Asha For Education React App

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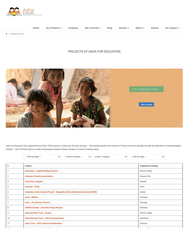
Abstract

This project focuses on the improvements on the Asha for Education Project page that were made in order to provide a better experience to the users of the platform. The adjustments involve redesigning the project page, including multimedia/social media, providing funding and donation information, and using more modern technologies. Here we will highlight the changes made and the rationale behind these changes.

Problem Statement

The previous Asha UI is suitable in the sense that it provides necessary information but it does not present this information in the most efficient and organized format.

To subdue this issue, a responsive web application to replace the existing web pages has been designed. The purpose of this application is to showcase the projects supported by Asha for Education and encourage users to get involved and donate to causes they are interested in.



Previous Asha UI

Literature Review

Previous research has been conducted to establish the importance of a nonprofit's website in helping a charity receive more donations:

A 2019 study showed that nonprofits with more of a web presence receive higher donations and that social media connectivity allows nonprofits to have a farther reach (Shin, 2019).

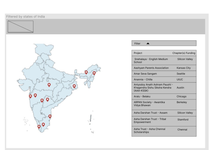
A 2021 study asked participants to analyze a nonprofit's website and answer questions about their perceptions of the nonprofit. This study highlighted the importance of clear information about a nonprofit, including what cause a donation is supporting (Alhoqail & Floyd, 2021).

A 2015 study was conducted on effectiveness in cartography. This study showed that interactive maps increase user flexibility and productivity (Roth, 2015).

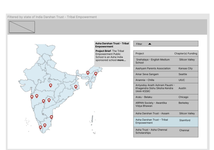
A 2006 study focused on innovation in nonprofit websites surveyed various heads of fundraising about their experience with their web developers. This study stated that the presence of multimedia on a web application improves a user's experience with the nonprofit (Bennett, 2006).

Wireframe

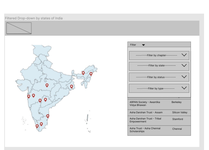
Based on the product owners' specifications, this wireframe was created to visualize all the features of The New Asha webpage app. This interactive wireframe was created with Figma.



Wireframe Landing Page



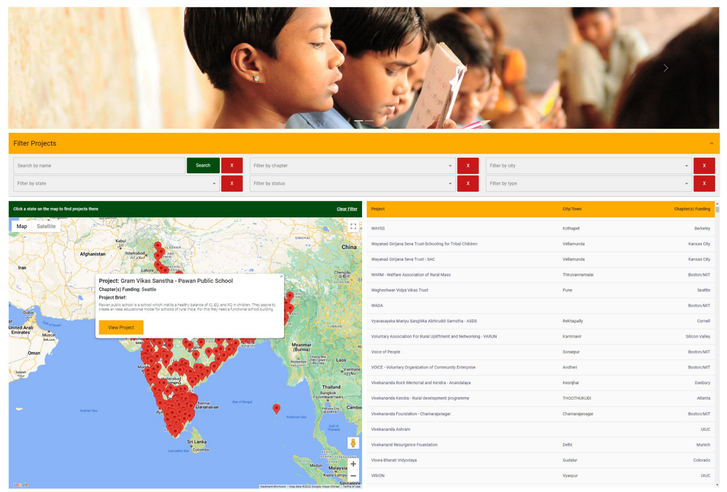
Wireframe Info Window



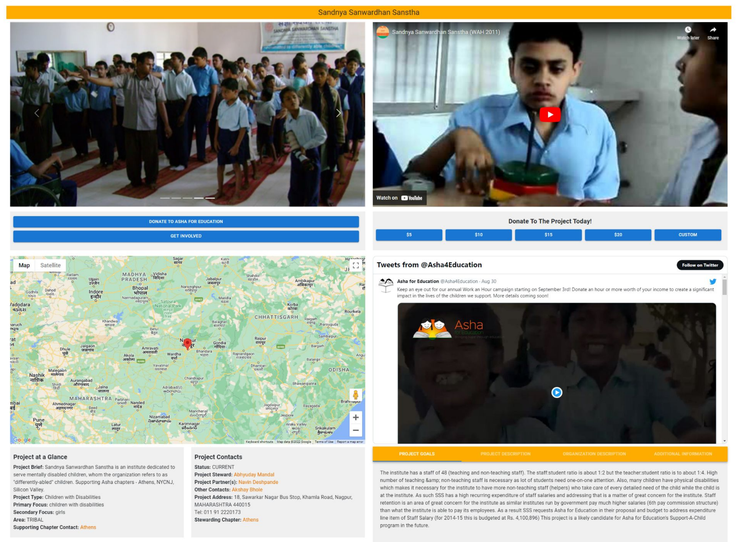
Wireframe Dropdown Filter

Project Details

Landing Page



Project Detail Page



Code

React Router that renders both pages

```
import * as React from 'react';
import { BrowserRouter, Routes, Route } from 'react-router-dom';
import Navbar from './components/Navbar';
import Footer from './components/Footer';
import FindProjects from './pages/FindProjects';
import ProjectDetail from './pages/ProjectDetail';

const App = () => {
  return (
    <BrowserRouter>
      <Navbar/>
      <Routes>
        <Route exact path="/" element={<FindProjects />}>
        </Route>
        <Route path="/:id" element={<ProjectDetail />}>
        </Route>
      </Routes>
      <Footer />
    </BrowserRouter>
  );
}

export default App;
```

Example Express request to Asha API

```
/* get all projects */
app.get('/api/projects', getToken, async (req, res) => {
  if (accessToken.token) {
    const config = {
      method: 'get',
      url: 'https://api.ashanet.org/projects',
      headers: {
        'Authorization': `Bearer ${accessToken.token}`
      },
      httpsAgent: new https.Agent({
        rejectUnauthorized: false
      })
    };

    axios(config)
      .then((response) => {
        res.status(200).send(response.data)
      })
      .catch((err) => {
        res.status(400).send({
          message: 'Error retrieving project data'
        });
      });
  }
})
```

Solution

Features
Added features include an interactive map with clickable states and project markers, a filterable and searchable project table (filter by chapter, city, state, name, status, or project type), a Twitter feed, a graph of the donation and project history, and preselected donation amounts to make donating easy for users, and a donation progress bar to show fundraising targets.

User Interface
This project includes a redesign of the user interface by including libraries like React MUI and Bootstrap. Multimedia provides a rich experience, and responsiveness allows for flexibility in how the app is rendered on various screens.

Modern Tools
The app structure includes the addition of React, CircleCI, Cypress, and Jest to allow for up-to-date functionality and testing.

Testing

Front-End/UI Testing
- Cypress testing library mounts individual React components and pages to ensure rendering without error
- Visual regression testing on the various pages to ensure layout and responsiveness

```
it('testing Filter', () => {
  cy.mount(<Filter/>)
});
it('testing Footer', () => {
  cy.mount(<Footer/>)
});
it('testing Graph', () => {
  cy.mount(<Graph/>)
});
```

Cypress testing components

Integration Testing
- Running React pages with several components
- Mocking API calls on the internal API using Jest

```
describe("testCallAPI", () => {

  test("check if api call returns anything", async () => {
    const apiData = await callApi('/api');
    //checks if it returns
    expect(apiData).toBeTruthy();
  });
```

Integration testing API

Continuous Integration/Deployment Pipeline with CircleCI
- Running CI/CD tests to ensure the App is working correctly

Conclusion Implications

In conclusion, this project has enhanced the previous Asha for Education Project Page UI by utilizing a variety of technologies such as React, REST APIs, multimedia, etc. in order to create a more user-friendly experience. Some future goals would be to attach documents to the document history timeline, add a Google Maps link to the project addresses, and improve the search bar functionality to be able to get better results from a query.

References

Shin, N. (2019). The Impact of the Web and Social Media on the Performance of Nonprofit Organizations. *Journal of International Technology and Information Management, 27*(4), 17-35. https://scholarworks.lib.csusb.edu/jitim/vol27/iss4/2

Alhoqail, S. A., & Floyd, K. (2021). How website information decreases intangibility and influences donation. *Journal of Philanthropy and Marketing, 26*. https://doi.org/10.1002/nvsm.1702

Roth, R. E. (2015). Interactivity and Cartography: A Contemporary Perspective on User Interface and User Experience Design from Geospatial Professionals. *Cartographica, 50*(2), 94-115.

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