# USE CASE SURVEY

The purpose of the VirtualScope is to allow users to view the contents of a microscope anywhere through manipulation of a Raspberry Pi. Users are able to log in and view a streaming live video of the microscope. In addition to that, screen shots of the microscope focus will be captured at intervals. This allows users to view past results when not online.

## ACTOR SUMMARIES

### Student (primary user)

Students use the system as needed to view the microscope. Students have the option to watch the live stream or look through interval photos of the microscope. They value:

-Availability: All students must be able to use the online website to view the live stream and look at the photos. More than one student should be able to look at the live stream and photos at the same time.

-Ease of use: The system should be easy to use for people with even very low computer skills. The user interface should be clean and logical. Interval photos should be organized so students can properly go through them.

-Accuracy: The live stream should be correctly showing the right microscope. All intermittent photos should be properly timestamped.

### Administrator (primary user)

Administrators use the system in the same way students do. They have additional uses for the system. Administrators will be able to view a log of who logged in or not. The administrator can control student access for creation and deletion of accounts. Administrators have the capability to modify the photo database. They value:

-Availability: All users must be able to use the online website to view the live stream and look at the photos. More than one user should be able to look at the live stream and photos at the same time.

-Ease of use: The system should be easy to use for people with even very low computer skills. The user interface should be clean and logical. Interval photos should be organized so users can properly go through them.

-Accuracy: The live stream should be correctly showing the right microscope. All intermittent photos should be properly timestamped.

-Security: Only people who log in can gain access to the system.

### Authentication Service (secondary user)

The authentication service is a database service that validates user’s accounts and password. Depending on the user (student or administrator) certain access is provided. It values:

-Accuracy: The user and passwords should be authenticated properly. Permissions depending on the user should be accurate.

-Security: The data system should kept secure and should eliminate security vulnerabilities.

## USE CASE SUMMARIES

## Account creation

The goal of this use case is to allow the actor to access the website. If not registered, the actor will register. The actor provides a user name, password, and the given class password. The class password is created by the administrator and given to the student. When the account is being created, it is stored in a database. After account creation, the actor may access the system.

## Authenticate

The goal of this is to authenticate actor information when logging in. When the actor logs into the website, Authentication Service will validate that the actor name matches the password that was registered. When validated, the actor may access the website and use it according to his/her access. If not validated, the actor cannot access the website

## View live stream

The goal of view live stream is to allow actor access to the microscope video capture. Attached to the eyepiece is a raspberry pi that streams the video to a website. An actor can access the live stream as long as he/she can go online. The video captures content through the eyepiece of a microscope.

## View photos

The goal of view photos is so the actor may see the progress of the microscope subject in time increments. Because live streaming only shows current development, any past progress of the microscope subject will be lost to the actor. With time interval photos, the actor may look at the subjects past development. The photos are taken at intervals and organized by time. Only the Administrator may add or delete photos.

## Create class password

The goal of the class password is to verify that only certain actors may create a student account. Only Administrator(s) may create, update, or delete class password. The Administrator is able to choose who can create a student account. A class password is given to a new student user to create his/her account.

## Change photo capture increment

The goal of this is to allow an actor with the correct access to change the time of photo capture. The purpose to allow a change in when a photo is taken is due to the different time requirements needed to look at a subject’s development. The interval time of the photos is set by the Administrator.

## Delete student account

The goal of this is to allow an actor to delete student account(s). Some student accounts may become inactive. Only the Administrator may delete a student account. The Administrator will choose the student user name and select delete. Once deleted, the account is removed from the database and that account no longer has access to the website.

## View sign in log

The goal of the view sign in log is to allow the Administrator to keep track of all the students that are currently using the website. The Administrator is able to see all the user names and when the student logged in. The Administrator can see the logs by date or click a specific student to view when that student has logged in.

## Modify photo database

The goal of this is to keep the photo database a manageable size and keep only relevant photos. Only the Administrator may add or delete photos. The Administrator may click on a photo or file and then choose the delete option. A pop up will confirm if the photo should be deleted. Once deleted, the photo cannot be retrieved.

## Log out

The goal of this is to log out of the website. The actor clicks log out. The actor no longer has access to the system and cannot view its contents.

