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Abstract

This document describes the software user manual for the SensUs Digital Platform. The SensUs Digital Platform is an online video streaming and data presentation service for the annual SensUs event - an international student competition on molecular biosensors for healthcare applications. This document complies with the ESA software standard.
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1 INTRODUCTION

1.1 INTENDED READERSHIP

The SensUs Digital website supports a variety of user types. There are unauthorized users and authorized users. In order of ascending permission, the authorized users can be of type Authorized User, Team Member, SensUs Personnel, or Website Administrator, with each role having all the permissions of the preceding roles including additional functionality specific to their role. For example, users of type SensUs Personnel can perform all of the actions of an Authorized User and Team Member, while also access additional dashboards.

The unauthorized users require no significant preknowledge besides the ability to navigate to and around the website. This is also true for the Authorized User, although they are allowed to upload media and vote for teams (which will be described below).

The Team Member will have access to the Q&A Dashboard, the SensUs Personnel will have access to Control Dashboard, the Event Dashboard, and the Team Dashboard, and the Website Administrator will have access to the Data Dashboard and User Management Dashboard. A tutorial for each of the dashboards will be presented in this document and the corresponding end-user, authorized or unauthorized, will be expected to read the sections corresponding to their roles.

1.2 APPLICABILITY

The document is applicable to the most recent release of the SensUs Digital website.

1.3 PURPOSE

The purpose of the SensUs Digital Platform is to provide online viewers with an experience as close as possible to actually attending the SensUs competition. The SensUs Digital website provides live video streams and highlights of past live video streams of events available, along with additional information about the competition. Users can ask the teams interesting questions, share videos of the event, and vote for the teams on the different awards. The SensUs Digital Platform also allows for the competition organizers and competitors to manage the data collection, user management, and media exhibition of the SensUs Digital website directly. The purpose of the software user manual is to explain how end users can use the SensUs Digital website. For each type of end user there will be descriptions for each of their functionalities. The process of setting up the SensUs Digital website will also be detailed.
1.4 HOW TO SEE THIS DOCUMENT

This software user manual is to be used as a first primer and reference guide about how to use the SensUs Digital website.

1.5 RELATED DOCUMENTS

The most relevant document to this software user manual is the SensUs user requirements document (URD) [1]

1.6 CONVENTIONS

The pages and tabs of the SensUs Digital website will have their titles between quotes, such as "Explore". Buttons, links, menu items, and the like will be italicized. Placeholder text will be written between angle brackets, such as "Username: <username>; Password: <password>".

1.7 PROBLEM REPORTING

If the user has a problem during their use of the SensUs Digital website, they should send an email to SensUs detailing the nature of their issue.

1.8 LIST OF REFERENCES

2 OVERVIEW

This manual encompasses a number of tutorials described in Section 3. The ordering of the tutorials is based on user permissions, and thus each user will have the ability to access their own user-specific dashboards and all of the dashboards of users with a lower level of clearance. The functionalities detailed in the tutorial do not account for basic browsing functionalities such as watching the main live stream, as the general user is expected to have, at least, basic knowledge about website browsing. Thus, a tutorial describing the necessity for the user to click on the embedded video to start playing it is trivial and not detailed in this document. The tutorials are as follows:

1. Unauthenticated User - 3.1
2. Authenticated User - 3.2
3. Team Member - 3.3
   - Q&A Dashboard
4. SensUs Personnel - 3.4
   - Team Dashboard
   - Control Dashboard
   - Event Dashboard
5. Website Administrator - 3.5
   - Data Dashboard
   - User Management Dashboard
3 TUTORIALS

The tutorials will be presented in ascending privilege level. Thus, the beginning of the tutorials are applicable to all users and will eventually only apply to users of type Website Administrator.

3.1 UNAUTHENTICATED USER

3.1.1 LOGGING IN

Functional Description

This section explains how to log into the SensUs Digital website.

Cautions and Warnings

None.

Procedures

1. Open your browser

2. Navigate to the SensUs Digital website

3. Click the "Login" tab (Fig. 1)

4. Enter <your email> and click NEXT

5. Enter <your password> and click NEXT

Likely Errors

The password is incorrect (Fig. 1).
3.2 AUTHENTICATED USER

3.2.1 LOGGING OUT

Functional Description

This section explains how to log out of the SensUs Digital website.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.

Procedures

1. Click <your name> in the upper-right corner of the website

2. Select Logout (Fig. 2)

Likely Errors

None.
3.2.2 SUBMITTING A PICTURE

Functional Description

This section explains how to upload a picture to the SensUs Digital website.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.

Procedures

1. Click the CONTRIBUTE button on the left side of the page
2. Select Picture as a media type (Fig. 3)
3. Enter the <URL> of the picture in the corresponding field
4. Enter the <title> of the picture in the corresponding field
5. Click Submit
**Likely Errors**

The URL is invalid.

**Figures**

![SUBMITTING A PICTURE](image)

**FIGURE 3: SUBMITTING A PICTURE**

### 3.2.3 SUBMITTING A VIDEO

**Functional Description**

This section explains how to upload a video to the SensUs Digital website.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.

**Procedures**

1. Click the CONTRIBUTE button on the left side of the page
2. Select Video as a media type (Fig. 4)
3. Enter the <URL> of the video in the corresponding field
4. Enter the <title> of the video in the corresponding field
5. (Optionally) Enter the `<description>` of the video in the corresponding field

6. Click `Submit`

**Likely Errors**

The URL is invalid.

**Figures**

![Submitting a Video](image)

**FIGURE 4: SUBMITTING A VIDEO**

### 3.2.4 SUBMITTING A QUESTION

**Functional Description**

This section explains how to submit a question to the SensUs Digital website.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.

**Procedures**

1. Click the `CONTRIBUTE` button on the left side of the page OR the “Q&A” tab in the header
2. Select `Question` as a media type (Fig. 5)
3. Enter the <title> of the question in the corresponding field

4. (Optionally) Enter the <URL> of the question in the corresponding field

5. (Optionally) Enter the <text> of the question in the corresponding field

6. Select the associated team

7. Enter the <title> of the question in the corresponding field from the dropdown menu.

8. Click Submit

**Likely Errors**

The URL is invalid.

**Figures**

![FIGURE 5: SUBMITTING A QUESTION](image)

### 3.2.5 VOTING FOR TEAMS

**Functional Description**

This section explains how to vote for teams on the SensUs Digital website.

**Cautions and Warnings**

None.
Preconditions

1. The user should be logged in.

Procedures

1. Click the “Vote Now!” tab in the header
2. Select two teams for whom to vote (Fig. 6)
3. Click Cast Vote

Likely Errors

None.

Figures

![FIGURE 6: CASTING VOTE](image)

3.3 TEAM MEMBER

3.3.1 CLAIMING A QUESTION

Functional Description

This section explains how a team can claim a question.

Cautions and Warnings

None.
**Preconditions**

1. The user should be logged in.
2. The user should be of type Team Member or greater.

**Procedures**

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents (Fig. 7)
4. Select the *Claimed* button
5. Press the *I’m Sure* button on the confirmation page to finalize the change

**Likely Errors**

None.

**Figures**

![SensUs Q&A Dashboard](image)

**FIGURE 7: CLAIMING A QUESTION**

3.3.2 **UNCLAIMING A QUESTION**

**Functional Description**

This section explains how to unclaim a submitted question.
Cautions and Warnings

None.

Preconditions

1. The user should be logged in.
2. The user should be of type Team Member or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Select the Approved button (Fig. 8)

Likely Errors

None.

Figures

![SensUs Q&A Dashboard](image)

**FIGURE 8: UNCLAIMING A QUESTION**

3.3.3 ANSWERING A QUESTION
**Functional Description**

This section explains how to answer a submitted question.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.
2. The user should be of type Team Member or greater.

**Procedures**

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Click on the Answer dropdown
5. Click the Answer question button
6. (Optionally) Add an title to your answer in the corresponding field (Fig. 9)
7. (Optionally) Enter the <URL> of the question in the corresponding field
8. (Optionally) Enter the <text> of the question in the corresponding field
9. Click the Submit button to finalize the submission

**Likely Errors**

None.
3.4 SENSUS PERSONNEL

3.4.1 UPDATING TEAM DESCRIPTION

Functional Description

This section explains how to change the description that appears alongside each team.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.
2. The user should be of type Team Member or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Teams button
3. Update the text in the corresponding description field (Fig. 10)
4. Press the Save Description button to finalize the update
Likely Errors
None.

Figures

3.4.2 UPDATING TEAM LIVE STREAM

Functional Description
This section explains how to change the stream link for a team.

Cautions and Warnings
None.

Preconditions
1. The user should be logged in.
2. The user should be of type Team Member or greater.

Procedures
1. Click on the “Dashboard” tab in the header
2. Click on the Teams button
3. Update the text in the corresponding description field (Fig. 11)
4. Press the *Save Description* button to finalize the update

**Likely Errors**

None.

**Figures**

![Carediobit](image)

**FIGURE 11: UPDATE LIVE STREAM**

### 3.4.3 DISPLAYING EVENT STATISTICS

**Functional Description**

This section explains how to setup the full-screen event statistics.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

**Procedures**

1. Click on the “Dashboard” tab in the header
2. Click on the Event button
3. Select the buttons containing the statistics to be displayed in full screen (Fig. 12)

4. Click the Present slide(s) button to start a slide show

Likely Errors

None.

Figures

![Slideshow Event Statistics](image)

**FIGURE 12: DISPLAYING EVENT STATISTICS**

### 3.4.4 SETTING A QUESTION TO PENDING

**Functional Description**

This section explains how to change a question’s status to pending.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.

2. The user should be of type SensUs Personnel or greater.
Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Click the Pending button (Fig. 13)
5. Click the I’m sure button to finalize the submission

Likely Errors

None.

Figures

FIGURE 13: CHANGING A QUESTION TO PENDING

3.4.5 APPROVING A QUESTION

Functional Description

This section explains how to approve a submitted question.

Cautions and Warnings

None.
Preconditions

1. The user should be logged in.
2. The user should be of type Team Member or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Select the Approved button (Fig. 14)

Likely Errors

None.

Figures

![Figure 14: Approving a Question](image)

3.4.6 Rejecting a Question

Functional Description

This section explains how to reject a submitted question.
Cautions and Warnings

None.

Preconditions

1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Click the Reject button (Fig. 15)
5. Click the I’m sure button to finalize the submission

Likely Errors

None.

Figures

FIGURE 15: REJECTING A QUESTION
3.4.7 DELETING A QUESTION

Functional Description

This section explains how to delete a submitted question.

Cautions and Warnings

The deletion cannot be undone.

Preconditions

1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Click the Delete button (Fig. 16)
5. Click the I’m sure button to finalize the submission

Likely Errors

None.
3.4.8 APPROVING AN ANSWER

Functional Description
This section explains how to approve a submitted answer.

Cautions and Warnings
None.

Preconditions
1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

Procedures
1. Click on the "Dashboard" tab in the header
2. Click on the Q&A button
3. Select the Answer Pending tab
4. Click on one of the questions to expand its contents
5. Click on the answer to expand its contents
6. Select the **Approved** button (Fig. 17)

7. Click **I’m Sure** to finalize the approval

**Likely Errors**

None.

**Figures**

![SensUs Q&A Dashboard](image)

**FIGURE 17: APPROVING AN ANSWER**

### 3.4.9 REJECTING AN ANSWER

**Functional Description**

This section explains how to reject a submitted answer.

**Cautions and Warnings**

None.

**Preconditions**

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Select the **Answer Pending** tab
4. Click on the Q&A button
5. Click on one of the questions to expand its contents
6. Click on the answer to expand its contents
7. Select the *Rejected* button (Fig. 18)
8. Click *I’m Sure* to finalize the approval

**Procedures**

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Click on one of the questions to expand its contents
4. Click the *Reject* button
5. Click the *I’m sure* button to finalize the submission

**Likely Errors**

None.

**Figures**

![SensUs Q&A Dashboard](image)

**FIGURE 18: REJECTING AN ANSWER**

### 3.4.10 DELETING AN ANSWER

**Functional Description**

This section explains how to delete a submitted question.
Cautions and Warnings

The deletion cannot be undone.

Preconditions

1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Q&A button
3. Select the Answer Pending tab
4. Click on one of the questions to expand its contents
5. Click on the answer to expand its contents
6. Click the Delete button (Fig. 19)
7. Click I’m Sure to finalize the approval

Likely Errors

None.
3.4.11 APPROVING A VIDEO

Functional Description

This section explains how to approve a video through the "Control" page.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.

2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the "Dashboard" tab in the header

2. Click on the Control Room button

3. Click on one of the videos in the left-hand pane

4. Select the Approved button (Fig. 20)

5. Click the Submit button to finalize the update
Likely Errors

None.

Figures

![FIGURE 20: APPROVING A VIDEO]

3.4.12 REJECTING A VIDEO

Functional Description

This section explains how reject a video through the “Control” page.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.

2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the “Dashboard” tab in the header

2. Click on the Control Room button

3. Click on one of the videos in the left-hand pane
4. Select the **Rejected** button (Fig. 21)

5. Click the **Submit** button to finalize the update

### Likely Errors

None.

### Figures

**FIGURE 21:** REJECTING A VIDEO

### 3.4.13 UPLOADING A PICTURE

#### Functional Description

This section explains how to upload a picture from the Control Dashboard.

#### Cautions and Warnings

None.

#### Preconditions

1. The user should be logged in.

2. The user should be of type SensUs Personnel or greater.
Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Control Room button
3. Click on the Upload button
4. Click the Picture button (Fig. 22)
5. Enter the picture <URL> and <title> in the corresponding fields
6. Select the tags and associated teams from the corresponding dropdowns
7. Select the desired picture status
8. Click the Submit button to finalize the submission

Likely Errors

The submission is missing a title. The URL is not valid.

Figures

![Figure 22: Submitting a Picture](image)

3.4.14 UPLOADING A VIDEO

Functional Description

This section explains how to upload a video from the Control Dashboard.
Cautions and Warnings

None.

Preconditions

1. The user should be logged in.
2. The user should be of type SensUs Personnel or greater.

Procedures

1. Click on the "Dashboard" tab in the header
2. Click on the Control Room button
3. Click on the Upload button
4. Click the Video button (Fig. 23)
5. Enter the video <URL> and <title> in the corresponding fields
6. (Optionally) Enter a video description
7. Select the tags and associated teams from the corresponding dropdowns
8. Select the desired video status
9. Click the Submit button to finalize the submission

Likely Errors

The video is missing a title. The URL was not a valid Youtube link.
3.5 WEBSITE ADMINISTRATOR

3.5.1 EDITING BIOSENSOR DATA

Functional Description

This section explains how to edit the biosensor data points for each team.

Cautions and Warnings

Cells that are not editable will not be able to be modified.

Preconditions

1. The user should be logged in.
2. The user should be of type Website Administrator or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Biosensor Data button
3. Click on the cell you wish to edit (Fig. 24)
4. Enter a <valid> value for the cell
5. Click the Enter button on your keyboard to register changes
3.5.2 FILTERING BIOSENSOR DATA

Functional Description

This section explains how to filter the biosensor data points on team name.

Cautions and Warnings

An invalid team or a valid team with no data points will return no data points.

Preconditions

1. The user should be logged in.
2. The user should be of type Website Administrator or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Biosensor Data button
3. Click the Filter Rows button
4. Enter a <team name> in the Search field (Fig. 25)

Likely Errors

None.

Figures

![FIGURE 25: FILTERING BIOSENSOR DATA](image-url)

3.5.3 CHANGING CHART SETTINGS

Functional Description

This section explains how to change the chart settings for the main website.

Cautions and Warnings

None.

Preconditions

1. The user should be logged in.

2. The user should be of type Website Administrator or greater.

Procedures

1. Click on the “Dashboard” tab in the header

2. Click on the Biosensor Data button
3. Tick the boxes of the settings you wish to enable (Fig. 26)

4. (Optional) Change the y-axis correlation scatter plot to linear or log scale by selecting the team in the dropdown and clicking the corresponding buttons

5. (Optional) Toggle show concentration via the button with the same name

**Likely Errors**

None.

**Figures**

![FIGURE 26: CHANGING CHART SETTINGS](image)

### 3.5.4 DOWNLOADING BIOSENSOR CSV FILES

**Functional Description**

This section explains how to download CSV files containing biosensor data.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.

2. The user should be of type Website Administrator or greater.
Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the *Biosensor Data* button
3. Click the *Download CSV* button to download the file (Fig. 27)

Likely Errors

None.

Figures

![DOWNLOADING CSV](image)

**FIGURE 27: DOWNLOADING CSV**

### 3.5.5 UPLOADING BIOSENSOR CSV FILES

**Functional Description**

This section explains how to upload CSV files containing biosensor data.

**Cautions and Warnings**

None.

**Preconditions**

1. The user should be logged in.
2. The user should be of type Website Administrator or greater.
Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Biosensor Data button
3. Click the Choose File button (Fig. 28)
4. Browse through the file explorer and select the file you wish to upload
5. Click the Upload to server button to finalize the upload

Likely Errors

CSV has incorrect length.

Figures

3.5.6 EDITING USER DATA

Functional Description

This section explains how to edit user data.

Cautions and Warnings

None.
Preconditions

1. The user should be logged in.
2. The user should be of type Website Administrator or greater.

Procedures

1. Click on the “Dashboard” tab in the header
2. Click on the Users button
3. Click the Edit button next to the user to change (Fig. 29)
4. Select the desired role and team via the corresponding dropdowns
5. Click the Save button to finalize the changes

Likely Errors

None.

Figures

FIGURE 29: CHANGING USER DATA

3.5.7 BANNING/UNBANNING A USER

Functional Description

This section explains how to ban/unban a user.
Cautions and Warnings

None.

Preconditions

1. The user should be logged in.
2. The user should be of type Website Administrator or greater.

Procedures

1. Click on the "Dashboard" tab in the header
2. Click on the Users button
3. Click the Ban button (or Unban button if they are already banned) next to the user to ban/unban (Fig. 30)

Likely Errors

None.

Figures

FIGURE 30: BANNING/UNBANNING A USER
4 REFERENCES

4.1 HOME PAGE

4.1.1 FUNCTIONAL DESCRIPTION

This page is shown to the user upon visiting the website, or when the SensUs logo is clicked. Here it is possible to view information about SensUs Digital and the SensUs competition, view the competition live stream, and navigate to any of the other pages accessible to the visiting users via the header. The user can also contribute media via the CONTRIBUTE button. This button is present on most pages, so it will be described once in this subsection.

4.1.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload media</td>
<td>Click the CONTRIBUTE button and fill in the media details</td>
<td>The uploaded media will be submitted to the SensUs Personnel for approval.</td>
</tr>
</tbody>
</table>

4.2 VOTE PAGE

4.2.1 FUNCTIONAL DESCRIPTION

This page details the various awards associated with the SensUs competition, allows the user to view the number of votes cast, and give the users a way to vote on their two favorite teams.

4.2.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast Vote</td>
<td>Click two teams to vote for and press the Cast Vote button</td>
<td>The votes will be submitted to the server and the total number of votes will be updated.</td>
</tr>
</tbody>
</table>

4.3 EXPLORE PAGE

4.3.1 FUNCTIONAL DESCRIPTION

This page allows the user to explore media captured throughout the SensUs event, with both filtering and sorting as available functionalities.
4.3.2  FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Media</td>
<td>Click the <em>Filter</em> dropdown and choose the <em>&lt;TAGS&gt;</em> and <em>&lt;MEDIA TYPES&gt;</em></td>
<td>The filter will be applied to the media gallery.</td>
</tr>
<tr>
<td>Sort Media</td>
<td>Click <em>Newest First</em> or <em>Random</em></td>
<td>The sorting will be applied to the media gallery.</td>
</tr>
</tbody>
</table>

4.4  TEAMS PAGE

4.4.1  FUNCTIONAL DESCRIPTION

This page provides a link to each of the teams' individual team page. On each of the individual pages, there is a main stream, biosensor data graphs, and general team information.

4.4.2  FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.5  Q&A PAGE

4.5.1  FUNCTIONAL DESCRIPTION

This page contains all approved questions and answers. The questions and answers can be in text or video format.

4.5.2  FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.6  LIVE RESULTS

4.6.1  FUNCTIONAL DESCRIPTION

This page displays the results of the competing teams. The results shown on this page consists of: the number of datapoints, the correlation-scatterplot, time-to-result and the used sample volume.
4.6.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.7 DASHBOARD PAGE

4.7.1 FUNCTIONAL DESCRIPTION

This page is the portal between the authenticated users and all of the dashboards they have the permission to view.

4.7.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit “Teams” dashboard</td>
<td>Click the Teams button</td>
<td>The user will be redirected to the “Teams” dashboard.</td>
</tr>
<tr>
<td>Visit “Data” dashboard</td>
<td>Click the Biosensor Data button</td>
<td>The user will be redirected to the “Data” dashboard.</td>
</tr>
<tr>
<td>Visit “Event” dashboard</td>
<td>Click the Event button</td>
<td>The user will be redirected to the “Event” dashboard.</td>
</tr>
<tr>
<td>Visit “Q&amp;A” dashboard</td>
<td>Click the Q&amp;A button</td>
<td>The user will be redirected to the “Q&amp;A” dashboard.</td>
</tr>
<tr>
<td>Visit “Control” dashboard</td>
<td>Click the Control Room button</td>
<td>The user will be redirected to the “Control” dashboard.</td>
</tr>
<tr>
<td>Visit “User Management” dashboard</td>
<td>Click the Users button</td>
<td>The user will be redirected to the “User Management” page.</td>
</tr>
</tbody>
</table>

4.8 TEAM DASHBOARD PAGE

4.8.1 FUNCTIONAL DESCRIPTION

This page displays each of the teams’ descriptions and live streams, and allows an administrator to modify the team information, which will be reflected on the “Teams” page.
4.8.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update team description</td>
<td>Modify the team description in the text field and click <em>Save Description</em></td>
<td>The changed description will be saved to the server.</td>
</tr>
<tr>
<td>Update team live stream</td>
<td>Enter the live stream &lt;URL&gt; in the corresponding field and click “Update Live Stream”</td>
<td>The changed link will be saved to the server.</td>
</tr>
</tbody>
</table>

4.9 DATA DASHBOARD PAGE

4.9.1 FUNCTIONAL DESCRIPTION

This page contains the biosensor data points and charts for each team. From this page, an administrator can upload/modify biosensor data and change graph settings for the website.

4.9.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit biosensor data point</td>
<td>Click the cell you wish to edit, enter a &lt;VALID VALUE&gt;, and press Enter on your keyboard. Click <em>Upload to server</em> to finalize changes</td>
<td>The modified cell will reflect the &lt;VALID VALUE&gt;</td>
</tr>
<tr>
<td>Change chart settings</td>
<td>Tick the boxes of the chart settings you wish to enable and click <em>Upload to server</em> to finalize changes</td>
<td>The modified cell will reflect the &lt;VALID VALUE&gt;</td>
</tr>
<tr>
<td>Change y-axis correlation scatter plot</td>
<td>From the &lt;Select Team&gt; dropdown, choose a team and either <em>Linear scale y-axis</em> or <em>Log scale y-axis</em>. Click <em>Upload to server</em> to finalize changes</td>
<td>The modified cell data will be submitted to the server and reflected on the website.</td>
</tr>
</tbody>
</table>

4.10 EVENT DASHBOARD PAGE
4.10.1 FUNCTIONAL DESCRIPTION

This page allows the user to choose certain event statistics, such as the number of votes per team or the Twitter feed of SensUs, to display in fullscreen during the event.

4.10.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present statistics</td>
<td>Click either Team Votes or/and SensUs Twitter feed and click Present slide(s)</td>
<td>The statistics will be displayed in fullscreen in a slideshow format.</td>
</tr>
</tbody>
</table>

4.11 Q&A DASHBOARD PAGE

4.11.1 FUNCTIONAL DESCRIPTION

This page displays all questions submitted to the SensUs Digital website, as well as all answers paired to those questions. From this page, all questions and answers can be approved, rejected, deleted, set to pending, or claimed. Each question and answer can also be filtered by team and status.
### 4.11.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reject question</td>
<td>Click one of the questions to expand its contents and press the <em>Rejected</em> button. Click &quot;I'm Sure' on the confirmation screen to save changes</td>
<td>The status of the question will be updated.</td>
</tr>
<tr>
<td>Approve question</td>
<td>Click one of the questions to expand its contents and press the <em>Approved</em> button. Click &quot;I'm Sure' on the confirmation screen to save changes</td>
<td>The status of the question will be updated.</td>
</tr>
<tr>
<td>Claim question</td>
<td>Click one of the questions to expand its contents and press the <em>Claimed</em> button. Click &quot;I'm Sure' on the confirmation screen to save changes</td>
<td>The status of the question will be updated.</td>
</tr>
<tr>
<td>Delete question</td>
<td>Click one of the questions to expand its contents and press the <em>Delete</em> button. Click &quot;I'm Sure' on the confirmation screen to save changes</td>
<td>The question will be deleted from the server.</td>
</tr>
<tr>
<td>Set question to pending</td>
<td>Click one of the questions to expand its contents and press the <em>Pending</em> button. Click &quot;I'm Sure' on the confirmation screen to save changes</td>
<td>The status of the question will be updated.</td>
</tr>
<tr>
<td>Answer question</td>
<td>Click one of the questions to expand its contents and click the Answer dropdown. Press the <em>Answer question</em> button and fill in the &lt;Title&gt;, &lt;URL&gt;, and &lt;Text (Optional)&gt;. Click the <em>Submit</em> button to submit answer.</td>
<td>The answer will be submitted and paired with the corresponding question.</td>
</tr>
<tr>
<td>Operation</td>
<td>Steps</td>
<td>Result</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Delete answer</td>
<td>Click one of the questions to expand its contents and click the Answer dropdown. Press the Answer question button and click the Delete button. Click “I’m Sure’ on the confirmation screen.</td>
<td>The answer will be deleted and the question's status will change accordingly.</td>
</tr>
<tr>
<td>Reject answer</td>
<td>Click one of the questions to expand its contents and click the Answer dropdown. Press the Answer question button and click the Rejected button. Click “I’m Sure’ on the confirmation screen.</td>
<td>The answer will be rejected and the question's status will change accordingly.</td>
</tr>
<tr>
<td>Approve answer</td>
<td>Click one of the questions to expand its contents and click the Answer dropdown. Press the Answer question button and click the Approved button. Click “I’m Sure’ on the confirmation screen.</td>
<td>The answer will be approved and the question's status will change accordingly.</td>
</tr>
<tr>
<td>Filter on &lt;Team&gt;</td>
<td>Click one of the teams in the left-hand pane</td>
<td>Only questions and answers belonging to the &lt;Team&gt; will be displayed.</td>
</tr>
<tr>
<td>Filter on &lt;Status&gt;</td>
<td>Click one of the statuses in the center pane</td>
<td>Only questions and answers with the &lt;Status&gt; will be displayed.</td>
</tr>
</tbody>
</table>

### 4.12 CONTROL DASHBOARD PAGE

#### 4.12.1 FUNCTIONAL DESCRIPTION

This page provides the functionality to approve, reject, update, and upload media. It acts as a buffer for user-submitted videos and pictures such that they can be assigned certain tags, teams, and statuses, or modified if necessary.
### 4.12.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter media on &lt;Type&gt;</td>
<td>Click on the type filter and select a &lt;Type&gt;</td>
<td>Only media with the &lt;Type&gt; will be displayed.</td>
</tr>
<tr>
<td>Filter media on &lt;State&gt;</td>
<td>Click on the state filter and select a &lt;State&gt;</td>
<td>Only media with the &lt;State&gt; will be displayed.</td>
</tr>
<tr>
<td>Sort media</td>
<td>Click on the state filter and select a &lt;Sort&gt;</td>
<td>Media will be displayed in the order defined by the sorting criterion.</td>
</tr>
<tr>
<td>Change media details</td>
<td>Click on the <em>Update</em> button in the right-hand pane filter and modify the necessary fields. Press <em>Submit</em> to finalize changes</td>
<td>The media's updated fields will be changed.</td>
</tr>
<tr>
<td>Approve media</td>
<td>Click on the <em>Update</em> button in the right-hand pane filter and select <em>Approved</em>. Press <em>Submit</em> to finalize changes</td>
<td>The media will be approved and the status will change accordingly.</td>
</tr>
<tr>
<td>Unapprove media</td>
<td>Click on the <em>Update</em> button in the right-hand pane filter and select <em>Unapproved</em>. Press <em>Submit</em> to finalize changes</td>
<td>The media will be unapproved and the status will change accordingly.</td>
</tr>
<tr>
<td>Reject media</td>
<td>Click on the <em>Update</em> button in the right-hand pane filter and select <em>Rejected</em>. Press <em>Submit</em> to finalize changes</td>
<td>The media will be rejected and the status will change accordingly.</td>
</tr>
<tr>
<td>Delete media</td>
<td>Click on the <em>Update</em> button in the right-hand pane filter and select <em>Delete</em>. Press <em>I’m Sure</em> to finalize changes</td>
<td>The media will be deleted from the server.</td>
</tr>
<tr>
<td>Upload media</td>
<td>Click on the <em>Upload</em> button in the right-hand pane filter and enter the media details in the corresponding fields. Press <em>Submit</em> to finalize changes</td>
<td>The media will be uploaded to the server.</td>
</tr>
</tbody>
</table>

### 4.13 USER MANAGEMENT DASHBOARD PAGE
4.13.1 FUNCTIONAL DESCRIPTION

This page allows for banning and editing of users.

4.13.2 FORMAL DESCRIPTION

<table>
<thead>
<tr>
<th>Operation</th>
<th>Steps</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit user</td>
<td>Click the <em>Edit</em> button and choose a <em>&lt;Role&gt;</em> and <em>&lt;Team&gt;</em> from the dropdown. Press <em>Save</em> to finalize the changes.</td>
<td>The user will be updated with the new information.</td>
</tr>
<tr>
<td>Ban user</td>
<td>Click the <em>Ban</em> button</td>
<td>The user will be banned and will no longer have access to the website.</td>
</tr>
<tr>
<td>Unban user</td>
<td>Click the <em>Unban</em> button</td>
<td>The user will be unbanned and will now have access to the website.</td>
</tr>
</tbody>
</table>
A ERROR MESSAGES AND RECOVERY PROCEDURES

- Invalid username or password
  
  **Diagnoses:** The username and password combination is not recognized as valid. This means the username or password is incorrect.
  
  **Recovery Procedure:** None.

- Banned
  
  **Diagnoses:** The user has been banned.
  
  **Recovery Procedure:** None.

- Unauthorized
  
  **Diagnoses:** The user is not authorized to access the page.
  
  **Recovery Procedure:** None.

- Field required
  
  **Diagnoses:** The specified field needs to be filled in before submitting the form.
  
  **Recovery Procedure:** Fill in the field.

- CSV has incorrect length
  
  **Diagnoses:** The uploaded file needs to be in the correct CSV format.
  
  **Recovery Procedure:** Upload a file with the correct CSV formatting.

- Missing title
  
  **Diagnoses:** The media upload is missing a title.
  
  **Recovery Procedure:** Enter a title in the correct field before submitting.

- Please enter a valid URL
  
  **Diagnoses:** The URL corresponding with the media submission is not valid.
  
  **Recovery Procedure:** Enter a valid URL in the correct field before submitting.

- URL was not a valid Youtube link
  
  **Diagnoses:** The URL corresponding with the media submission is not a valid Youtube link.
  
  **Recovery Procedure:** Enter a valid Youtube URL in the correct field before submitting.

In the case of any unexpected error, we advise refreshing the page. If the error persists, please contact SensUs or try again later.
# Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answer Video</td>
<td>A video link containing an answer to a question video.</td>
</tr>
<tr>
<td>Answer Video Status</td>
<td>An answer video can either be rejected, approved or unchecked. That status determines whether a video can be viewed or not.</td>
</tr>
<tr>
<td>Award</td>
<td>A prize that can be won by a team participating in the SensUs competition.</td>
</tr>
<tr>
<td>Biomarker</td>
<td>A molecule, gene, etc. that acts as an indicator of a particular physiological or pathological state of an organism. The biomarker for SensUs 2017 is NT-proBNP. This is a protein that is a biomarker for heart failure.</td>
</tr>
<tr>
<td>Biosensor</td>
<td>A device of a team to measure the concentration of a biomarker in a sample.</td>
</tr>
<tr>
<td>Biosensor data</td>
<td>Data entry for a specific team, containing the following data: the sample number, the sample volume used, the measured concentration, the time-to-result, the measured signal value.</td>
</tr>
<tr>
<td>Chrome</td>
<td>A web browser developed and maintained by Google.</td>
</tr>
<tr>
<td>Correlation Scatter Plot</td>
<td>A scatter plot containing data points mapping the difference between the actual concentration of different samples and the measured concentrations of the samples by each group.</td>
</tr>
<tr>
<td>Dose Response Curve</td>
<td>A graph mapping the dose amount against the response.</td>
</tr>
<tr>
<td>Event Attendee</td>
<td>A user of the SensUs Digital website who is physically present at the SensUs competition event.</td>
</tr>
<tr>
<td>Highlight Video</td>
<td>A short video of a live stream highlighting a certain part.</td>
</tr>
<tr>
<td>iDeal</td>
<td>A payment method that transfers money directly between bank accounts - very popular in the Netherlands.</td>
</tr>
<tr>
<td>Live Video Stream</td>
<td>A video showing real-live content.</td>
</tr>
<tr>
<td>Logged-in User</td>
<td>A user of the SensUs Digital website who has a Google account associated with them. Has extra permissions to vote on teams and submit videos.</td>
</tr>
<tr>
<td>Main stream</td>
<td>A live video stream designated by SensUs to be the central live video stream of the event.</td>
</tr>
<tr>
<td>Matching Rules</td>
<td>A set of rules on how to properly match concentrations to teams.</td>
</tr>
<tr>
<td>Online Viewer</td>
<td>A user of the SensUs Digital website who is not physically present at the SensUs competition event.</td>
</tr>
<tr>
<td>Partners</td>
<td>Organizations that help sponsor the SensUs event.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Partial ID</td>
<td>An identifier for a specific “sample concentration” indicating the actual concentration level and measurement number, but not the team it is matched with.</td>
</tr>
<tr>
<td>PayPal</td>
<td>A payment system using accounts that are linked either to a bank account or credit card. Accounts can then easily transfer money electronically to each other.</td>
</tr>
<tr>
<td>Pre-approved video</td>
<td>A video shows up immediately on the website after being uploaded without being approved by SensUs personnel. However, a pre-approved can still be rejected and deleted by SensUs personnel.</td>
</tr>
<tr>
<td>Question Video</td>
<td>A video link containing a question (only shows up on the Q&amp;A dashboard during processing).</td>
</tr>
<tr>
<td>Question Video Label</td>
<td>A video label (pending, rejected, being answered, coupled) determines if the Q&amp;A video shows up in the Q&amp;A page or not, if it is in the process of being answered and if the video is coupled with an Answer video or not.</td>
</tr>
<tr>
<td>Question Tag</td>
<td>A key word associated with a question video to link it to a team or SensUs. This tag will be used to identify which team (or SensUs) the question is addressed to.</td>
</tr>
<tr>
<td>Unauthenticated User</td>
<td>An online viewer or event attendee using the SensUs Digital website who has the lowest level of permission. Some features of the SensUs Digital website are not available to this user until the user becomes authenticated.</td>
</tr>
<tr>
<td>Regular Video</td>
<td>A video link that only shows up on the control room dashboard when being processed. This can be a video link to a related topic of biomarkers, a live stream link or some other type of video link related to the competition.</td>
</tr>
<tr>
<td>Regular Video Status</td>
<td>A video can either be rejected, approved or unchecked. That status determines whether a video can be viewed or not.</td>
</tr>
<tr>
<td>Regular Video Tags</td>
<td>A tag that categorizes the video based on the type of content and determines under which filters the video will show up.</td>
</tr>
<tr>
<td>Reserve Sample</td>
<td>A sample not associated with a specific team. Will be supplied to a team if necessary.</td>
</tr>
<tr>
<td>Sample</td>
<td>A substance containing a certain concentration of a biomarker. During the competition, samples are provided to the teams, and the teams test the samples in their biosensors. The teams do not know the concentration of biomarker in their samples.</td>
</tr>
<tr>
<td>Sample Database</td>
<td>A database containing information associated with each of the samples. This information includes values such as the actual concentrations of each sample, the team the sample is assigned to and any recorded measurements (by a team) of each sample.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>SensUs Backend</td>
<td>The component in the environment that primary deals with data access.</td>
</tr>
<tr>
<td>SensUs Frontend</td>
<td>The component in the environment that is primary concerned with the presentation layer.</td>
</tr>
<tr>
<td>SensUs Member</td>
<td>A member of the SensUs organization involved in organizing the SensUs event.</td>
</tr>
<tr>
<td>SensUs Personnel</td>
<td>A user of the SensUs Digital website who is associated with SensUs, has all the permissions of a team member as well as some additional permissions.</td>
</tr>
<tr>
<td>SensUs -Related Social Media Activity</td>
<td>Mentions, hashtags and posts of SensUs on all social media platforms.</td>
</tr>
<tr>
<td>Stable</td>
<td>The behavior, functionality, specification or API is considered ‘final’ for that version (no more changes).</td>
</tr>
<tr>
<td>Stock team photo</td>
<td>The photo that represents the team as a whole.</td>
</tr>
<tr>
<td>Summary Graph of Biosensor Data</td>
<td>A correlation scatter plot where the x-axis is real concentration and the y-axis is measured concentration over all teams’ biosensor data.</td>
</tr>
<tr>
<td>Website administrator</td>
<td>A user of the SensUs Digital website who is has the highest level of permissions. Everything that SensUs personnel can do, a website administrator can also do.</td>
</tr>
<tr>
<td>Team Member</td>
<td>A user of the SensUs Digital website who along with a unique email address, is associated with a participating team and has additional permissions relative to a logged-in User.</td>
</tr>
<tr>
<td>Team Photo</td>
<td>A photo submitted by a team member to be shown on the photo gallery.</td>
</tr>
<tr>
<td>Team Photo Status</td>
<td>A team photo submitted by a team member can either be rejected, approved or unchecked. That status determines whether the team photo can be viewed or not.</td>
</tr>
<tr>
<td>Team Poster</td>
<td>A poster supplied by the team for the SensUs competition.</td>
</tr>
<tr>
<td>Team Summary Information</td>
<td>A compact summary stating the name, logo and more of all participating teams.</td>
</tr>
<tr>
<td>Text Answer</td>
<td>A text answer submitted by a team member to a question (question could be either text or video).</td>
</tr>
<tr>
<td>Text Answer Status</td>
<td>An text answer can either be rejected, approved or unchecked. That status determines whether the answer can be viewed or not (paired with the question).</td>
</tr>
<tr>
<td>Text Question</td>
<td>A question submitted by a user to a specific team. The team the question is directed to will be handled in the tag system.</td>
</tr>
<tr>
<td>Text Question Label</td>
<td>A label (pending, rejected, being answered, coupled) determines if the Q&amp;A text question has been answered or not.</td>
</tr>
<tr>
<td>Ubuntu</td>
<td>A distribution of the Linux operation system that can be used to run web servers.</td>
</tr>
<tr>
<td><strong>Video</strong></td>
<td>Either a question video or a regular video.</td>
</tr>
<tr>
<td><strong>Video State</strong></td>
<td>A video state determines if that video is a question video, answer video or regular video.</td>
</tr>
<tr>
<td><strong>Viewing statistics</strong></td>
<td>The total number of views across all videos and the location of those views.</td>
</tr>
<tr>
<td><strong>Viewing statistics status</strong></td>
<td>Can have either be &quot;visible&quot; or &quot;invisible&quot;.</td>
</tr>
<tr>
<td><strong>Voting Heatmap</strong></td>
<td>A graphical representation of voting data across regions on the globe.</td>
</tr>
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