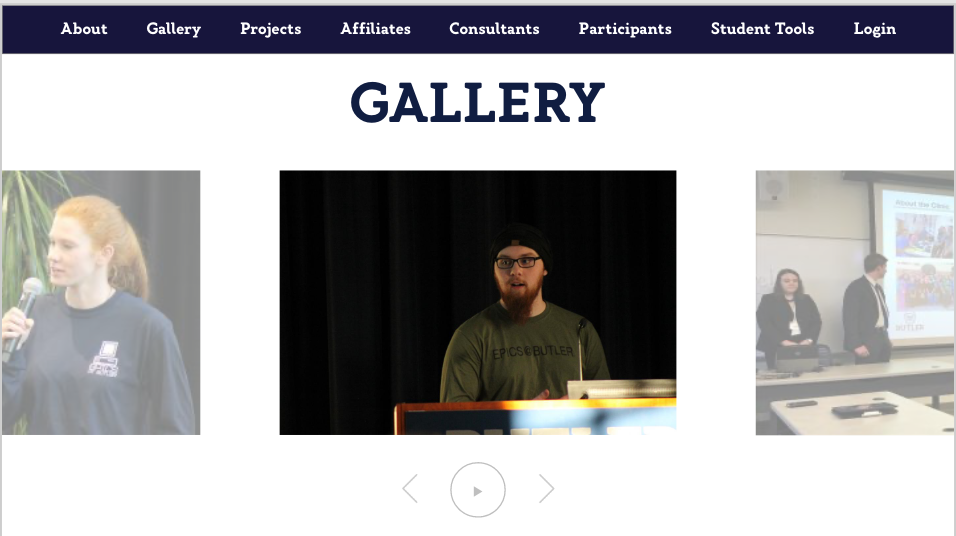


A big part of the new design is the new EPICS@butler logo, created by a fellow student, Nicole Lessig. It is shown in the above picture. This is the main screen that users will see upon going to the website. There was considerable discussion about brand recognition, so we wanted to display the new logo prominently on the home screen. We also wanted to tell visitors what EPICS is about, which is accomplished by both the ‘About Us’ section and the YouTube video.

Scrolling down from that page, the viewer is able to find out more information about EPICS affiliates, past projects, publications, consultants and advisors:



The other pages of the website are intended to display a more focused version of what’s found on the home screen.



Although the information is the same as the previous version of the EPICS website, our team really focused on providing a much better user experience. This ‘Gallery’ and ‘EPICS PROJECTS’ pages are much cleaner with the use of slide decks. Our team feels that this look will encourage users to frequent the website much more often, which mirrors the feedback from fellow students.

Chapter 5: Implementation

In order to meet the requirements that were set out for us this semester, we looked to existing plugins on Wordpress to find what options were available, so that it would be easy to test play around with. One of those options is Front End PM. It allows Wordpress users to add a messaging interface to their site. It was the first plugin we added and is a good solution to the problem of lacking methods of communication between clients and their team or teams and consultants. Once we added the ability for people to register their own accounts on the EPICS site, we were able to let anyone who had done this play around with the feature so that we could see what features people liked that this plugin has, what features are missing that people want, and what features are perhaps oddly implemented in the plugin, or leave things to be desired.

Our team has tested this plugin quite a bit, and while it may have a few clunky aspects to it like if one person deletes a message, the other person in that thread cannot reply to those messages anymore, it is perfectly functional for what its purpose is and we think it works well enough in a pinch. Other solutions can always be found in the future if we outgrow it.

Elementor is the next plugin we added so that we could use its drag and drop editing capabilities to more easily change the website pages to look like our wireframe designs. While its free features seem to work well enough for our purposes, adding something as simple as a slideshow to a page is a pro only feature, and we had planned on utilizing slides in various points throughout the wire frame. Zach has attempted to contact the developers of this plugin to see if they would consider a discounted or free version of the plugin for educational purposes, but they have not responded.

Lastly, we began playing around with the plugin Project Panorama for its project management features and document sharing, as we thought those features would be highly beneficial to the EPICS program. Similarly to Elementor, however, it also has features we would love to get our hands on locked behind a paywall. We have been able to use its free version, though, and we are big fans of how it calculates project completion based off of its tasks. We also like that it has its own messaging feature at the bottom of the project pages as well. It is very aesthetically well designed and it would be a dream to get some front end editing abilities along with those great features.

Overall, there are many viable options for different plugins that could be added to the website. One of the challenges future teams will have to deal with is either finding something comparable that is free or deciding which plugin would be the best to purchase.

Chapter 6: Quality Assurance & Testing {Bri}

* Reviewed wireframe within class and non-involved professor, Dr. Carrie Rector
* Vigorously tested messaging plug-in amongst our group
  + Asked all students in the class to test it as well by registering an account
* Sent out surveys to students / clients / consultants to decide which information on website is relevant / useful

As mentioned in the previous section, we tested the Front End PM plugin amongst our team and found it to be satisfactory for our purposes. We also asked the rest of the EPICS class to register accounts so that they may be able to test it out as well. We also sent out separate surveys to the students, product owners, and consultants so that we may learn what features they thought needed improvement in the EPICS website, what features were satisfactory, and what problems there were that new features may be able to fix. We were able to get lots of good feedback about our wireframe drafts which helped us to make it look better and more in line with the university’s design style.

Chapter 7: Project Organization & Management

Our three person team was effective in meeting the product owner’s wishes for this project because we were able to split up our tasks and responsibilities well. Brianna Sorenson is the Scrum master and handled the team administration, weekly status reports, and worked with the Front End PM and Project Panorama plugins as well as small miscellaneous back end tasks. Tim Winter handles distributing and creating the various surveys, compiling and interpreting the data collected from those surveys, and constructing graphical models of said data. Zach Tran is responsible for the wireframe development, implementation thereof with Elementor, and correspondence with outside experts and plugin developers.

Chapter 8: Future Work

Considering the EPICS website hasn't had a refresh in quite some time, scaling up some of our changes to the website will require more than one semester to execute. Furthermore, we have been able to brainstorm ideas that will allow a more symbiotic relationship between the EPICS website and the EPICS projects. Three major projects initiated this semester will need further work by the webmaster and future EPCIS website teams.

1. Implement the full wireframe

This includes a complete aesthetic refresh on the entire EPICS website. This is a considerable undertaking, so it will take some time.

1. Complete testing and publish the messaging system

The messaging system is already on the EPICS website for testing. Bugs will need to be worked out as future groups start to use this tool to communicate with their stakeholders

1. Extend the messaging capabilities by implementing a project-management plugin

Because the project-management plugins were a late find, more research will need to be done into these tools. However, using one of these plugins for EPICS is very promising.

References/bibliography

* Elementor plug-in
* Messages plug-in
* Project Panorama plug-in

Appendices

Glossary

Wireframe - A wireframe is a layout of a web page that demonstrates what interface elements will exist on key pages. [1]

Adobe xd - Adobe XD is a powerful, collaborative, easy-to-use platform that helps you and your team create designs for websites, mobile apps, voice interfaces, games, and more. [2]

Plugin - A plugin is a piece of software that acts as an add-on to a web browser and gives the browser additional functionality. [3]

Wordpress - A free resource to create websites with free customizable, mobile-ready designs and themes. [4]

Compilation of Survey Results

[Click this link to view file](https://drive.google.com/file/d/1L25LlDwiJ_kRf0sdjPXxSL5AOUhZDRvy/view?usp=sharing)

References

1. “What Is Wireframing?” *Experience UX*, www.experienceux.co.uk/faqs/what-is-wireframing/.
2. “Adobe XD.” *Adobe*, www.adobe.com/products/xd.html.
3. “What Is a Plugin? How Do I Install It?” *Tech Ease*, University of South Florida, etc.usf.edu/techease/win/internet/what-is-a-plugin-how-do-i-install-it/.
4. “WordPress.” *WordPress*, www.wordpress.com.

1. Please see the appendices for the glossary of terms and definition of plugins [↑](#footnote-ref-0)