GraviTeam

A User's Guide to the Collaborative Scientific Tool
A Proof of Concept for JPL

SpaceBuffs – CU Boulder '14-'15 Senior Project

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About

GraviTeam

A major difficulty among international scientists is finding a collaborative, social interface where scientists from all over the world can share ideas and design space mission experiments. Our solution is a web based application that uses technology and social media to allow for cross-world communication, design, and experimentation.

SpaceBuffs

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Overview of applications

GraviTeam is a web-based Dashboard that allows you to have multiple mini-applications running at the same time. This provides a seamless atmosphere for scientific interaction and collaboration; allowing experiments to be designed, implemented and discussed. The tool has 5 major features including a user log in, whiteboard, 3D model, timeline, and instant messaging, whose interactions will be discussed below.

1. User Accounts

An integral part of any collaborative application is being able to log in to the system and have your name attached to your collaborations.

1.1 Sign In

From the URL graviteam.meteor.com, click on the sign-in button in the top left corner. Enter in your username and password and then click the “Sign in” button.

1.2 Create Account

If you do not already have an account, navigate to graviteam.meteor.com in your browser and click on the “Sign in” button in the top left corner. Then click on “Create Account” Enter in a username, email address, and password in the appropriate fields. Passwords must be at least 6 characters long. Then click “Create Account”. You will automatically be signed in.

1.3 Account Information

To edit or add personal information to your account, sign in and then click on the “My Profile” tab. Edit or add the information you would like, and press “Submit”.

1.4 Sign Out

To sign out of your account, click on the link that is named after your username with the downward-facing arrow. Then click on “Sign Out”. You will be redirected to the home page.

1.5 Change Password

To change the password associated with your account, you must be signed in. Then click on the link with your username with a downward-facing arrow next to it, and click on “Change Password.” Enter your current password and new password in the appropriate fields and then click “Change Password.” The password must have at least 6 characters long. Your new password will now be what you use to sign in.

2. Chat

This system will be a basic chat window where you can type to your associates on your mission to better convey ideas. Clicking on the “Chat” and “Chat Archive” tabs across the top of the page can access the Chat features.

2.1 Send a message

In order to message the other online users, click on the “Chat” link on the menu tab. A pop-up chat feature will appear. Type the message into the text box and then click “Submit” to send the message.

2.2 Close the chat feature

In the chat pop-up, click on the “Close Chat” link to close the pop-up.

2.3 View the Chat Archive

The message board is saved by sessions, meaning all of the chat messages communicated in a session are grouped together. Users have the option to view the messages sent in past sessions through the Chat Archive. To view messages of a past session, navigate to the Chat Archive tab and enter a date and time in the appropriate format in which the session occurred. Then view and scroll through the messages.

3. Whiteboard

This system will be a window where you can draw pictures for your associates on your mission to see so you can better understand and convey ideas. To access the Whiteboard feature, click on “Whiteboard” from the menu across the top of the page.

3.1 Change Color

To change the color you are drawing with, click on the circle with colors inside on the top left corner of the Whiteboard. Choose the color you would like to draw with.

3.2 Change Pencil Size

You can change the pencil size you draw with by clicking on the pencil icon on the left side of the Whiteboard and then choose the circle of the pencil size you would like.

3.3 Add Text

To add a text box to your drawing, click on the pencil icon, and then the "A". Click on the part of the drawing you would like to add text to and then enter the text in the popup that comes up. Then click "ok".

3.4 Erase

To erase any part of the drawing, click on the pencil icon on the left side of the Whiteboard, and then on the paintbrush icon. Click and drag the eraser on the part of the drawing you would like to erase.

3.5 Save Drawing

To save the drawing currently displayed on the Whiteboard, click on the settings button on the left side of the Whiteboard feature(illustrated with gears). Then click on the save icon and the drawing will begin downloading as a png file.

3.6 Clear Whiteboard

To clear the whole drawing, click on the settings button (illustrated with gears) on the left side of the Whiteboard feature, and then click on the clear button (illustrated with a pencil and a square). This will clear all the drawing and text from the Whiteboard.

4. Timeline

The timeline view exists for every mission, and allows you to see all the experiments being run on the system at all times. You have the ability to click on an event to view the details of it. You can also click the add button to create a new event. The experiments that have been approved will be darker in color than the events that are pending approval. Each type of experiment will have a color associated with it.

4.1 Zoom

To change the time frame that is visible on the timeline, hover the cursor over the timeline and scroll or use the plus and minus buttons to zoom in and out in time.

4.2 Change Timeline Time Range

Use the left and right arrows to move backward and forward in time to view different planned and past activites.

5. Activities

This view allows you to view and edit features of the events of the timeline. If you are just a scientist on the mission, you can request new events or changes to past events. You will have to wait until your supervisor/mission lead approves it before it becomes a solidified event. If you are the mission lead, you can click the final "Approve Changes" button at any time to solidify the experiment.

5.1 Add an Activity

To submit an activity to the timeline, first navigate to the activity form from the navigation bar. Choose an instrument, and click on the "Submit" button to make the activities for that instrument appear. Then from the activity dropdown menu, choose your desired activity. Select a start and stop date for the activity and leave an optional note. Insert a start time in the form: YYYY/DDD-hh:mm:ss.sss, where YYYY is the year, DDD is the day of year, hh the hour, mmm the minute, and ss.sss the seconds and miliseconds. All times should be in UTC. Then click on "Submit" at the bottom of the page. The activity will appear gray on the timeline until a project manager approves the activity.

5.2 Update/Delete an Activity

To update an activity on the timeline, click on the activity on the timeline to get a new window with the activity details. Click on the "Update" button and fill out the form accordingly. Then click "Submit Update" to resubmit the changes to the project manager for approval. To delete an activity, you must be a project manager. The "Delete" button is found by opening the activity details from the timeline.

5.3 View an Activity

Navigate to the timeline and click on the activity on the timeline. A new window will open with activity details.

6. 3D Model

This view is a model view of the spacecraft and its instruments as well as their orientation at a given time. Access the 3D Model by clicking on the "3D Model" tab from the navigation bar at the top of the page. A window with zooming capabilities will open if the picture is clicked on.

7. Project Management

A project manager role is in place to oversee the activities that appear on the timeline. One person is project manager at a time.

7.1 Become a Project Manager

There can only be one project manager per session. Upon log-in, if there is no current project manager, there will be a pop-up to ask if you would like to become the project manager. If you wish to do this and start a session, click okay. There is text under the “My Profile” tab that clarifies whether you are the project manager or not.

7.2 Approve Activities

In order to approve activities for the timeline, you must be the current project manager. To approve an activity, view the details of a grayed-out activity from the timeline. If the activity should be officially added to the timeline, click the Approve button. Then the activity will show up in color on the timeline.
