Kilimanjaro Trail Monitor System

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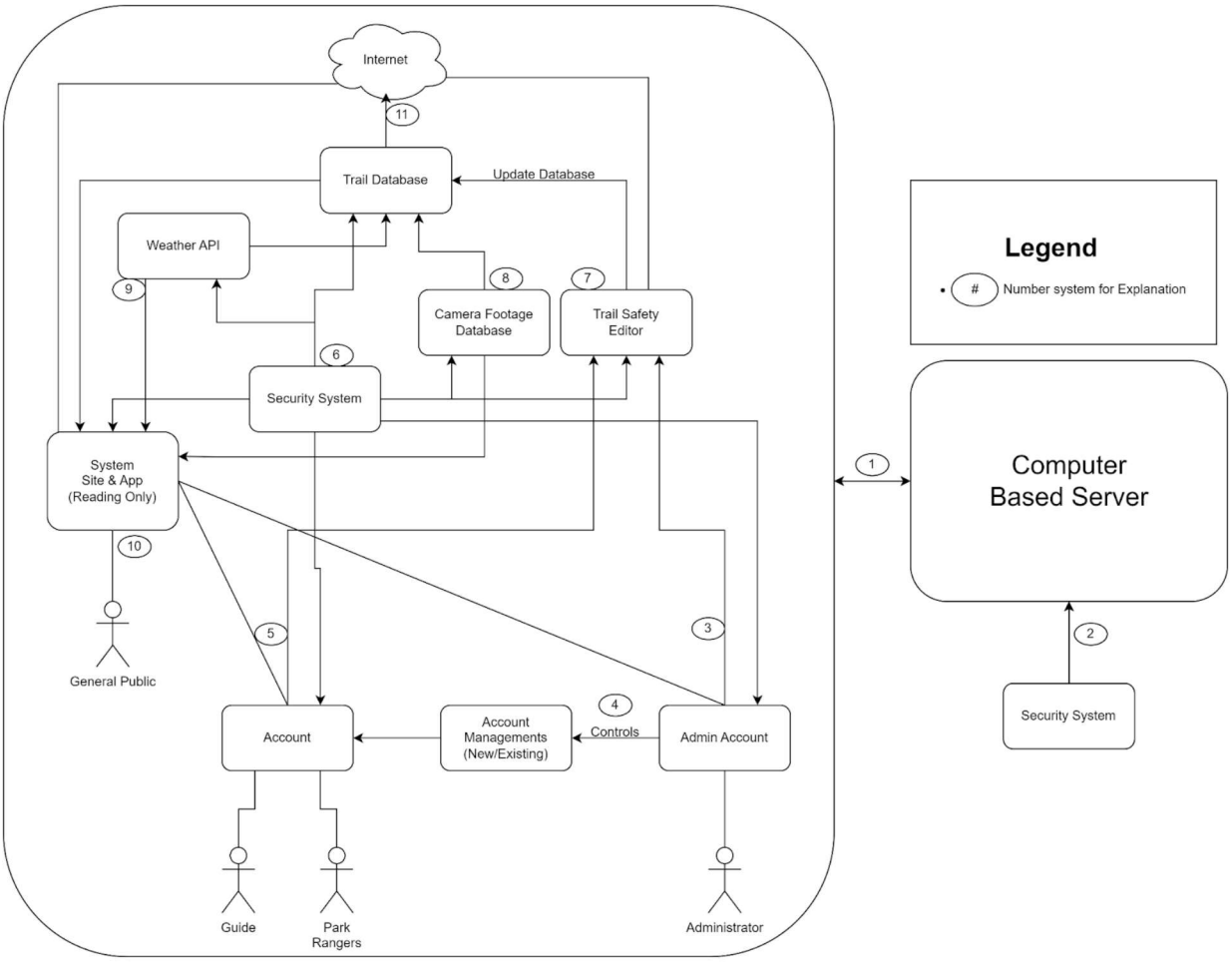
System Description

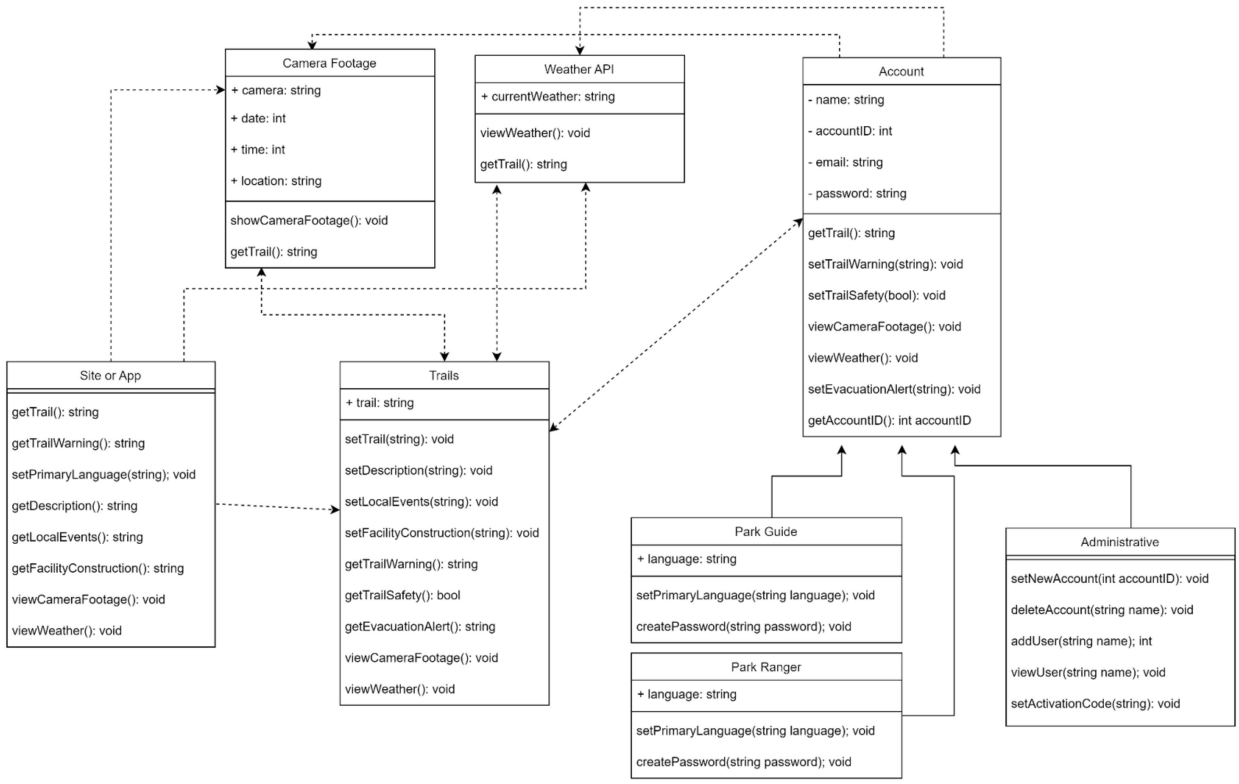
The Kilimanjaro Trail Monitoring System will be a robust and reliable system intended to provide important information on Kilimanjaro's many trails to park staff and guide leads in the area. The system will remove the guesswork as to which trails are currently safe and unblocked, allowing a smoother and less-dangerous experience for all. The system should also prevent freak accidents related to unsafe conditions by supporting evacuation alerts in the event of an emergency. This will be done by allowing guides, rangers, and park staff to mark the status of the trails of Kilimanjaro, which will be available to the general public when using the system. It is also important to note that Mount Kilimanjaro is located in the African nation of Tanzania. Therefore, the system will function on Tanzanian specifications.

Software Architecture Overview



1. This system is all under a computer-based server, where the computer at the main entrance of the park can take care of all the necessary tasks.
2. There is a security system in place to receive protection against potential rebels/outsiders from changing information within the system.
3. Users with an admin account can edit the conditions of each trail within the system. They can check the conditions of each trail using the website or the application. It gives them access to the weather conditions and camera footage at each trail.
4. Admin users can manage new account users that are for park guides and park rangers by giving them an access code for the creation of an account.
5. Park rangers and guides can both change the conditions of each trail within the system. They can check the conditions of each trail using the website or the application. It gives them access to the weather conditions and camera footage at each trail.
6. Another security system is to receive protection against potential rebels/outsiders from changing information within the system.

7. Once the conditions of any trails are changed, it goes into a database of all the changes made and the current conditions of each trail. It gives access to park rangers and guides to use the internet to change the conditions of the trails if needed.
8. Camera Footage is sent to the corresponding trail that contains the correct camera. This footage allows users access.
9. Weather API is used to determine the current weather conditions at each trail. It relays this information to the trail database and the website and application for users to access the current weather conditions.
10. The general public can access the trail information using the internet to access the website or the application on their mobile device.
11. The trail database can be accessed from the internet from any device that either uses a web browser or application.



The Park Guide and Park Ranger class both contain only one attribute: language. This attribute can be seen by anyone to show what is their primary language. They both contain the operations to set their primary language as well as the ability to create a password for their account. The Administrative class contains no attributes. It contains the operations of setting a new account, deleting an existing account, adding users to a list, viewing individual users, and setting an activation code to give to new users who are creating a new account. All three of these classes are considered Accounts, which is the parent class. Accounts have multiple attributes that are not able to be seen by others. These attributes are name, accountID, email, and password. AccountID should not be editable because everyone who is part of the

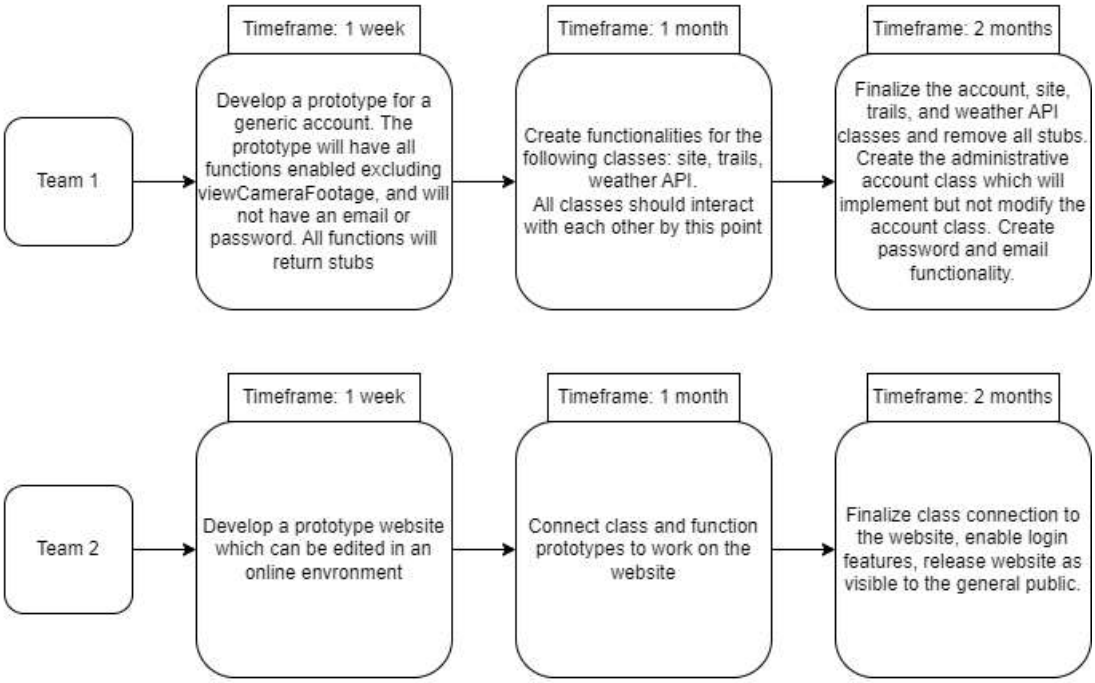
organization will receive a unique ID for them to use to log into the system. Operations within the Account class contain getting the name of the trail, setting trail warnings, setting trail safety, viewing camera footage of each trail, viewing the weather of each trail, setting evacuation alerts, and getting the accountID. Setting trail warnings, setting trail safety, and setting evacuation alerts are safety features that notify people around the Kilimanjaro area of the dangers present. The account class uses the Camera footage class. This class contains the camera's name, date, time, and location. This can be seen by everyone because it provides the public information about what is around each of the trails. Class Camera Footage has an operation that uses the Trail class to get the name of the trail that the camera is placed in. It has another operation that shows the camera footage at that certain trail if it is requested. The Account class uses the Weather API class to display the current weather conditions. This class shows the weather conditions if it is requested. It uses the Trail class to get the name of the trail so that it can provide the weather condition at that current trail.

The Trail class contains the trail attribute showing the different names of the trails. There are many operations in the Trail class. The trail class has setters to add the name of the trail, a description of the trail, local events, and facility construction. It also contains operations to view a trail's current warnings, if they have any, a trail's current safety condition, as well as receive any evacuation alerts that may be in effect. This provides users with information about what is around the trails and their descriptions. Additionally, there are also operations to view the current camera footage along with the weather of any given trail, done so by using the Camera Footage class and the Weather API class.

The Site or App class uses the Trail class, Camera Footage class, and Weather API class. It contains zero attributes as it is mainly for the public to read, and the public doesn't need to create an account or modify any trail attributes. It provides users with access to information about the different Kilimanjaro trails. This information includes the different trails available coupled with a description of the trail, any warnings currently being broadcasted about the trail, any events or celebrations scheduled to take place within the park, and any news on construction of new facilities within the park. There are also options available to view the current camera footage from the park as well as see current weather conditions.

Development Plan and Timeline

Increment 1: Basic Interactive System For a Single User



Increment 2: Full System Compatibility and Cloud-Based Editing