Modernizing Thru-Hiking: A Web Application Design to Connect the Appalachian Trail Community

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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1. ABSTRACT

There does not currently exist a uniform system for aspiring Appalachian Trail (AT) thru-hikers to connect with the larger community. This leaves hikers with a time-consuming, inefficient research process. The proposed web application aims to provide thru-hikers the information they need in a single source while facilitating a digital community. Design decisions for the web application were based on data from user interviews and field studies. The application design includes a chat feature, a question forum, and thru-hiking research guides. Intended outcomes of this web application include making thru-hiking the Appalachian Trail more accessible to marginalized communities and increasing inclusion outdoors by providing supportive affinity spaces and diverse advice. Future work for the proposed web application includes additional testing and deployment.

2. INTRODUCTION

The Appalachian Trail is a 2,190 mile-long National Scenic Trail stretching from Springer Mountain, Georgia, to Katahdin, Maine. Completed in 1937, the trail receives approximately three million visitors, including over 3,000 people who attempt to thru-hike the trail, each year (ATC, 2022). Despite the trail's long history and growing community, resources surrounding thru-hiking the AT remain scattered across websites, word-of-mouth blogs, books and podcasts. Without a consolidated source of information, the research process can appear endless and leave hikers feeling disheartened. In addition, due to the lack of diversity in the outdoor community, diverse resources on thru-hiking remain hard to find. Also, a majority of the information surrounding the AT is spread through word-of-mouth. Therefore, the lack of a digital community leaves many hikers without an adequate support system.

3. RELATED WORKS

In the trail's nearly hundred-year history, interest has grown exponentially. This has led to a large influx of information made available about the trail. Two of the most popular resources used by thru-hikers are The Trek and Facebook groups. The Trek is a free website that posts blogs from current hikers, advice articles, and gear suggestions. The Trek's work influenced my project by providing informative resources, that will be linked on my webapp, and an example on how to consolidate hiker resources. My project differs from The Trek by facilitating conversations between hikers, and providing an interactive research experience through the question forum.

Facebook groups are most commonly used by members of the AT community to post pictures and ask

questions. The use of Facebook groups influenced the inclusion of a question forum in my project's design. There are also other free online resources such as WhiteBlaze.net, and the Appalachian Trail Conservancy (ATC).

WhiteBlaze.net is one of the oldest Appalachian Trail discussion forums. Based on feedback I received through user interviews; the site's popularity has decreased as the user interface is outdated and confusing. This feedback influenced my design by emphasizing the importance of simplicity and an easy-to-use interface.

The Appalachian Trail Conservancy provides general information on the trail, concentrating a majority of their efforts on preservation. The ATC also offers brief hiker preparation webinars and guides focusing on safety and leave-no-trace principles. Work by the ATC influenced my design by emphasizing the importance of including preservation in the research guides on my site.

However, these resources on their own fail to include all the information hikers need. Additionally, a majority of the writers or bloggers for these resources are white, so the sites often fail to provide diverse perspectives on the AT.

4. PROJECT DESIGN

The web application was developed using Django, an open-source full-stack Python-based web framework. Django was chosen because of its model-view-controller (MVC) software design pattern and ease of use. Frontend development was completed using custom CSS, HTML, JavaScript, and Bootstrap, a CSS framework. Backend work was completed in Python. The project is hosted on Heroku, a cloud platform, and utilizes a PostgreSQL database.

4.1 DESIGN REQUIREMENTS

The requirements listed below were collected from potential users through informal interviews and field studies. Interviews were conducted with past and aspiring thru-hikers and largely consisted of questions surrounding their pre-trail research experience.

Minimum Requirements:
1. As a user, I want to be able to search for articles from different sources.
2. As an aspiring thru-hiker, I want to be connected with mentors and other hikers prior to starting the trail.
3. As a user, I want to be able to ask questions.
4. As a current thru-hiker, I want to be connected with other current hikers.
5. As an administrator, I need to monitor question/answer forums and articles.
6. As an administrator, I need the ability to curate content.

Desired Requirements:
1. As a user, I want to be able to upvote or downvote questions and answers.
2. As an administrator, I want system support for multiple types of user administrators.

4.2 KEY COMPONENTS

The key components of the design are the "Home", "Articles", "Q&A", and "Chat" web pages. A navigation bar is included on each web page. The "Home" screen, as seen in Figure 1, highlights featured articles and trending questions. The goal of the screen is to guide first-time users through the most helpful features of the site.
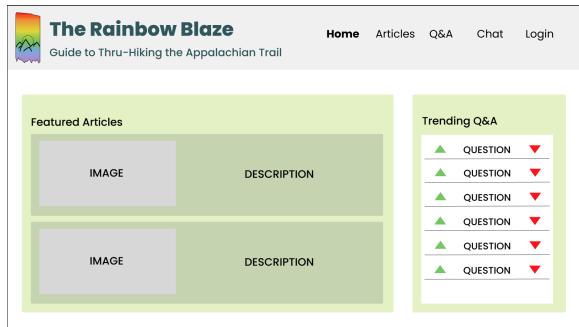
Figure 1: Prototype "Home" Screen

Figure 2 illustrates the "Articles" screen which includes a search bar and displays articles by most recently posted.
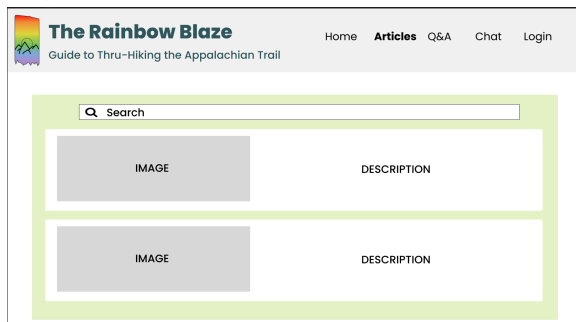

Figure 2: Prototype "Articles" Screen

The "Q&A" screen, as seen in Figure 3, follows a traditional forum design. All questions and answers are visible to users, regardless of login. However, users must be logged in to post questions and answers.
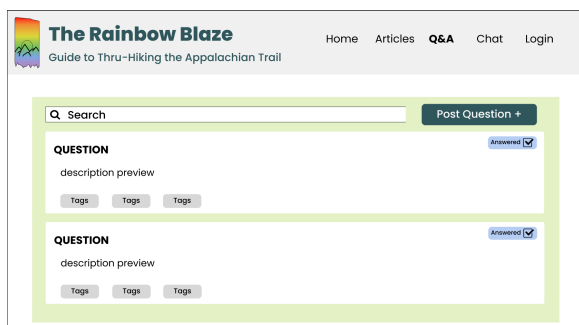

Figure 3: Prototype "Q&A" Screen

Figure 4 displays the "Chat" page which was designed to be consistent with other popular messaging platforms. This design decision influenced the location of the menu bar on the left side and the text space on the right. In addition, to increase consistency and visual hierarchy, the chat group being viewed is dark-shaded on the left menu.
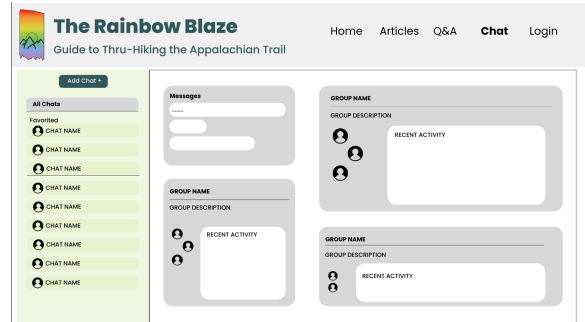

Figure 4: Prototype "Chat" Screen

4.3 CHALLENGES

The greatest challenge in designing the web application has been deciding how to moderate the space. Given the nature of the web application and the core value of inclusion, safety and privacy are top concerns. For the site to be effective, users need to feel safe from hate.

Currently, the site is designed to have an administrator account with permission to remove any content from the site. This administrator account is also responsible for approving all articles. To moderate the question forum, users have the ability to upvote or downvote responses. Once a question or answer receives a certain number of downvotes it will be automatically deleted from the site. The threshold of downvotes will be set based on site traffic. Chatroom membership will be controlled using access codes. Access codes can be distributed by current members of chat groups or by the administrator.

5. ANTICIPATED OUTCOMES

The project is still in the development and testing phases and, therefore, not yet deployed. Anticipated outcomes of the web application include increasing accessibility to thru-hiking the Appalachian Trail. This will be achieved by

providing comprehensive research resources and affinity safe spaces. Intended users of the web application included prospective hikers, trail community members, and past hikers.

6. CONCLUSION

The proposed web application was designed to promote education, diversity, and inclusion within the Appalachian Trail community. Consolidated resources, such as detailed how-to-guides, were included in the design to simplify the research process and encourage outdoor participation. The design also utilizes a chat room feature to create intimate spaces for diverse voices to gather and share advice. The resulting deliverable is a web application with screens including: "Home," "Articles," "Q&A" and "Chat." Work for the web application has been completed using Django, a full-stack python framework.

7. FUTURE WORK

The projected finish date for the project, including deployment, is spring 2023. Extensive system testing, including chat room security testing, needs to be completed prior to deployment. Features not yet implemented include filters and a sitewide search bar. Additionally, in-depth user testing and interviews should be completed to assure user needs are met. The project will be deployed on Heroku, a cloud platform.

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