BikePacking.PH

Software Requirement Specification (SRS)

JOHN MARKTON M. OLARTE

B.S. in Computer Science III, College of Arts and Sciences

University of the Philippines, Visayas, Miagao, Iloilo, Philippines

I.   INTRODUCTION

BikePacking.PH, which may be referred to simply as the "*site*" from this point onwards, is a community-based website for the bike packing community in the Philippines. This *site* aims to connect different individuals ang groups from all over the country, to share their experiences and moments captured in photo or video while travelling using their bikes. In other words, the *site* will serve as a social networking system of individuals who are into biking and in general serves as a repository of their bike travels and adventures, while also allowing them to connect and interact with other people within the community.

Whereas this Software Requirement Specification (SRS) document will discuss in detail what the site will do and how it is expected to perform its main objective by explaining its functionalities and features[1].

Product Purpose

Intended Audience and Intended Use

The *site* will serve the following purpose to the following audiences:
   A. *End Users* – refers to the main community of bike packers in the Philippines, they are the main users of the website. Also, visitors of the site shall be included in this type of users. Wherein they should be able to do the following activities:
      a. Securely create an account and be able to login to the said account.

b. Create a blog post, using the combination of texts, photos, and videos.

c. Explore other activities by other users or communities, within and outside their respective area of influence; and

d. Engage with the activities and plans of another individuals/local group/regional group.

B. *Developers* – refers to the individuals that develops the features of the site for its end users. Wherein they should be able to do the following activities:

a. Make sure that all functionalities required by the end users is met and are working properly and as intended.

b. Create an intuitive and easy to use user interface and user experience for the end users.

c. Be capable of developing new and needed functionalities.

d. Be capable of maintaining the site, to make sure that all functions are working properly and are of standard.

e. Be able to fix problems that may arise in the utilization of the site, based on end user feedback and testers reports; and

f. Be capable of refactoring the code base of the site, to make it more efficient and readable without affecting the functionality of the whole website.

C. *Testers* – refers to the individuals that tests the functionalities and features of the site before it is initially released to the end users. Wherein they should be able to do the following activities:

a. Make sure that all functionalities required by the end users is met and is working properly and as intended by thoroughly testing individual components and systems of the site; and

b. Be able to report any issues or problems to the developers for fixing.

D. *Product Managers* – refers to the individuals that manages all the scenes pertaining to the planning, production, development, released, and maintenance of the site. Wherein they should be able to do the following activities:

    a. Be able to plan and decide for the features and functionality that should be included in the development and maintenance of the site.

    b. Be able to manage the production and developmental phases of the site; and

    c. Be able to manage testing, approval of releases and maintenance of the site.

E. *Advertisers/Business Partners* – refers to individuals, company, or small businesses that are allowed to advertise their bike-related products on the site, as to generate a revenue for the site. Wherein they should be able to do the following activities:

    a. Send out advertisements to be shown at the site, whereas these advertisements will be shown based on the end user preferences and are only based on random chances to avoid any privacy issues that may arise.

    b. Advertisers will not be able to actively target any users of the site, as such they should agree to such terms and conditions provided by the site owners before they can advertise to the site. This shall also mean that advertisers will not have any access to user information; and

    c. Sponsor certain community activities.

Product Scope

The site should be able to serve different individuals, small and large communities of bike packers in the Philippines, regardless of the societal status. As mentioned previously the site shall focus on the prospect of connecting every bike packer in the Philippines, creating a one stop for all their needs relating to the bike packing in the Philippines, where they can show, explore, join, share, and enjoy each and everyone's experience in the community.

Meanwhile, this site shall also allow small to medium businesses to prosper by providing them an avenue to advertise their bike-related products to a wide range of biking individuals within the community.

Risk Identification and Mitigation

As with any form of product software, identifying and managing risks is one of the most important activities to be done to minimize issues and particular damages that these issues may incur to the users, developers, managers, business partners, and owners of the site. As such below is the list of identified risks and the mitigation practices or activities that shall be done to minimize the effects of the listed risks:

a. *Leakage of Users' Personal Information* – the risk of user information being leaked to the public is one of the great concerns in the modern world of the internet as such to mitigate this risk the developers, managers, and owner of the site will make sure that all individual information is kept secured and are properly encrypted using state of the art data encryptions. Furthermore, no user information shall be shared in any form to any of the advertisers or business partners and sponsors of the site.

b. *Physical Damages and Injuries* – Since the site allows for community engagement to an active sports, physical damages and injuries may incur, although this is already outside the control of the site, any damages, or injuries, it is still the job of the site to keep its community of users from any harms as such, emergency contacts and first aid tips will also be provided for the users in case of any emergencies.

Furthermore, the site can also provide an active monitoring for the users that allows it and are catered for individuals doing a solo ride, which will keep on checking their activities in a specific interval to make sure that they are safe and will automatically contact the authorities if a problem arises.

Moreover, for the privacy of the individual this feature will never preserve information of the whole ride and would only simply ask the user of their status which will be automatically deleted after they answer that they are okay or after a particular time has lapsed, the information that will only be shared to the authorities is their location and if there is only an emergency that arises; and

c. *Malicious and Non-Biking Related Posts and Contents*– as the site provides freedom to its users to share their own experiences, adventures and journeys to the whole community, there is also a chance for malicious users to posts invalid graphics and contents in the site as such in order to mitigate this from happening, there should be administrators and moderators that will check on the posted contents in the site and will immediately block users and their contents that are malicious in nature and are not bike related. Wherein, malicious posts and contents are defined as the following but is not limited to pornographic, injuries, death, and discriminating contents.

d. *The Competition* – competitors in the field are also considered a risk to the site, as this will affect how much the site can generate financially. As such there are things that BikePacking.PH does that out competes its competition.

First the site solely focuses on bike packing and biking related stuffs, which also includes its business model advertisement, and aims to focus on small to medium bike retail stores rather than big companies.

Second, the site will allow its users to engage with each other fully and allow local events and gatherings to be done within the site.

Third, aside from the safety of the users while using the product, the site will also serve as a preventative and active emergency helper using three key ideas: (1) Provide safety guidelines, emergency contact, and first aid techniques, (2) Active monitoring, that will

alert the authorities when something happened, (3) A community based help system, which will alert individuals within the area if someone got into an accident, in order for them to apply first whenever possible and to contact the emergency hotline within their area.

Finally, this site will never sell user information in exchange for any financial gains, which shall keep its user's identity and information safe.

II.   OVERALL DESCRIPTION

User Needs

BikePacking.PH as the product shall be used by the bike packing specifically, but in general any biking community can utilize the website and shall be the primary end users of the site. Wherein the site should serve as an online hub for them to connect and engage with each other and at the same time be able to document their individual or group's bike packing adventures.

Meanwhile the site shall also help small to medium bike and bike parts retailing businesses through site advertising, for them to connect to their clients more effectively and efficiently. These businesses shall serve as the secondary users of the site, as well as the primary income generating user base for the site.

In general, the site shall allow an effective and efficient online hub for the bike packers and biking community in the country, without sacrificing the security, privacy, and safety of its users.

Assumptions and Dependencies

In this section of the document assumptions and dependencies on certain technology. As mentioned BikePacking.PH is a website, which means it will run on the local computers of its end users which are connected through an end-to-end encrypted tunnel to the servers of the site. Moreover, the site can also be accessed using mobile phone as such it will also serve as the basis for a web-based mobile application.

Furthermore, it is assumed that the devices used by its users has full internet connectivity capable of downloading the site content and uploading their contents to the site. Also, to make use of the active emergency help features of the site, the users shall allow the site to monitor their location, which means that the users should have a device that have any global positioning systems and technologies installed, such as but is not limited to GPS, GLONASS, A-GPS, GNSS, and A-GNSS[2].

It must also be noted that the site, will utilize Lottie Files as a standard provider of animated graphics for the site, and Font Awesome will be utilized for the icons within the site. Also, Bulma shall be used as the CSS framework of the site, and Django as the main framework.

The site shall also utilize some of the existing code base of the company such as for the login, registration, and encryption of user data in the database. Unless there are fixes that should be done in these components. Meanwhile, components that are specific to this site shall be developed and tested thoroughly from the ground up. This includes the following:

a. Bike Packer Profile
b. Interfaces for the dashboard,
c. Blog Posting and Sharing Components; and
d. Social Connectivity Systems and Components, which includes the following:

1) Ability to add friends.
2) Join a community or local group.
3) Message other people or a group.
4) Invite others to a particular event; and
5) Event creation.

III.   SYSTEM FEATURES AND REQUIREMENTS

Functional Requirements

In this section of the document, the detailed functional requirements for each system features are indicated in the table provided below:

Table 1. Functional Requirements and its Detailed Information

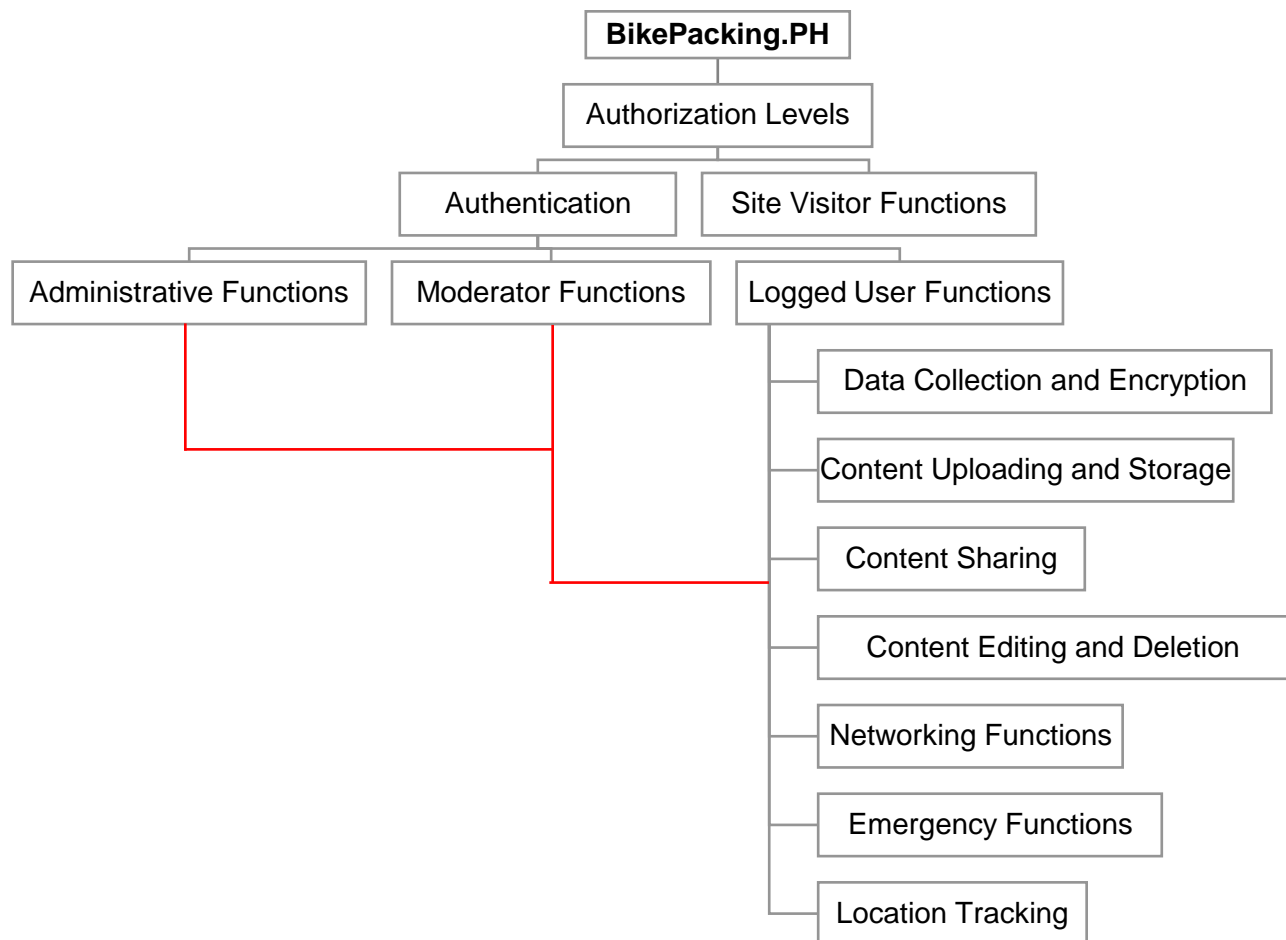| Functional Requirements[3, 4]	Detailed Information
Authorization Levels	There shall be (4) authorizations levels that the site will utilize: 1) Level 4 – Administrator, which allows access to administrative functions, such as editing the code base, adding, or changing features, fixing bugs and other site issues. This access level also allows for any specific actions that can be done with lower authorization levels, except for viewing and sharing private user information. Whereas user information shall remain encrypted. 2) Level 3 – Moderator, which allows access to the moderator functions of the site, such as approving contents and events to be posted in the site, ban malicious users, block malicious contents, and keep the site safe for all regardless of their status in life, while still maintaining the freedom for its users. 3) Level 2 – Logged users, which allows fully registered and logged user to access the features catered for them such as viewing other publicly posted contents or events, upload their own content, add friends, messaging, create an event, join an event, etc. (please refer to the Logged User Functions for a complete list) 4) Level 1 – Visitors, these are simply the visitors of the website and will only have access to the registration, login, and about pages of the site.

Authentication	This enables the site to authenticate authorization level of the active user of the site, and to prevent access to admin or moderator privileges if their authorization level is 2 or lower. This functional requirement is essentially connected to all the components of the site and is the main basis for what a user can and cannot do or use.
Administrative Functions	As mentioned in the Authorization Level, administrative functions shall include the following: 1) Editing of the code base. 2) Adding, or changing features 3) Fixing bugs and other site issues. 4) Change authorization level of different users 5) Assign authorization levels for logged users. This simply means logged users can be promoted to be a moderator or an administrator of the site. This is because, the site shall also be run and maintained by the community itself; and 6) Allow functions from other lower authorization levels for testing and debugging. Except for viewing, editing, and sharing private user information. Whereas user information shall remain encrypted.
Moderator Functions	As mentioned in the Authorization Level, moderator functions shall include the following: 1) Content and events approvals. 2) Banning of malicious users. 3) Blocking of malicious contents; and 4) Keep the site safe for all regardless of their status in life, while still maintaining the freedom for its users.
Logged User Functions	Logged users are website users who have successfully registered an account to the site and is able to login using the credentials they have indicated upon registering. This shall now allow this user to access all features opened for authorization level 2 users. Wherein, they shall be able to do the following: 1) Viewing other publicly posted contents or events

	2) Upload their own content such as photos, videos, and texts.
	3) Add and delete friends.
	4) Join a group or community.
	5) Messaging other users or a group.
	6) Create and host an event.
	7) Participate to an event.
	8) Access the different pages of the site that are not admin or moderator specific. Such as the dashboard, their own profile, other public user profile, contact page, about page, and events page.
	9) Allow active emergency and location functions.
	10) Adjust privacy settings.
	11) Change their own user information; and
	12) Deactivate or delete their account.
Site Visitor Functions	These functions are available for all users that are visiting the website and has not yet created or logged on with their own account. Wherein they should be able to do the following: 1) Create an account; and 2) Visit the following pages: Login Page, Registration Page, and About Page
Data Collection and Encryption.	Upon user registration, the entered data of the user shall be collected and encrypted, securely stored in the database of the site. Furthermore, data such as location shall not be stored for more than an hour to the database and will only be stored when the user manually turns on the location access and will only be used in case of emergency.
Content Uploading and Storage	For those with access level 2 or higher, this site function enables them to upload content on the site, which can include a set amount of text, photos, videos, and or any combination and subset of the mentioned class. These posts or contents shall be stored securely in the site's servers.

Content Sharing	For those with access level 2 or higher, this site function enables them to share their own contents, or publicly posted contents within the site and outside the site using external linking, embedding, and or sharing functions.
Content Editing and Deletion	For those with access level 2 or higher, this site function enables them to edit and or delete their posts, events, and other form of contents posted on the website. Whereas level 2 users can only delete or edit posts, events, and other contents that they own. While level 3 and above users can delete malicious posts, but they cannot alter or edit posts from any of its users, unless it is being used for testing purposes, and the account is a dummy or test account.
Networking Functions	For those with access level 2 or higher, this site function enables them to add or remove friends, and join or abandon a group/s. This function also allows them to create a peer-to-peer message or a group-based message.
Emergency Functions	For those with access level 2 or higher, this site function enables them to turn on or off the emergency functions of the site. Wherein, there are two types of emergency function they can prompt to use. These functions were already discussed in full details at the Risk and Mitigation section of this document. But to summarize, there is an active, and community-based monitoring and alert system.
Location Tracking	For those with access level 2 or higher, users can use this site's function to track their own location, and if they have opted to turn on any of the emergency functions, their location will be visible to the authorities or to the community based on the type of emergency function being utilized. Although location tracking is enabled, storing and broadcasting of location is not allowed, unless the user have opted and incase of emergency use only.

The table from the last few pages discussed the requirements for the site's function, including the tools that's adds functionality of the site. It also mentions some of the risks that may occur in the utilization of the function. And it also outlines the interaction of the functional requirement to the other components within the site.

To better understand the interaction between all the functional requirements a diagram of the interactions for all the listed functional requirements stated in Table 1 are shown below.

Figure 1. Outline of Interaction Between the Functional Requirements of BikePacking.PH

Note that the red lines indicate full access to non-private information (full access with restrictions), which simply means that although these functions have full access to other connected functions, this does not mean that they have access to any encrypted data that has been set by the lower-level authentication levels.

External Interface Requirements

Users

Refers to the users of the site which are capable and in their own free will, utilize and interface with any of the given functions that they are permitted for. These users should be considered as an external interface as they are the one capable of putting inputs in any of the functions included in the system's functional requirements.

Hardware

Refers to the hardware that is utilized to make all the functional requirements work, these include all user-based hardware such as but is not limited to any that can connect to the internet (laptop, mobile phones, desktop, etc.), and cloud-based hardware which hosts and stores data in and out of the site.

Software

Software frameworks, such as *Django, Bulma, LottieFiles*, and *FontAwesome* icons shall be utilized by the site. In addition to other front-end and back-end website services that it may utilize during the development, on release, and in future maintenance and releases of the site.

Communications

Since, the site is connected to the world wide web, it will obviously need to be a part of the whole internet infrastructure and must be connected to the entire world wide web to be safely and securely utilized by everyone on the internet. These would mean it requires connection through any of the following:

System Features

Based on the mentioned functional requirements, listed below is the summary of the system features and its brief description that shall allow the whole site to function properly and efficiently:

1) *Authorization Levels and Authentication* – refers to the ability of the site to check, assign, and authenticate the authorization of each individual users of the site.
2) *Account Security and Privacy* – refers to the site's end-to-end encryption of user data.
3) *Content Approval and Blocking* – refers to the ability of the site to approve or block content, including events and other users that are malicious in nature, or not related to the site by any means.
4) *Content Uploading and Storage* – refers to the feature that enables the site users to post any content or event in the platform, where all these contents are safely and securely stored in the database of the site. This also enables users to edit and delete their content from the site, whenever they choose to do so.
5) *Content Sharing* – refers to the ability of the site to enable sharing features within and outside of the site.
6) *Networking Features* – refers to the wide range of networking features of the site, which includes peer connections systems, messaging system, and groups; and
7) *Emergency Features* – refers to the emergency-based features that the users can opt to use.

Nonfunctional Requirements

Performance

To make the performance of the site better, it must utilize a cloud-hosting system, such that it will not require a local-based hardware to host the site which could hinder its performance and reliability, whenever there are power-interruptions, slow and intermittent internet connections, and low hardware specifications.

Safety

The user's safety is one of the utmost priorities of this site, as such emergency functionalities and features were added to the site, as well as guidelines to mitigate the risk that may occur in the direct and indirect utilization of the site.

Security

Security must be taken seriously, especially for any type of software system that requires storing private and vital information of different individuals. As such it is paramount that the site utilizes a state-of-the-art encryption for storing every user data and information into its database.

Quality

The quality of the site will be based of how good and effective its user interface and user experience are, as such it should make sure that its interface is well suited for its intended users and can make the experience for those users worthwhile.

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