**Feasibility Study**

**HHH – The Ride App**

The Kings of Code

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10. **Executive Summary**

*This section describes an overview of the content contained in the feasibility study document. It provides a higher-level summary of the details contained within the rest of the document.*

Hotter’N Hell Hundred (HHH) is a not-for-profit organization developed to commemorate the 100th anniversary of the founding of the city of Wichita Falls. The primary objective is to bring notoriety to the host city through the organization of a multi-day event which revolves around its signature 100 mile bike ride. The HHH attracts over 15,000 participants and visitors each year. The organization of an event of this magnitude requires well over 1000 volunteers. One of the primary issues driving the development of our HHH App is the need to have a mobile interface to support all the parties involved in this event – participants, spectators, and volunteers.

A crucial aspect of all the HHH events is how participants register for individual events. Streamlining on-site registration is a priority for our application. Additionally, the ability of HHH volunteers to respond to participants requiring roadside assistance during the ride is a critical feature we wish to implement. Participants and spectators alike will also benefit from additional feature provided by our app such as ride maps, vendors lists, and information on local dining and lodging.

To serve the largest possible user base, our application will run on both Apple and Android based mobile devices as well as windows based operating systems. For HHH volunteer and administration, the application will be accessible through windows-based devices where registration volunteers can access the registrant database. Similarly, SAG volunteers will make use of the app to get rider’s location and emergency contact information in the event they need to respond to a rider assistance request.

1. **Description of Products and Services**

*This section describes the products and services designed to enhance the user experience for participants and administrators of the HHH race by providing a streamlined registration process, event information access, and support services. The app will classify users into three distinct categories—Riders, Non-Riders, and Administrators—each with specific access and privileges.*

**Features**

**Same-Day Race Registration**

The app allows users to register for the HHH race on the day of the event, this will ensure a user-friendly process for riders. It securely collects rider information, ensuring a smooth check-in process.

**Event and Tradeshow Information**

Users, whether they are race participants or spectators, can access a comprehensive schedule of all events happening during the HHH weekend, including races, tradeshows, and other activities. This ensures that attendees stay informed about the event locations, times, and other details.

**SAG Assistance Requests**

Riders experiencing mechanical issues, fatigue, or medical concerns can use the app to request SAG (Support and Gear) assistance. This feature ensures that riders receive prompt support from race officials, enhancing overall event safety.

**Administrator Access for Riders Management**

Event administrators can securely access the rider database to retrieve registration details, assign and distribute bib numbers, and manage SAG requests. This ensures efficient race-day operations and rider tracking.

**User Classifications and Features**

The app categorizes users into three primary groups, each with specific access and privileges:

Riders are registered participants in the HHH race. They can register for the race on the day of the event, ensuring a smooth check-in process. They will also have full access to the event schedule, including tradeshows and other actives as well as the ability to view the course maps. With they, they can request SAG assistance directly through the app in the event of mechanical issues, fatigue, or medical concerns.

Non-riders include spectators, family members, vendors, or general event attendees who are not participating in the athletic events. They will have the ability to view all scheduled events, including race times, locations, tradeshows, and other weekend activities.

Administrators are event officials responsible for managing race-day operations. They will be able to view rider registration details to assign bib numbers and track participant status through the database, and monitor and coordinate SAG assistance requests. Lastly, they will have access to everything riders have access to.

1. **Technology Considerations**

*This section describes the considerations The Kings of Code must make with regards to technology.*

HHH requires a simple and easy way to register riders on the day of each event, allow riders to submit a request for SAG assistance when a SAG volunteer is not currently in their vicinity, and provide riders with weekend event details and local area information. While HHH maintains a website that provides a link to register for events, weekend event details, and local area information, event registration is performed by a third party and requests additional information that is not necessary, for the sake of time, on the day of the event. Additionally, day-of-event registration typically requires assistance from a HHH volunteer and the use of a laptop computer.

The Kings of Code has limited experience with JavaScript, Python, SQL, and databases, which the team will need to complete a project of this sort. This will require them to familiarize themselves with each, throughout project completion. Additionally, VS Code by itself may be insufficient to develop THE RIDE APP for iOS and Android functionality. The team’s preferred frontend language choice would suggest that utilizing an extension like React Native may be preferable for mobile application development.

The Kings of Code does not have a high-speed internet connection, web server, or the latest software. A database server will be required to maintain the database. The current website host server is provided by GoDaddy, and we would utilize that existing server for hosting of the HHH app as well. In order to keep costs to a minimum, the amount of data stored on the server, utilizing a service like MySQL Community Edition, will be limited to the amount of space that a team member can afford to provide from their personal computer. Additionally, the speed of the connection will be limited to the speed of the network and capabilities of the machine that maintains the database.

1. **Financial Considerations**

*This section describes the financial considerations, ensuring cost-efficiency in the development and deployment of the HHH app.*

Our application development and testing will utilize free resources such as Visual Studio Code and MySQL. Additionally, we have all necessary testing devices in-house, eliminating the need for extra expenditures on hardware.

However, we anticipate the following costs associated with publishing and maintaining the app:

1. App Store Fee: $99 per year
2. Google Play Store Fee: $25 one-time fee
3. Domain Name and Database Security: Approximately $16 per year

Since the HHH app is a donation to the organization, we do not expect any revenue from our client. Should unexpected costs arise, such as the need to purchase software or the expiration of free trials, we will strive to keep these expenses to a minimum.

1. **Legal Considerations**

*This section describes the legal considerations necessary for the development and deployment of the HHH app, ensuring compliance throughout the project*

**Waiver of Liability**

Riders will be required to digitally sign a waiver acknowledging the risks associated with the HHH race. This waiver releases the HHH organizers and HHH organization from any claims arising from injuries or damages during the event.

**Data Privacy and Security**

During the registration process, riders will be asked to provide personal information including names, addresses, emergency contacts, more. All data will be securely stored within the database, and only accessed by HHH administration in the event of an incident.

**Location Tracking**

Riders will be given the option of enabling their location to assist SAG in locating them in the event of an injury or mechanical issue. This feature is optional and requires riders’ explicit consent to track their location.

1. **Resource/Time Considerations**

*This section describes the human resources of the software engineering team make up as well as the time resource allocation to the design, programming, and ultimate distribution of our software product to market.*

**Personnel Resources**

The Kings of Code software engineering team is Tim Haxton, Cooper Wolf, and Jon Scales. Between them, these software engineers have 10 years of software development experience. Furthermore, Jon Scales is a member of the Hotter’n Hell Hundred Steering committee and will be able to be a direct liaison with the HHH organization throughout the design and implementation phases of this project. All team members have familiarity with coding in python and C++. Two team members have familiarity with C#, which is somewhat similar to javascript. No one on the team has prior familiarity with SQL databases or API use to integrate frontend and backend portions of the programs.

**Technological Resources**

The team will make use of available large-language AI model systems such as ChatGPT and DeepSeek to augment their coding skills. The use of such AI assistance will be of particular importance in integrating the major software components of the proposed system: Application user interface (UI), security restrictions (user level vs administrative level), integration of the application programming interface (API) between the UI and program backend (python driven SQL database)

**Network Resources**

Currently, the Hotter’n Hell (HHH) organization uses GoDaddy as a 3rd party host for the HHH website, HH100.org. Thus, we will also have use of GoDaddy to host a server for our mobile app and backend database.

**Time and Task Resource Allocation**

Each team member will be responsible for multiple aspects of the overall project development, implementation (coding), quality assessment, and product dissemination. A timeline of the overall project is given in the schedule section of this document. Project development will be divided into four blocks, with each block focused on a different aspect of the overall software package. Individual team members will focus on separate tasks that will be integrated into our final product. A tentative breakdown of tasks is given in the table below: Project cohesion will be maintained via twice weekly team meetings throughout the life of the project.

**Table 1. Team Member Task Breakdown (tentative)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Team Member | Iteration 1 | Iteration 2 | Iteration 3 | Iteration 4 |
| Cooper Wolf | similar product analysis hardware/software requirements  hardware/software pros/cons  software constraints | (lead)  Software Requirements Specifications  Feasibility Study  Project UML diagram model | TBD | TBD |
| Jon Scales | Similar product analysis  project idea back-ground & justification,  desired features,  frontend simulation design | Software Requirements Specifications  Feasibility Study  Project UML diagram model | TBD  (lead) | TBD |
| Tim Haxton | (lead)  similar product analysis  product requirements  division of requirements for end users,  frontend simulation design | Software Requirements Specifications  Feasibility Study  Project UML diagram model | TBD | TBD |

1. **Product/Service Marketplace**

*This section describes the existing marketplace for the products and/or services Hotter’N Hell is considering. It describes who the competitors are and how our application will make it easier for customers should they choose to utilize it. It will help us understand our role in this marketplace to maximize our resulting benefits.*

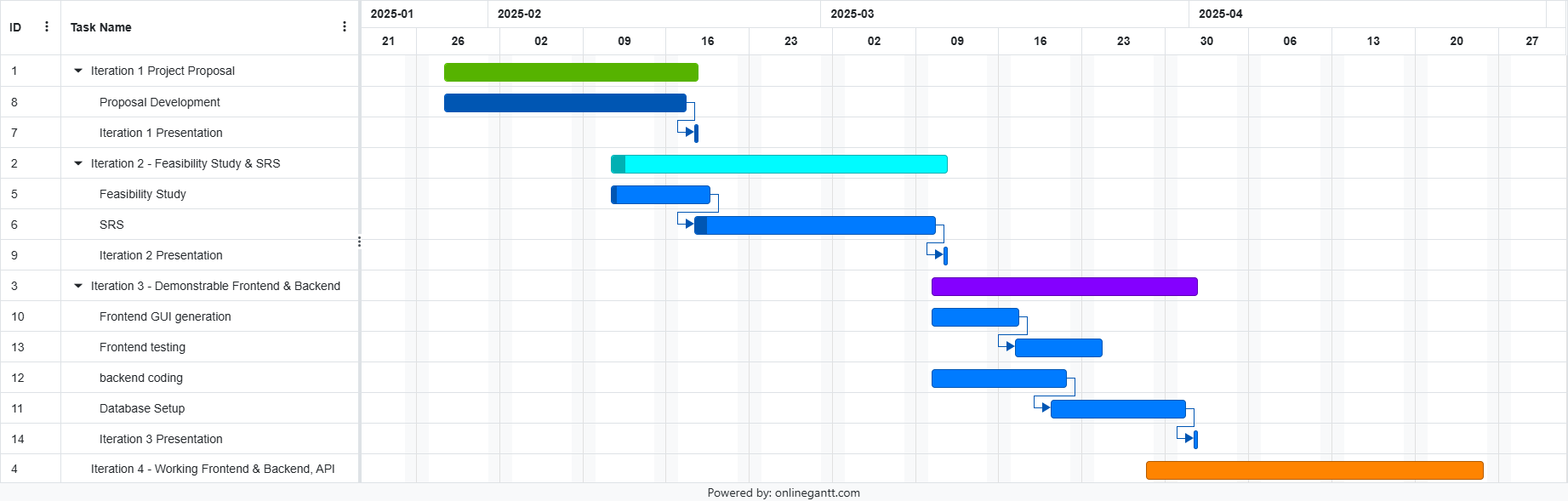
The online marketplace for race event management consists of many registration systems, in addition to some race-specific registration systems. According to RunSignup, while there is no aggregator of race registrations, according to their research, there are approximately 20-25 million race registrations annually in the U.S. Of these registrations, 45-50% sign up for an event on RunSignup.com, making them the top competitor in the race event management market.

While other systems are geared towards allowing any race event organizer to utilize their service to support registration and a host of other capabilities, our application will be designed specifically to support the HHH organization and their registration and participant needs. Additionally, HHH requires volunteers to assist riders who register on the day of the race. Our application will allow streamlined mobile registration on the day of the race. Additionally, BikeReg only provides a link back to the organization’s website to provide local area information. Our application will provide that information natively. Finally, there does not currently exist a service that allows a registrant to contact a race volunteer for assistance as ours will.

1. **Schedule**

*This section gives a graphical representation of the timeline for this project.*

The development of the HHH APP will be divided into 4 blocks or iterations. Each block concludes with a presentation of the development to date. A final presentation of the project will be made at the North Texas Area Student Conference on April 26, 2025. The Gantt chart below outlines our targeted completion of the project detailing some subdivision of each iteration block into subsections.



1. **Findings and Recommendations**

*This section presents our feasibility conclusions.*

We feel that this project should be feasible with the resources available to the team. We find that there is a definite need for the application. It will fulfill a need for both HHH participants, spectators, and administrative personnel. Especially relevant is the app’s ability to offer a streamlined, intuitive onsite registration experience. The additional features provided by the app, such as the schedule of events and local information go beyond what most other similar applications provide and distinguish The Ride App from near peer counterparts.