DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
THE UNIVERSITY OF TEXAS AT ARLINGTON

PROJECT CHARTER
CSE 4316: SENIOR DESIGN I
FALL 2021

STAR.JS
STAR SPONSORSHIP WEBSITE

AYUSH BHANDARI
JOHN PAUL JONES
SAUGAT KARKI
BISHESH POTE

Revision History

Revision	Date	Author(s)	Description
0.1	10.06.2021	AB, JJ, SK, TP, BP	document creation
0.2	10.08.2021	AB, JJ, SK, TP, BP	complete draft
0.3	04.10.2022	AB, JJ, SK, BP	update document
1.0	04.19.2022	AB, JJ, SK, BP	official release

CONTENTS

1 Problem Statement

STAR sponsorship program, dedicated to educating students of low-income families, currently has a website that is made with WordPress, has a poor user interface, and an old database. While the site displays information about the program, it lacks components to attract users. The goal of the project is to make the website easy-to-navigate, interactive, and informative. The project also focuses on making the contents of the website easily editable by the administrator.

2 Methodology

Team star.js is planning to build a new web application from scratch with a interactive and simple design, and deploy it under the same domain name. In order to do that, these are the ideas/features we plan to implement/add:

- Develop a platform to tell success stories of students associated with the STAR program.
- Add user authentication for the administrator to edit/update contents, such as newsletter, blogs, and success stories, of the website.
- Allow Sponsors to donate through the web application.
- Integrate Constant Contact within the web application for newsletter subscription and website analytic.

3 Value Proposition

The value that our team brings to STAR Sponsorship is that we will be able to meet their requirements of a more functional, interactive, and visually appealing product. The new web application that will enhance the experience of users and administrator of the product. We are a team of students that can focus on the task in hand and be able to respond whenever needed at flexible times. We will be able to meet the requirements on time and return a stellar product.

4 Development Milestones

- Project Charter first draft - October 2021
- System Requirements Specification - October 2021
- Architectural Design Specification - November 2021
- Demonstration of a mock GUI - November 2021
- Detailed Design Specification - December 2021
- Demonstration of User Accounts - February 2022
- Demonstration of sponsor-student communication - March 2022
- CoE Innovation Day poster presentation - April 2022
- Final Project Demonstration - May 2022

5 BACKGROUND

STAR Sponsorship Program, Inc.'s objective is to increase educational options for children in Tarrant County whose parents do not have the financial means to provide an education best suited to their children's unique needs. The program pairs students with adult sponsors who contribute toward the student's tuition, and the family is expected to co-pay part of the tuition plus provide the uniform and all other costs, such as registration and book fees. Sponsors who support the program financially play a vital role in order for the non-profit organization to meet their objective smoothly. At present, they have not been able to encourage adequate sponsors to make a contribution to this program.

The organization promotes their program currently through a website and it fails to meet their expectations due to the lack of several essential features. Also, the absence of the IT department at STAR has put them behind in maintenance of the website. The user interface of the website is not appealing enough to persuade the sponsors. Content management in the website is also inconvenient. It also has a few outdated plugins and bugs. Due to numerous shortcomings of the website, development of a new web application is necessary to meet the objective of the organization.

With other similar organizations promoting their programs through clean, interactive, and appealing websites, STAR Sponsorship Program feels there is a necessity of major rework on their website. In short, the organization's current website fails to represent the enthusiasm demonstrated by the individuals at STAR.

6 RELATED WORK

Since the inception of the internet in the 1960's there has been a massive surge of advancement in numerous web development technologies. These tools integrate together to display information in the best way possible and they are still continuing to grow today. The world wide web followed after the birth of the internet, allowing easy access to information for everyone. This new technology allowed users to develop pages of information with the usage of hypertext. This continued to grow until the official release of the HTML language in 1995, which became the standard for the creation of websites. [2] Over time, JavaScript and other languages began to be used to modify the way web pages behave and to enhance user experience with custom functionality. Design has also become a priority for most modern web development applications. The latest version of HTML, version 5.0, CSS 2.1, and other dynamic languages play a major role in the aspect of how modern web pages look and operate.

There is a vast deposit of related work around the web to be used as a reference for this project. However, many web development projects contain a considerable amount of functionality that is custom created for the client's needs. Bisonfund.com [4] is one such reference that has been discussed about in this project. The smooth flow, cleanly presented information, and ease of use are things to be considered during the design phase. Scholarshipfund.org [3] is another reference which contains deep interactivity and is very engaging for users. Another reference that will be in mind, is Acescholarships.org [5], which is described by the client as "Impactful." This website includes a very intriguing, animated home page, which most definitely is applying the usage of different technologies integrated together to achieve their goals. A similar approach will need to be taken for our implementation.

This project will rely on many web tools to be incorporated to achieve what the client needs. One of the main tools needed is the usage of the HTML language for markup. The usage of Cascading Style Sheets will also be essential to enhance the design aspects of the project and create a unique feel. Frameworks, such as Bootstrap [1] will be considered in order to ease into the design process. This project will also most likely rely on JavaScript and/or JavaScript frameworks such as Vue.js [6] to add custom functionality. These frameworks may also be utilized to develop a progressive web solution to our project, if needed. Database solutions will need to be considered as the project continues. Other solutions will have to be considered such as mailing list integration and blogging solutions. Developing

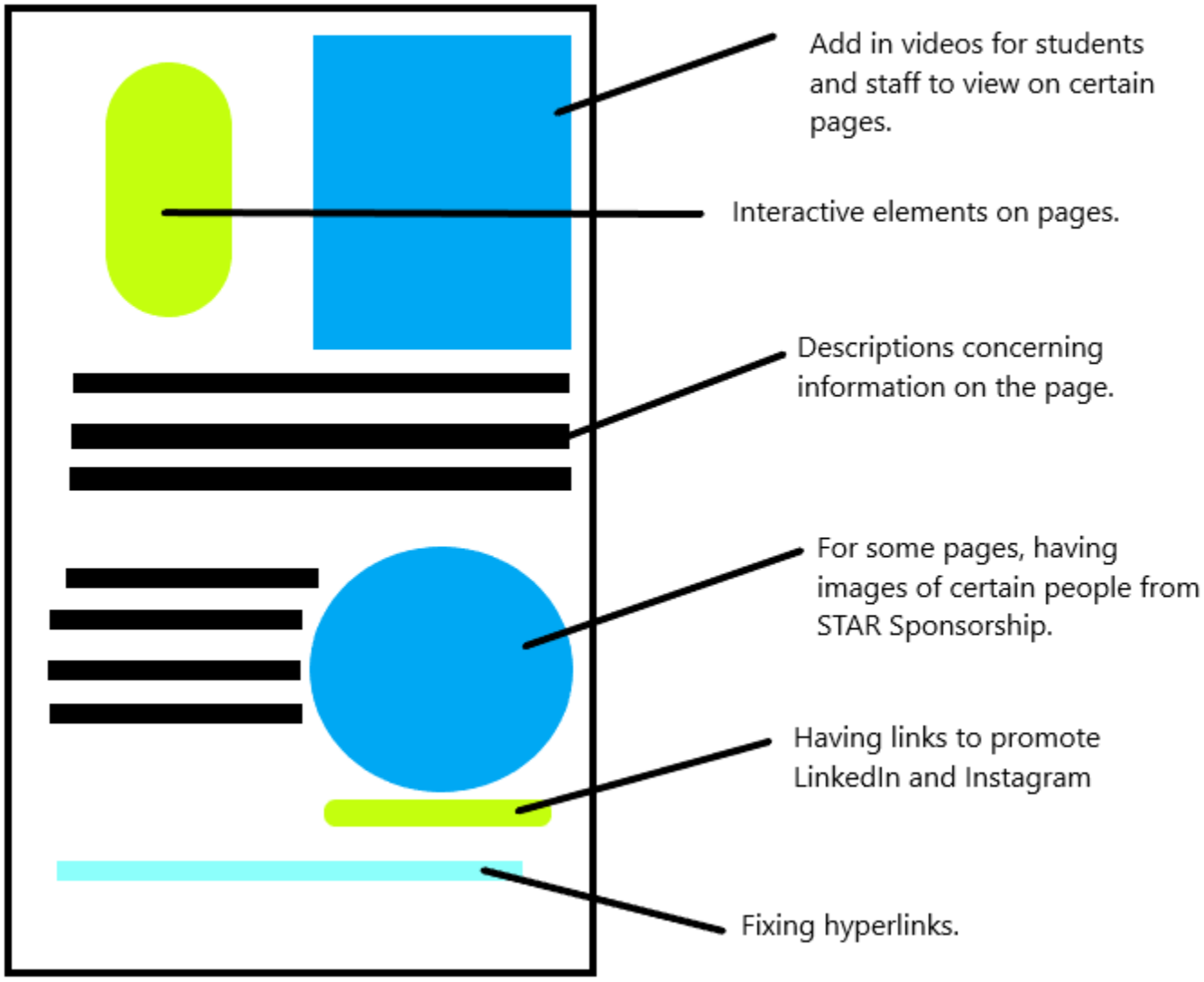
a custom solution for these enhancements would be ideal, but would add time to the project completion cycle. This would pose issues for ease of use and system maintenance.

This project will most likely not be developed as a fully native application. This is due to the fact that users of this platform might be more likely to access the information online rather than downloading an application. Systems that require much technological maintenance will most likely also not be used due to lack of IT support within the company.

7 System Overview

The problems that STAR Sponsorship is initially facing is the fact that the website is visually outdated and unappealing, it has broken links or unnecessary elements on different parts of the website, and that there is a lack of interactive elements to it overall. Therefore, we will propose a design to the website that will allow a more modern, and refreshing look. The diagram shows only the possible elements that can be added in order to bring a bit more interactivity and the fixes that we will implement.

From the initial meeting and the information gathered, we will research on other websites that have similar goals and desired functionality to the STAR Sponsorship program. We will try to implement designs from those other websites and work on creating a web application that is heavily efficient and beneficial to the STAR Sponsorship. We will fix the basic issues of broken links and including elements to promote social media such as LinkedIn and Instagram. Then we can work on adding in videos or interactive elements that can paint a better picture or get students to be more engaged with the website and the cause. Also, we will implement logos and design the website with having multiple icons and images in mind. The last concern was the outdated plugins which is easily solved with a bit of research and implementation.



8 Roles & Responsibilities

These are the stakeholders of the project:

- Patty Myers - Executive Director - STAR Sponsorship Program, Inc.
- Scott Alvis - Founder Executive Editor - NEXT Travel Stream
- People associated with STAR Sponsorship Program
- Saugat Karki, Ayush Bhandari, John Paul Jones, Bishesh Pote, Dr. Chris Conly

Point of Contact:

- Patty Myers

Team members and their areas of responsibility:

- Saugat Karki: Database, Back-end
- Ayush Bhandari: User authentication, Back-end
- John Paul Jones: Front-end, Database, Back-end
- Bishesh Pote: User authentication, Back-end

The role of product owner and scrum master will change periodically.

9 Cost Proposal

As the project is focused into the development of a web application, we estimate that the project cost would be very low or even zero. Since the program has an existing website, its database, servers, and other services could be reused to keep the cost at a minimum. However, we want to allocate a part of the budget to the purchase of any software or services needed during the development.

9.1 Preliminary Budget

Software/Services - $100

9.2 Current & Pending Support

The initial budget of the project is $800 which is offered by the university. As per out estimation, this should be sufficient for completing the project. If the cost exceeds our initial budget, we would request our sponsors for assistance.

10 Facilities & Equipment

The project will not require any facility or equipment.

11 Assumptions

The following list contains critical assumptions related to the implementation and testing of the project.

- Client will provide all previously used resources including artwork, hosting information etc.
- Web hosting will be paid for by the client
- Any used plugins will be paid for by the client
- Client will provide full access to the database system
- Budget will account for any other remaining technologies not already in use by the client

12 Constraints

The following list contains key constraints related to the implementation and testing of the project.

- Final prototype demonstration must be completed by May 1st, 2022
- STAR Sponsorship Program, Inc. doesn‘t have an IT department
- The operation cost should be minimal
- Total development costs must not exceed $800
- Some of the customer’s data to be worked on are confidential

13 Risks

Risk-table:

Risk description	Probability	Loss (days)	Exposure (days)
Inability to conduct regular team meetings due to scheduling conflicts	0.3	10	3
Inability to meet/communicate regularly with sponsor to discuss project progress and requirements	0.20	5	1
Implementation of wrong functionality/not understanding what the customer wants	0.1	12	1.2
Personal shortfall	0.4	17	6.8
Lack of prior web development experience	0.3	15	4.5

Table 1: Overview of highest exposure project risks

14 Documentation & Reporting

14.1 Major Documentation Deliverables

All deliverables will be uploaded to GitHub and Microsoft Teams will be used for team communication.

14.1.1 Project Charter

The project charter will be maintained on overleaf.com and updated at the end of every sprint. The initial version will be delivered by October 12, 2021. The final version will be delivered on May, 2022.

14.1.2 System Requirements Specification

The SRS will contain all the requirements for the web application. The initial version will be delivered by October 25, 2021. It will be revised and updated throughout the project with the consensus of both team and sponsors. The final version will be delivered on May, 2022.

14.1.3 Architectural Design Specification

The ADS will specify how the web application will be developed to meet the requirements. It will be reviewed and updated whenever the SRS changes. The initial version will be delivered on November 15, 2021 and the final version will be delivered on May, 2022.

14.1.4 Detailed Design Specification

The DDS will specify how the architectural design specification will be developed and implemented. The initial version will be delivered by February, 2022. It will be updated whenever the initial design of the web application changes and will be reviewed after each sprint. The final version will be delivered on May, 2022.

14.2 Recurring Sprint Items

14.2.1 Product Backlog

The items from the SRS will be added to the product backlog with the consensus of all team members. High-level requirements will be worked on first and these requirements will be selected with the help of sponsors.

14.2.2 Sprint Planning

There will be about 8 sprints during the design of this project. Sprints will be planned at the end of the previous sprint in a group Teams call meeting.

14.2.3 Sprint Goal

Sprint Goal will be decided during the team meeting through the general consensus of all the team members. During every meeting, the customers will be made aware of the goals set for the upcoming sprint and the goals achieved during the previous sprint.

14.2.4 Sprint Backlog

The items from the product backlog will be selected with the consensus of all team members.

14.2.5 Task Breakdown

Individual who has the highest knowledge in any of the listed task will be assigned that particular task. Voluntarily claiming a task will be prioritized. However, undesired tasks will be assigned to a team member upon agreement of all team members by considering their ability and availability. Individual who is responsible for a task will also be responsible for documenting the time spent.

14.2.6 Sprint Retrospective

Sprint retrospective will be discussed at the beginning/end of every sprint. Actions started/stopped/continued by the team throughout every sprint will be documented. The document will be due at the end of every sprint.

14.2.7 Individual Status Reports

Status of tasks done individually or as a group will be be reported by each individual member. This will be reported at the end of each sprint. Key items in the report will be Sprint Goal, Sprint Backlog, Individual Time Expenditures, Individual Retrospective, and Peer Review.

14.2.8 Engineering Notebooks

Engineering notebook will be updated biweekly at a minimum by each team member. Minimum amount of pages that will be completed for each interval and the length of the interval is yet to be determined. Each team member will be assigned another team member to assess each other's progress and to sign of as a witness for each ENB page.

14.3 Closeout Materials

14.3.1 System Prototype

A working prototype of the web application will be implemented with the functionality requested by the client. The functionality will be tested before handing over the completed application.

14.3.2 Project Poster

The project poster will include our design patterns and important functionality that was requested by the client. Screenshots of the working application will also be included.

14.3.3 Web Page

The project web page is, in this case the final project. Our implemented functionality will be on display within this web application throughout multiple pages. This web application will be available for the client and the public to view and use.

14.3.4 Demo Video

The demo video will show a screen capture of the functionality that is implemented on the web application in development.

14.3.5 Source Code

The source code will be maintained on Github. For the version control system, git will be adopted. To provide them with the source code, we will give them full access to the github repository of the project.

14.3.6 Source Code Documentation

All documents associated with the project will be posted on the UTA CSE Senior Design Blog page. It will also be available on GitHub.

14.3.7 Hardware Schematics

Not applicable in the current scope of this project.

14.3.8 CAD files

Not applicable in the current scope of this project.

14.3.9 Installation Scripts

Software and any scripts, plugins or tools will be installed by the team. Any other tools used will be provided to the client upon the completion of the project.

14.3.10 User Manual

A video tutorial of how to use the application and the functionality within, can be provided to the client if needed.

REFERENCES

[1] Bootstrap. Bootstrap html, css, js framework. https://getbootstrap.com/, 2021.

[2] Dan Connolly. Html 2.0 materials. https://www.w3.org/MarkUp/html-spec/, 1999.

[3] Children's Scholarship Fund. Children's scholarship fund. https://scholarshipfund.org/, 2021.

[4] Williams Media. Bison children's scholarship fund. https://bisonfund.com/, 2021.

[5] ACE Scholarships. Ace scholarships. https://www.aceschola rships.org/who-we-are/, 2017.

[6] Vue.JS. Vue.js the progressive javascript framework. https://vuejs.org/, 2014.