

# Union Pacific Multimedia Wall CyRIS (May15-19) Design Document

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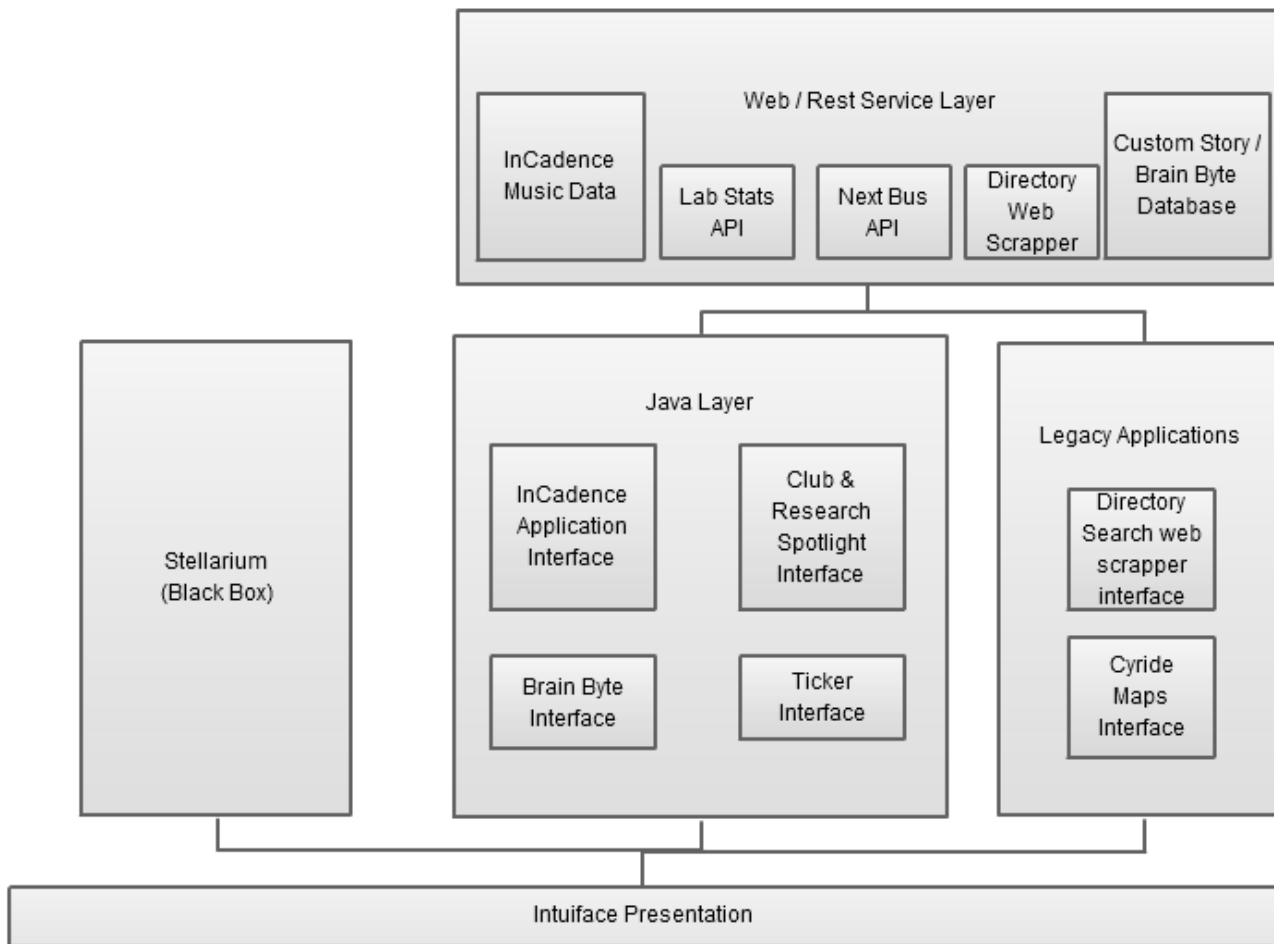
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## II. High Level Architecture Diagram



The four main abstractions in our project are: the existing Intuiface presentation (which will be extended to include our applications), the Java layer containing the code for both our applications as well as the legacy applications, the web service layer that provides various endpoints for the applications in order to pull external data into our project, and the Stellarium black box.

Intuiface's native interface asset element will be utilized to display web data from specific ISU-related feeds if possible.

Our Java layer will contain the front end code supporting multi touch gestures that will allow users to interact with applications in a meaningful way.

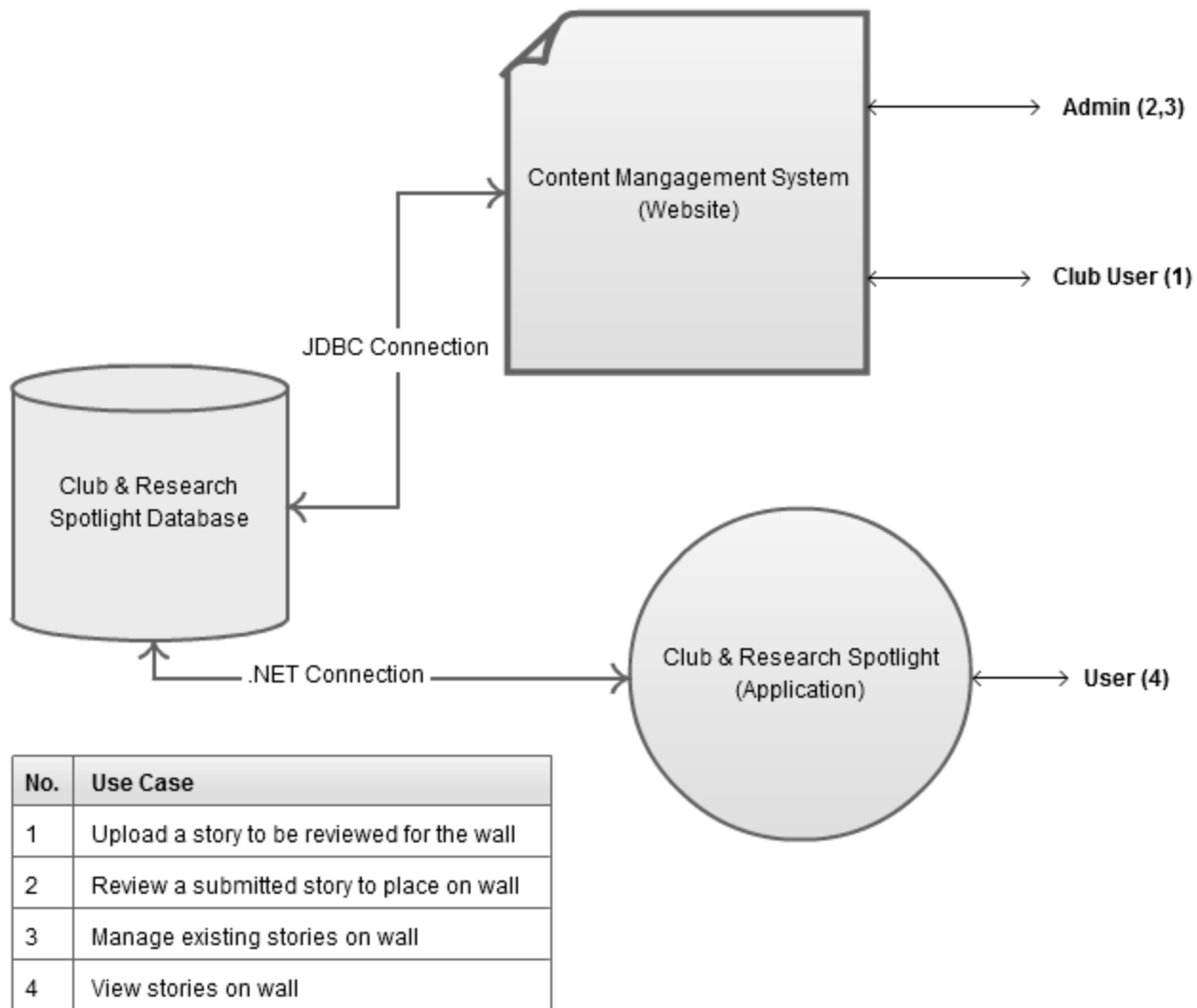
The web services we leverage will return staff directory information, InCadence music data, club & research spotlight information, Cyride information, lab stats information, brain byte information, as well as any other external data that may become useful for the applications.

The Stellarium black box will be a C component utilized through an interface. It will give us star data - pulling from its own external resources as well as other features.

### III. User Interface Design Layout

## IV. Module Architecture Diagrams

### Club & Research Spotlight



In the Club & Research Spotlight application, users will be able to see stories from different clubs and research as well as photos and videos associated with them. Users will be able to scroll through several stories and expand ones they're interested in.

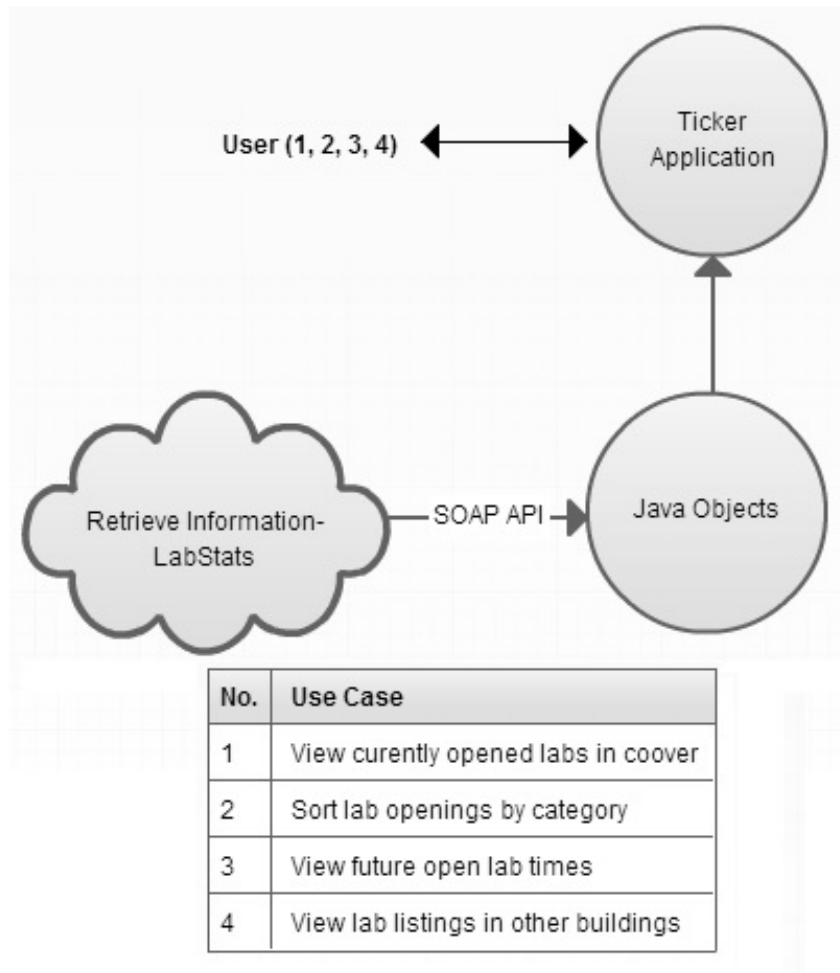
Additionally, club members can apply to be an approved content submitter. There will be several administrators approving content and club users. This will regulate the content on the main screen and prevent inappropriate content from showing to the university.

The Database will have the following tables:

<b>Content Table</b>	<b>User Table</b>
Content ID (Key)	User ID (Key)
Content Text	Username/email
Content Submitted ID	Password
Content Approved ID	Approved
Content Photo	Admin Status
Content Video?	
Content Date	
Archived Date	
Content Title	

These tables will keep track of the content and users the management system.

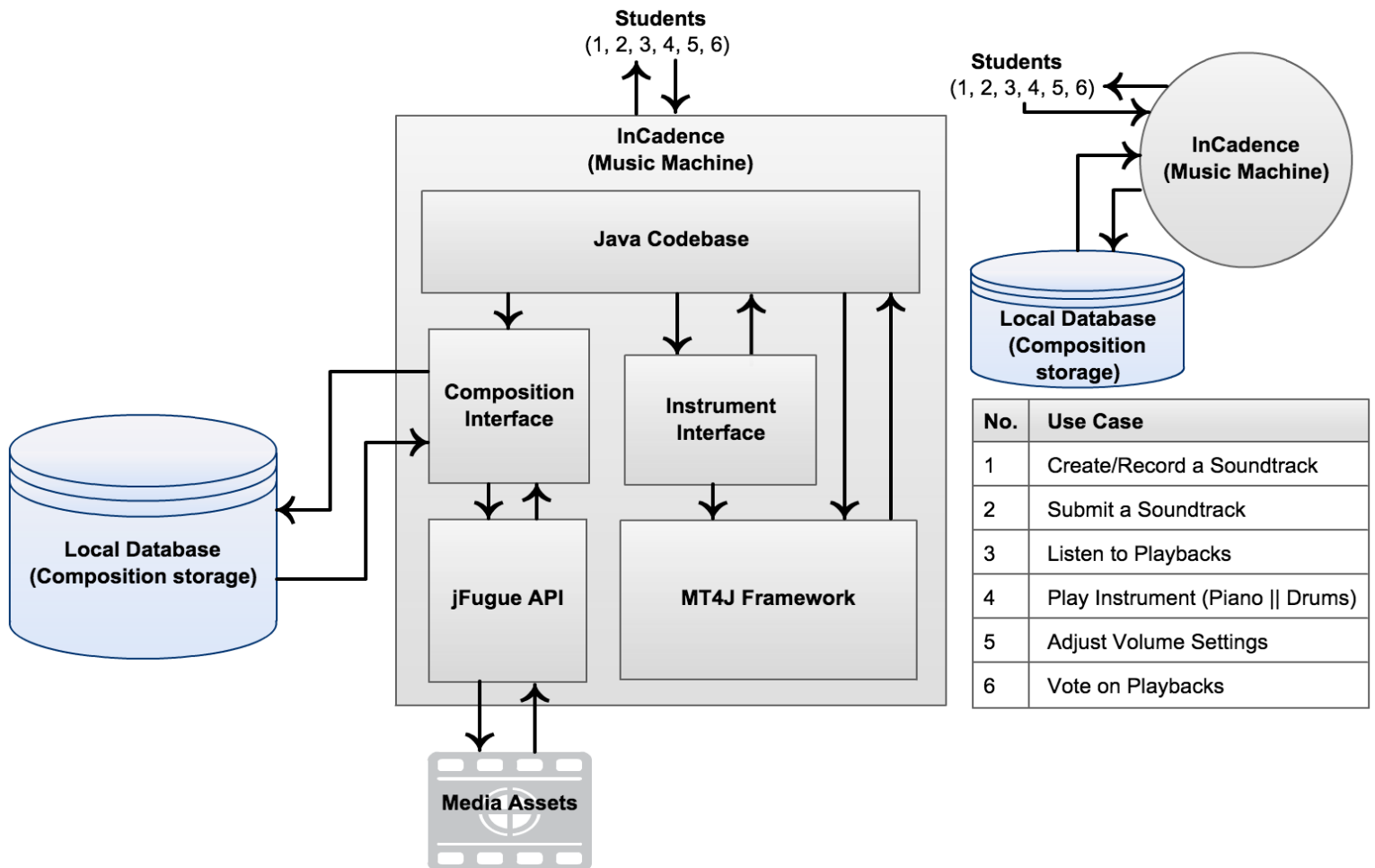
## Ticker



The Ticker application will be built on top of the Intuiface platform while utilizing a few Java and JavaScript components to display lab information. The Ticker will take advantage of the Intuiface's custom asset capabilities to accomplish this. The application will also utilize multi touch capabilities in order to view additional lab information. By using Intuiface's built in communication/polling services, lab information regarding open rooms, operating systems, open work stations, etc., will be retrieved through the LabStats SOAP API.

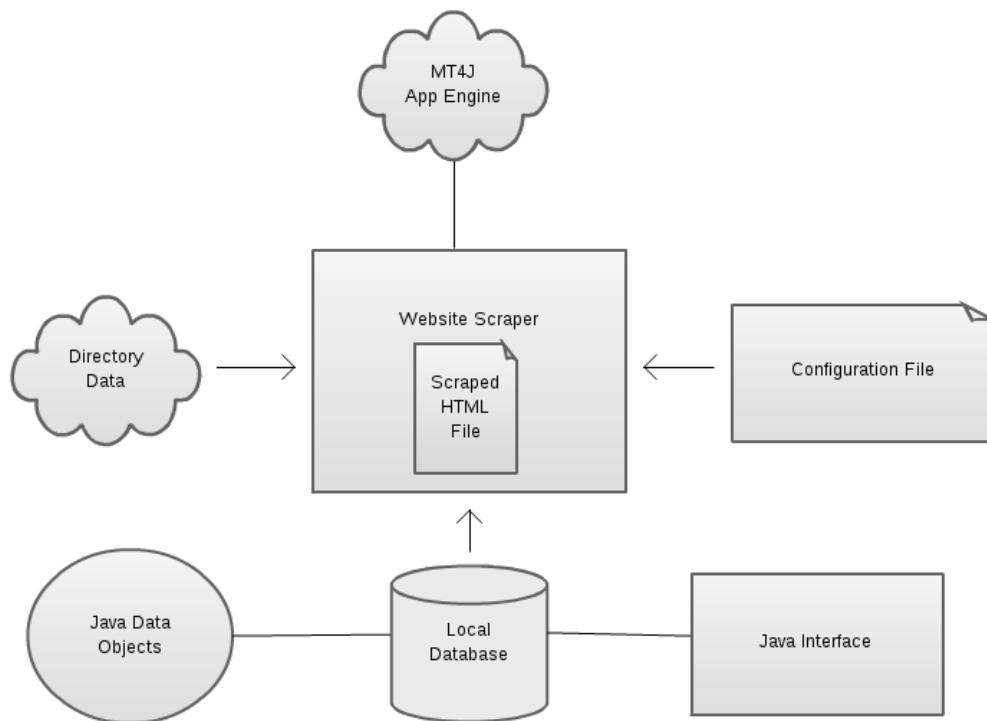


## InCadence (Music Machine)



In the InCadence (Music Machine) application, we have a codebase running the main application through Java. Inside this code, we have two interfaces. The instrument interface, used to play various instruments, as well as the main GUI are built on top of the MT4J (Multi-touch for Java) Framework. The composition interface, which deals with playing, recording, uploading, etc., is built on top of the open-source jFugue API that uses MIDI media assets to play music and rhythms through what is called music strings. The composition interface is also integrated with a local database for storing uploaded compositions. The database can be referred to in order to access playbacks of stored compositions as well.

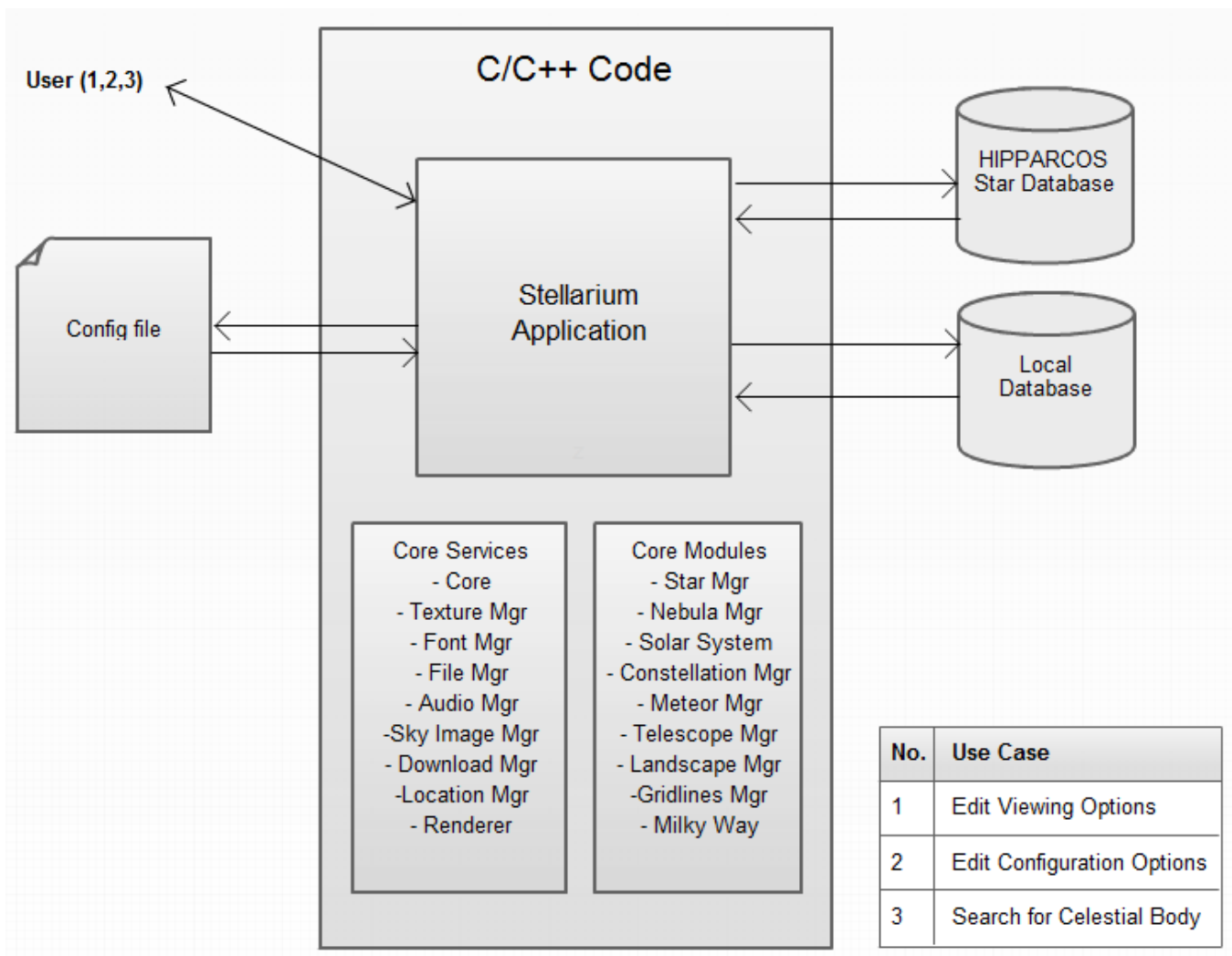
## Directory Search



This design is from the Phase 1 team. We will be creating a new java application while utilizing the web scraper previously implemented. The following description of the web scraper is from the phase 1 design document.

In the Staff Directory Application, we will periodically parse and save data from the Iowa State University engineering staff directory into a local database. To do this, we will be utilizing the Java library JSoup. The database will be emptied and repopulated with each call. This data will then be displayed in a Java application interfaced with the content manager. This application will display the staff directory in a similar manner to that of the online version except without requiring to scroll through pages of information and giving the user internet access.

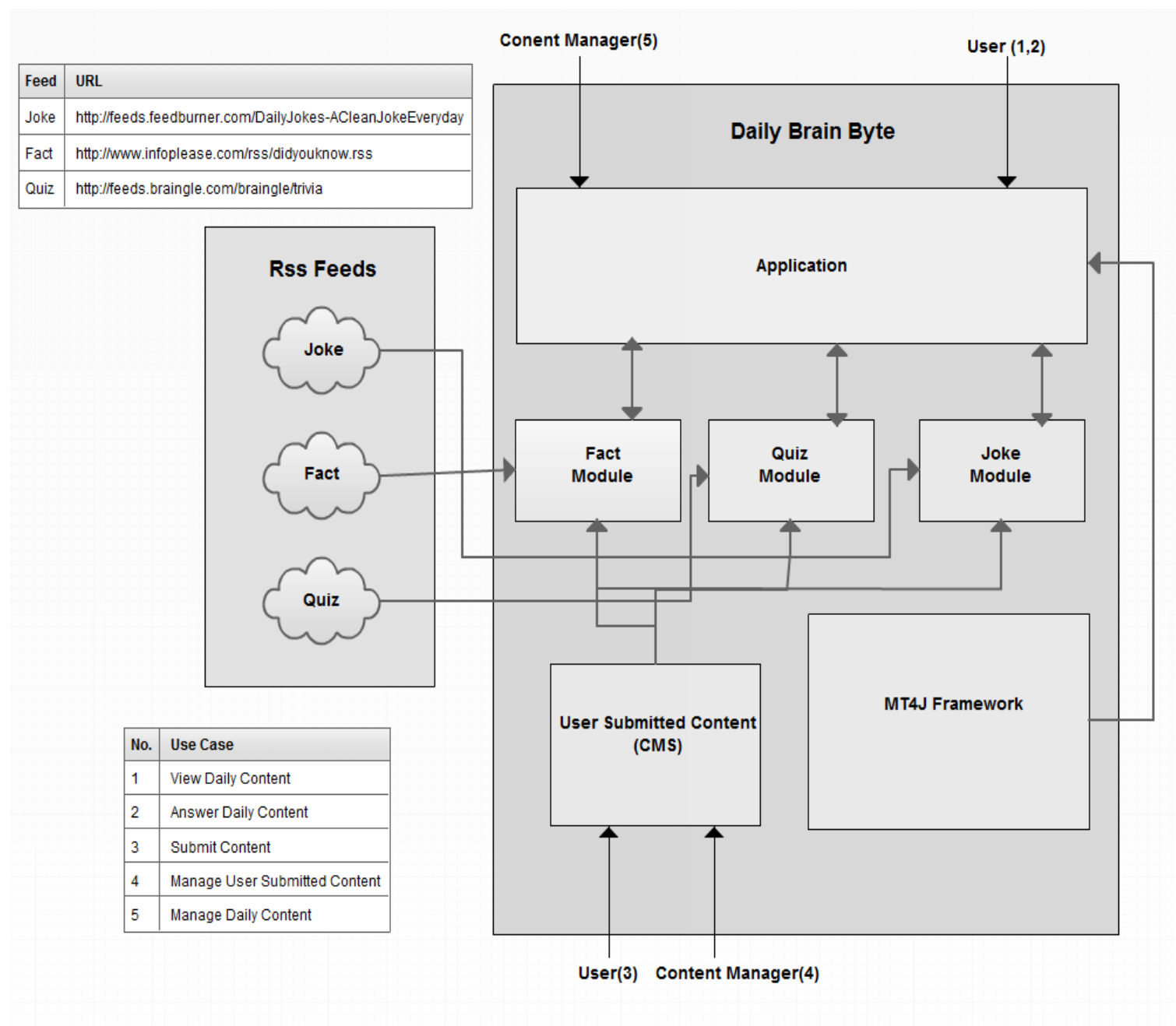
## Stellarium (Black Box)



The Stellarium application will be a two-tiered application. One part of it will be a screensaver, and the other will be an interactive star-exploration application.

The screensaver will automatically trigger from 8pm to 8am after 5 minutes of inactivity on the wall. The screensaver will be a real time image of the constellations in the night sky. The screen will also have a touch to start text across the center of it. Upon a user touch event, the screen will return to the Intuiface home screen.

## Daily Brain Byte



The Daily Brain Byte application will display a daily joke, fact and quiz. The application gets this information from the respective fact, quiz or joke module. Each module is connected to an RSS feed which is updated daily with a new joke, fact and or quiz. The application will be built upon the MT4J Framework. Users are able to submit content via a Content Management System and a content manager is able to view, edit and delete content that has been submitted.

## V. System Integration