# 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.

## USE CASE SUMMARIES

## Create Account

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 username, 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 actor

The goal of this is to authenticate actor information when logging in. When the actor logs into the website, the system 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.

## Modify 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 create a class password by adding a course name, a class password and the section of that course. The Administrator can also choose who can create a student account. A class password is given to a new student user to create his/her account.

## Track users’ logins

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 search by a desire criterion such as name, date range or all the login history from when users logged in.

## Modify users accounts

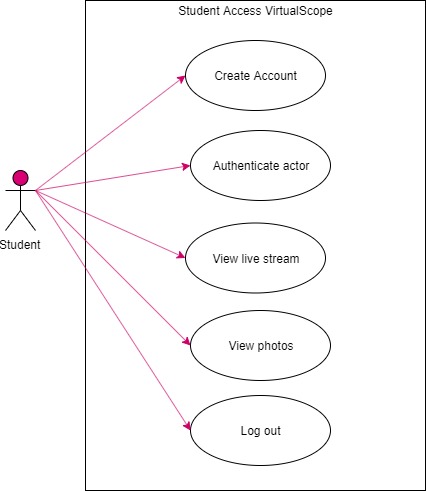
The goal of the modify user accounts is to allow the Administrator to modify the user account information. The Administrator is allowed to delete account by name, by class and also update changes to the user type to admin.

## Modify microscope

The goal of this is to allow the Administrator to add a microscope to the database and configure the details of the microscope such as microscope name, experiment name, course name, dates, YouTube streaming link, photo interval, state and description. The Administrator is able to change the photo increment of the picture taken.

## 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.



A close up of a map

Description automatically generated